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Overview

This report is a guide to the 1000 largest pharmaceutical companies in the world by value as of September 15, 2020.

We thank you for taking the time to review this report. We hope to give you a greater sense of the global scale of the pharmaceutical industry and its extraordinary growth. We also, of course, wish to recognize the companies who appear on the Pharma 1000 list for the accomplishment of becoming a top company in one of the world’s most important and challenging industries.

Torreya is an active healthcare investment banking firm. We act as a frequent advisor to pharmaceutical companies on M&A deals, asset sales and licensing transactions. Driven by the need to understand the various players in the sector, we have prepared a listing of the top companies in the biopharmaceutical sector since 2012 for our own use. This year, we are sharing the list with an educational goal in mind.

In October 2017, we published “The Future of the Global Pharmaceutical Industry”. The reader of that report will find a detailed discussion of Torreya’s pharma database and related sector analysis. In this report, we will provide a full listing of the top players in the industry and more detail about the players with extensive analysis.

A key aspect of this report is the detail provided on the top 500 companies. By taking the time to read through the profiles of the top companies, you are likely to add to your knowledge of the pharma industry and gain insights into the trends that are shaping it.

Each year that we create and review this list, we are struck by how large and dynamic the pharmaceutical industry has become. There has been tremendous change in the industry in just eight short years as widespread global pricing restrictions have caused companies focused on less innovative drugs to lose value while innovators have gained value.

As we write this report much of the world is watching the pharmaceutical sector with exceptional interest because of its relevance to the COVID-19 pandemic. The stakes are high. The medicines developed by the pharmaceutical industry have been, are and will be incredibly important to the health and progress of the human race. The companies mentioned in this report collectively have the ability to restore the economic and social behaviors of the world as we knew them pre-pandemic.
We hope that by reading this report, you will come to better appreciate the pharmaceutical sector’s inventiveness, its globality, its diversity and, also, its fragility. Policymakers in many countries have regulated the pharmaceutical sector in ways that have not been conducive to long-term investment in innovation. While at times, companies can enjoy great profit, the norm of the industry is struggle. Rapid technology change, all too brief patent lives and vigorous competition make the pharmaceutical sector a less than hospitable place in which to operate. A look back in time reveals countless pharmaceutical companies that are no longer in business or that have become less relevant to the industry and the patients they serve.

By watching these rankings over time one cannot help but be struck by the competition that characterizes the development and marketing of pharmaceuticals. One cannot help but be struck by the courage, at times foolhardiness, of the individual entrepreneurs who start and run biopharma companies. And, finally, one cannot help but be struck by how much individual companies in the sector share in common. Whether a Chinese state-owned enterprise, a Bangladeshi manufacturer of generics or a dynamic San Francisco biotech, all companies are united in their fight against disease, the need to marshal employees and science in the fight and the importance of governments and policymakers as allies in facilitating the goals that each is pursuing.

We at Torreya have travelled globally to meet a great many of the companies in this guide and have consistently noted the seriousness of purpose and passion held by each.

In our travels, we have noted that the industry is highly fragmented. In some countries there are pharma industry associations but there is no global industry group focused on education, the sharing of best practices and the like. Many executives are well networked but the sheer scale of the industry makes it difficult to go beyond obvious boundaries.

We have also noted that many executives tend to have a frame of reference that can be quite local. Local in a geographic and often linguistic sense but also in a sectoral sense. Biotech CEOs tend to compare themselves to other like biotechnology companies. Similarly, the giant swath of the industry that is focused on the marketing of branded generics tends to pay little attention to biotech and the rapid acceleration of scientific innovation and associated importance of AI and technology to the sector. Our hope is that each of you that reads this guide will come to better appreciate the diversity of the industry and the shared interests held by all in it and society as a whole.
Key Trends

There are a number of noteworthy trends apparent in the 2020 Pharma 1000:

1. **Rapid emergence of the Chinese pharmaceutical sector.** The Chinese pharmaceutical sector has not been particularly visible as many of the larger players in that market are privately held, typically state-owned or state-influenced. The Chinese government has made conscious efforts in the last decade to modernize its pharmaceutical industry and to promote the use of innovative drugs for its people. As a result, the Chinese pharmaceutical sector has added over $500 billion in value in the last five years and is up well over 100% in that period. This is the big change in our ranking.

2. **Big pharma role shrinking.** We have noted before that big pharma is growing slowly and not keeping up with the sector overall. We have seen the largest eighteen pharmaceutical companies in the world exhibit tepid growth while the sector as a whole flourishes. By our estimate, the eighteen largest pharmaceutical companies accounted for 54% of the total value of the pharmaceutical sector worldwide in 2015. Today, the eighteen largest pharmaceutical companies account for less than half of the industry’s value. There has been an increasing democratization of the pharma sector due to rapid growth in China, in biotech and in animal health.

3. **Rapid rise of biologics.** If one were to go back 50 years, almost the entire pharma sector would have been built around small molecules and natural products. By 2003, roughly 10% of the sector by value came to comprise biologics of various sorts. By 2015 companies focused on biologics accounted for roughly a fifth of sector value. Today, these biologic products account for a third of sector value and small molecules account for less than 60% of the value of the sector.

4. **Biotech in hypergrowth.** The biotech sector in the U.S., Europe and especially Asia has seen tremendous value accretion. This has been particularly true for companies focused on oncology and rare diseases. We have also seen substantial value gained by companies focused on new modalities including cell therapy, gene therapy and nucleic acids. The biotech sector has gone up in value by over $250 billion in just five years. Today, biotech accounts for 6.3% of the total value of the pharmaceutical sector versus 3.3% in 2015.

5. **INN Generic sector down.** We divide the generic pharmaceutical sector into two sub-segments: INN generics - true generic products meant to be substituted for off-patent brands, and branded generics – products that are not designed to be substituted and often receive
promotional investment. The INN generic sector has suffered declines in value in the last year as the result of greater entry and price competition in this market. Since 2015, the top 10 INN generic companies have gone from comprising 6.4% of the global pharma value pie to less than 4% today – approximately a 33 percentage point loss in value on a relative basis.

There are many important sub plots playing out at the same time including high growth in Latin America, emergence of an impressive Korean biotechnology sector, decline in parts of Europe as the result of strict price controls and severe declines in the U.S. branded pharma sector due to payor pressure and excessive leverage. We also note a growing cadre of companies that are leveraging the large potential market for targeted therapies guided by biomarkers and diagnostic tests.

**Inclusion Criteria**

To be included in this guide a company had to be primarily focused on the production and marketing of pharmaceutical products or to be directly involved in the marketing of such products, to derive revenue from such marketing activities (including royalties) or to be doing research with the intention of developing marketed pharmaceutical products. We excluded companies whose primary business involves OTC products (e.g., Genomma), whose primary business involves manufacture of pharmaceutical API or intermediates but not end products (e.g., Recipharm) and companies whose primary business involves providing services to the pharmaceutical industry (e.g., PPD).

In practice, it is not uncommon to find a pharmaceutical division embedded inside a larger company. Where the division was significant in size but less than 80% of the total value of the enterprise, we then estimated the value of just the pharmaceutical segment. For example, Yakult of Japan operates a highly successful yogurt drink business but also runs a separate branded pharmaceutical business. We extracted financial data on the pharma segment and estimated the value of just that segment for our rankings. As you might imagine some larger industrial companies fail to break out the value of their pharmaceutical businesses altogether. In some cases we have been able to piece together the financials for the pharmaceutical business. In other cases we have not been able to do so.
Approach to Valuation

Our principal metric for ranking pharmaceutical companies is market value. The argument for value rather than revenue or profit is that provides a sense of the economic importance of a company looking forward. We value each publicly listed company using their enterprise value as this reflects the market’s valuation its operations. This is computed using the market close price of a company’s common shares on September 15, 2020 multiplied by the number of common shares outstanding as of the last reported financing period. If a company had shares associated with convertible and/or preferred instruments that were in the money or close to in the money, we attempted to include these in the share count as well. We then subtracted cash and liquid securities and added back any debt to arrive at enterprise value. All of this is done in U.S. dollars although we track results for many companies in their home currency so that we can update our valuation ranks in response to currency movements.\(^1\)

Compiling a ranked list of public and private pharmaceutical company values involves a number of challenges including accounting for embedded stakes, avoiding counting of non-pharma value, avoiding double counting of value, dealing with the lack of data for private companies, dealing with the impact of capital flow restrictions on values in certain markets and properly adjusted for currency movements.

It is not uncommon to find that one company in our report owns a stake in another company which is also included in this report. This could lead to double counting of the same value were an adjustment not made to remove the effect of the ownership stake on value. For 100% owned subsidiary companies, we excluded the subsidiary. But, for majority or minority owned subsidiaries we deducted the value of the ownership stake from the larger company’s value estimate. This had the effect, of course, of depressing the valuation of the lead member of

\(^1\) For many (but not all) companies we track their financial information in the home currency and converted to the US dollar on Sep 15, 2020 using the following exchange rates: EUR - 1.18; DKK - 0.16; MAD - 0.11; JPY - 0.095; TRY - 0.13; GBP - 1.29; CHF - 1.1; CNY - 0.15; RUB - 0.013; BRL - 0.19; INR - 0.014; KRW - 0.00085 and VND - 0.000043. These exchange factors would be multiplied by local currency to derive US dollar equivalents.
certain industrial groups – most prominently Roche. Roche’s stake in Chugai at the time we wrote this was $43.1 billion.

For privately-held companies we were not able to obtain a traded share price and instead imputed a valuation in most cases by multiplying a company’s most recently reported revenue figure by the median ratio of enterprise value to revenue for comparable publicly traded companies. In some cases, we had good information on other financial metrics and estimate value more precisely using other financial ratios. For each company, we document the approach used. Our experience is that privately imputed values provide a rough but far from perfect impression of how a company trade on the public markets. Over the years, we have seen many companies that we valued on a private basis go public. On average, we have noted that our estimates of value have turned out to be conservative and that the private companies turn out to trade for more than we estimated in most cases. We do not use private company discounts as we want to compare private and public companies on a like-for-like basis.

Obviously, our method for estimating private pharmaceutical company value is crude and can miss many relevant factors such as profitability, upcoming patent expirations, quality of a company’s pipeline (if any), its competitive environment and ability to sustain price, the quality of management, and its growth prospects. We wish we could provide better estimates of value for private companies and encourage you to understand that our estimates of value are approximate and meant to provide a sense of the magnitude of the value of a company rather than a precise point estimate.

We further note that many private companies do not provide any information on their underlying financials and rather than guess what these numbers might be based on market hearsay we have chosen to omit such companies from our ranking. For example, based on its operating scale and known royalties, we believe Debiopharm to be quite a valuable company. But, Debiopharm does not disclose its financials at all so we have omitted this company from our ranking. We count at least a dozen companies that we believe should be included in the Pharma 1000 based on what we believe their financials to be.

It is not uncommon to find a private company that discloses its financials in a given year – say 2018. We don’t have this company’s financials for the most recent year, say 2019. In such a case, rather than omitting this company altogether we have taken the liberty of carrying forward its last known financial data to the most recent period to form a value estimate. This is noted in each case where we have done this for one of the top 500 companies.
We found a number of pharmaceutical businesses embedded inside larger enterprises with significant business interests in other areas. This is true, for example, of J&J, Merck KGAA, Bayer and many others. To avoid overstating the pharma value of these enterprises we used segment data to identify the revenue and profitability of the pharma business. We then treated the segment as if it were a private company. That is, we valued the segment using revenue or profit multiples as appropriate.

Some of the information in this report may be incomplete and in error and is subject to the disclaimer on p. 375.

A further complicating factor is that the capital markets value companies differently across the world. A number of large markets are subject to restrictions on capital flows which means that a global value equilibration process is unlikely to take place. This is particularly notable in the case of China which restricted foreign investment into its equity markets and also has strong controls in place on the outflow of currency. China, of course, is not alone and certain other markets may have valuations that are different than those elsewhere in the world due to market structure. Bangladesh come to mind. We have fit multiple regression equations to valuation models that include indicator variables for various types of companies and have determined the following:

- Generic companies should be valued differently than others. We use multiples for generic companies that are specific to that industry across the world. We looked at whether injectable generics, biosimilars, INN generics, branded generics and Chinese generics companies had statistically different multiples. We found that biosimilar companies trade at much higher multiples but that, otherwise, multiples among other types of generic companies are not statistically distinguishable from each other. We also classify emerging markets vaccine players such as Biological E as biosimilar companies as they make what are essentially biologically equivalent vaccines. Their publicly traded equivalents trade at valuations that are as high if not higher today than makers of biosimilar antibodies and biologics.

- Japan branded pharmas trade at lower multiples than the rest of the industry. This is linked to the fact that many Japanese companies face mandatory annual price cuts in long-listed brands from MHLW.

- Otherwise, branded pharmaceutical companies follow similar valuation patterns around the world. That is, a Korean branded pharmaceutical company will have a statistically indistinguishable revenue multiple from its equivalent in either Iowa, Denmark or Argentina. As a result, we use a common multiple for all branded companies outside of Japan. We further checked to see if big pharma, animal health and blood products
companies traded at different multiples and found that their multiples were statistically indistinguishable from branded pharmaceutical companies as a group.

- Companies whose business model is to solely collect royalties are valued at higher revenue multiples than operating companies given that they do not have much in the way of operating costs.

Table 1 shows the median revenue multiples of publicly traded companies in the Pharma 1000 list as of September 15, 2020.

**Table 1.** Median multiples of publicly traded companies in the Pharma 1000 list.

<table>
<thead>
<tr>
<th>Group</th>
<th>Number of Companies</th>
<th>Median Ratio of Enterprise Value to Revenue, Sep 2020</th>
<th>Median Ratio of Enterprise Value to EBITDA, Sep 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biosimilars</td>
<td>21</td>
<td>10.1x</td>
<td>35.0x</td>
</tr>
<tr>
<td>Branded Pharma</td>
<td>149</td>
<td>6.6x</td>
<td>19.4x</td>
</tr>
<tr>
<td>Generic Pharma</td>
<td>239</td>
<td>3.6x</td>
<td>20.0x</td>
</tr>
<tr>
<td>Japan Pharma</td>
<td>31</td>
<td>2.09x</td>
<td>11.3x</td>
</tr>
<tr>
<td>Royalty Receivers</td>
<td>6</td>
<td>12.0x</td>
<td>8.73x</td>
</tr>
<tr>
<td>Overall</td>
<td>603</td>
<td>6.23x</td>
<td>18.7x</td>
</tr>
</tbody>
</table>

Source: Torreya analysis.

We use the above table to impute valuations for private companies and public company segments. In general, we used revenue multiples rather than EBITDA multiples.

For publicly traded companies we have relied upon annual reports and share price estimates from local exchanges as compiled from readily available information sources.\(^2\) For private company information we have relied upon web sites, industry knowledge, credit reports, news stories and the like.\(^3\)

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\(^2\) We relied on S&P CapitalIQ and EMIS as key databases for financial information on publicly listed companies. CapitalIQ is remarkably comprehensive in its coverage but misses a number of publicly traded companies in countries such as Iran and Vietnam. We were able to get information on companies in these geographies from EMIS.

\(^3\) We relied upon many resources and databases for private company information. Many Chinese and European private companies provide financial information on their websites. In Brazil, some Balkan countries, India, Japan and Russia, companies file their accounts with the government and they are publicly accessible. We relied upon D&B, credit rating agency reports, EMIS and Tofler to access much of this information.
We are, of course, not the only group to have compiled a league table of the largest pharmaceutical companies. Perhaps best known is the Scrip 100 which ranks the top one hundred players by pharmaceutical sales (this was last published in *In Vivo* in Dec 2018 based on 2017 revenues). *Pharmaceutical Executive* magazine also provides useful industry rankings. Often used are rankings derived from IQVIA data or EvaluatePharma. Each source has its advantages and we would note that the general advantage of the approach taken here is that it relies upon accounting data provided by pharmaceutical companies about their net revenues rather than imputed revenues associated with prescriptions that are seen in the trade. EvaluatePharma takes an approach similar to ours and provides much more detail on publicly traded companies and other top players but does not delve as deeply into the details of private or smaller public pharmaceutical companies where analyst reports and accounting data are not readily available. To illustrate, the PharmaExec 50 list for 2020 is drawn from EvaluatePharma and does not include fourteen of the world’s most valuable pharmaceutical companies – eleven of which are privately held. Our top 50 revenue producers list overlaps the PharmExec 50 much more closely (six names on our list are not included in their list – four of these names are privately held Chinese companies which are quite challenging to track; the other two names are Zoetis and Abbott’s EPD business). Scrip’s listing also omits a number of relevant players.⁴

The disadvantage of the approach taken here versus IQVIA and EvaluatePharma is that those resources provide precise information on the revenues of specific drugs by location while we are only able to provide information at the more aggregated company level.

For the sake of brevity and the preservation of global forests, we have paused at publishing profiles on the top five hundred pharmaceutical companies by value but, in practice, we track and rank thousands more. We employ composite information from our larger database to describe the evolution of the pharmaceutical sector in the sections that follow.

**Find Us Online**

You can find more details about the Pharma1000 and updates to this guide and associated research pieces at torreya.com/publications/publications.php.

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⁴Our 2020 Top 100 list overlaps the last Scrip 100 list by 57%. The Scrip list is thoroughly researched but orders companies by the level of pharma revenue two years earlier whereas we order by value – a highly correlated but different metric. The result is that we include some highly valued early stage commercial companies such as Alnylam that are not in the Scrip list. Scrip gets some but not all of the top privately-held Chinese and Latin American companies and does not include either Elanco / Zoetis (animal health) and two blood products companies that fall into our list – most likely to difference in inclusion criteria.
We welcome your thoughts, corrections, additions and suggestions. Please direct these by email to Allison Bobzin (allison@torreya.com) or by phone at +1-212-257-5801.

Acknowledgements

This report has been a number of years in the making and we wish to thank the many companies who reviewed their information and provided corrections and updates. Most importantly, we would like to thank Megan Ledger, who dedicated two years of her life to compiling the list used here. Megan went far and wide to meet the companies in this guide to make sure that we had their stories right. She travelled to China and spent time with various experts there in an effort to sort out the players in that vast country. The contributions to this report of Margaux Babich, Allison Bobzin, John Bradley, Brandon Chang, Elizabeth Condo, Masaki Doi, Weijun Gu, Kylor Hua, Hansruedi Kottmann, Hayley Kunzli, Nitin Lath, Brendan Latimer, Andrew Ledger, Allen Lefkowitz, Stephanie Leouzon, Jeremy Lin, Jie Liu, Jocelyn Lyu, Avi Margulies, Olivia Morales, Mark Simon, Zanna Stephan, Mara Walton, Sonata Winchester, Hank Wu and Teresa Yiu are gratefully acknowledged. The cover photograph is from Getty Images.

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The Evolving Pharmaceutical Industry

The Torreya Pharma Database

Torreya has tracked the pharmaceutical industry as part of our base business since 2010. Starting in 2012, we began to compile a database of every known company in the industry (at least companies that we knew of) and to assign values to those companies based on either market data or revenue and profitability multiples when market data were not available.

No one knows for sure, but we estimate that there are more than 10,000 companies who are involved in finding and developing new drugs (we call these biotech companies) and many thousand more who are involved in the commercialization of pharmaceuticals across the globe.

We have curated this very large database of companies into a more manageable database that we track and research for the purpose of carrying out this ranking. As of September 2020 this database contained approximately 1,800 companies.

Size of the Pharmaceutical Industry

One of the benefits of a comprehensive and deep database of the industry is that it becomes possible to size the entire pharmaceutical sector and to track its movement over time.

By our estimate, the total value of the global pharmaceutical sector as of September 2020 was $6.65 trillion. The UN estimates that the world’s population is 7.8 billion persons. This implies that the pharma industry is worth $820 in capitalized value for every living human.

The $6.65 trillion in value is largely held by publicly traded companies which have $5.65 trillion in value and privately held companies which, by our estimate, account for $1 trillion in value.

Also noteworthy is the rapid growth of the industry’s value.
Figure 1. The value of the pharma sector has tripled in the last 17 years.

Aggregate value of the global pharmaceutical industry ($trillions)

$1.99 $3.76 $4.31 $5.16 $5.02 $5.28 $5.35 $6.65

This chart is based on an analysis of up to the top 2000 firms in the 2003 to 2020 period. Excludes pharma services, API, CDMO, OTC players. Includes public and private biotech, branded pharma companies, royalty companies and animal health pharma companies. The private revenue generating companies in the list are generally valued based on publicly traded company typical revenue multiples times revenue. Major sources: Bloomberg, CapitalIQ, EMIS, Torrey analysis.

Figure 1 shows that the aggregate value of the global pharma sector as of September 2020 was $6.65 trillion. The value is up 24% in the last year and up 54% since 2015. The overall industry trend has been towards rising valuations reflecting the underlying growth of the sector and globalization of pharmaceutical consumption. The industry value CAGR since 2003 has been 7.4%. Over the last 17 years, the value of the industry has tripled, reflecting exploding demand for medicines.

It is not uncommon for analysts to assess the market by total spend. The total trailing revenue of the companies in our database is $1.22 trillion. This is somewhat higher than IQVIA’s estimate of $955 billion in spend on medicines in 2019. As noted earlier, EvaluatePharma looks at net revenues from company level data. They estimate that the size of the global prescription market in 2019 was $844 million. This lower estimate is most likely reflective of the universe of public companies that comprise their database.

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5 See Global Medicine Usage Trends and Outlook to 2024, IQVIA Institute, March 2020.

To put the scale of the pharmaceutical sector in perspective we compiled data on all publicly traded companies across the global economy tracked by S&P’s CapitalIQ database in September 2020. These data sum valuation by all global industries for publicly-traded companies and permit a comparison of the relative size of the listed pharma sector to other industries.

**Table 2. Pharma Aggregate Value Versus Other Industries, September 2020**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Sector</th>
<th>Aggregate Enterprise Value ($Trillions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Banks, Insurance and Finance</td>
<td>$18.5</td>
</tr>
<tr>
<td>2</td>
<td>E-commerce + Internet Services</td>
<td>$6.0</td>
</tr>
<tr>
<td>3</td>
<td>Pharmaceuticals (public companies only)</td>
<td><strong>$5.65</strong></td>
</tr>
<tr>
<td>4</td>
<td>Software</td>
<td>$4.2</td>
</tr>
<tr>
<td>5</td>
<td>Integrated Oil and Gas</td>
<td>$3.6</td>
</tr>
<tr>
<td>6</td>
<td>Technology Hardware</td>
<td>$2.9</td>
</tr>
<tr>
<td>7</td>
<td>Semiconductors</td>
<td>$2.4</td>
</tr>
<tr>
<td>8</td>
<td>Electric Utilities</td>
<td>$2.4</td>
</tr>
<tr>
<td>9</td>
<td>Integrated Telecom Providers</td>
<td>$2.2</td>
</tr>
<tr>
<td>10</td>
<td>Automobile Manufacturers</td>
<td>$2.0</td>
</tr>
</tbody>
</table>

*Source: S&P CapitalIQ, Torreya analysis, September 2020*

As noted in Table 2, the pharmaceutical industry, in aggregate, is the third most valuable industry in our economy - at least if one looks at the value of public companies worldwide. Both financials and e-commerce/internet is bigger.

The total value of all public companies across all sectors in September 2020 was $116 trillion, implying that the pharma sector comprises roughly 5% of the total public market valuation on the world’s exchanges. The healthcare sector as a whole has an aggregate market value of $11.4 trillion, which means it comprises roughly 10% of the value of the world’s public markets.
Evolution of Pharmaceutical Industry by Sub-Sector

We view the pharmaceutical sector as comprising eight distinct subsectors:

**Big Pharma.** Companies that are in the world’s top 18 by value. These companies are often referred to as “Big Pharma” and principally comprise branded innovative companies that seek to market drugs in all major global regions.

**Animal Health.** Companies that principally market animal health products. We track 26 companies in this sector.

**Biotechnology.** The phrase biotechnology is used to denote many different things in our industry. We define biotechnology companies in a very precise way. Biotechnology companies are those who are developing drugs but do not yet market a drug themselves. We track several thousand biotechnology companies.

**Branded Pharma.** Branded pharmaceutical companies market on-patent drugs but are not in the Top 18 group. Sometimes the phrase “specialty pharma” is used to denote companies that focus in on a specific area such as women’s health.

**China Pharma.** The China pharma sector is quite large and we track it on its own. This sector almost exclusively markets branded generic products to the Chinese population and is starting to market patented products. There are some companies in China that are in animal health or biotechnology. We classify these as “Animal Health” or “Biotechnology”

**INN Generics.** Marketers of INN generics formulate and sell generic products principally in markets where the choice of product is made at the level of the pharmacy rather than by the physician or consumer. INN generics are truly substitutable.

**Branded Generics.** Unlike INN generics, the choice of branded generic products is made by either the physician or consumer. These products are off patent but are typically marketed by a sales force and are not substitutable at the pharmacy level. In almost all countries outside of

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7 There are some companies that have developed commercial stage products that have been licensed out to others but themselves do not have a marketed drug (e.g., Genmab). We classify such companies as being in biotechnology or “biotech” for short.
the United States and Europe, the generics market operates in this way and pharmaceutical companies aggressively market generic products and associated brands to doctors.

**Royalty Companies.** A small but increasing number of pharmaceutical companies pursue a strategy of acquiring royalties and milestones associated with other companies’ products and do not market any products of their own. We call these royalty companies.

**Table 3.** Evolution of Pharmaceutical Industry Value by Subsector, 2015 to 2020

<table>
<thead>
<tr>
<th>Subsector</th>
<th>Count - 2020</th>
<th>Value ($mm 2020)</th>
<th>Value Share 2020</th>
<th>Value ($mm 2015)</th>
<th>Value Share 2015</th>
<th>Percent Change in Value ('20 vs '15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Pharma</td>
<td>18</td>
<td>3,167,077</td>
<td>48.0%</td>
<td>2,624,982</td>
<td>54.4%</td>
<td>-5.6%</td>
</tr>
<tr>
<td>Branded Pharma</td>
<td>274</td>
<td>1,413,648</td>
<td>21.4%</td>
<td>1,067,622</td>
<td>22.1%</td>
<td>-0.7%</td>
</tr>
<tr>
<td>Branded Generics ex-China</td>
<td>235</td>
<td>452,322</td>
<td>6.9%</td>
<td>236,072</td>
<td>4.9%</td>
<td>2.0%</td>
</tr>
<tr>
<td>China Pharma</td>
<td>175</td>
<td>750,854</td>
<td>11.4%</td>
<td>354,108</td>
<td>7.3%</td>
<td>4.1%</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>231</td>
<td>414,054</td>
<td>6.3%</td>
<td>145,208</td>
<td>3.0%</td>
<td>3.3%</td>
</tr>
<tr>
<td>INN Generics</td>
<td>37</td>
<td>209,561</td>
<td>3.2%</td>
<td>308,310</td>
<td>6.4%</td>
<td>-3.2%</td>
</tr>
<tr>
<td>Animal Health</td>
<td>26</td>
<td>142,284</td>
<td>2.2%</td>
<td>43,081</td>
<td>0.9%</td>
<td>1.3%</td>
</tr>
<tr>
<td>Royalty Company</td>
<td>7</td>
<td>42,099</td>
<td>0.6%</td>
<td>45,960</td>
<td>1.0%</td>
<td>-0.4%</td>
</tr>
</tbody>
</table>

Grand Total              | 1000         | 6,591,799        |                  | 4,784,533        |                  | 37.8%                               |

Source: Torrey analysis.

Table 3 shows the value of pharmaceutical sector as divided into these distinct subsectors.

There are some clear trends that emerge Table 3. First, commercial stage branded pharma (big pharma + branded pharma) accounts for 69.4% of the value of the sector. Second, the Big Pharma sector grew very slowly between 2020 and 2015, losing over 5% in value share. Big pharma’s influence is gradually waning. In contrast, the animal health and biotech sectors grew substantially in the same time period.

---

8 We were quite surprised to see two members of the U.S. FTC vote against the AbbVie – Allergan merger on antitrust grounds this year. Commissioner Chopra wrote an opinion describing anticompetitive industry behavior in which pharma companies “exploit their dominance, block new entrants, and harm patients in need of life-saving drugs”. Our data show that the pharma industry is far from concentrated, at least in an aggregate sense. A widely used measure of industry concentration and competitiveness is the Herfindahl Index (HHI). We compute that the global HHI Index as of September 2020 was 0.021, well below the U.S. DOJ threshold of 0.25 that demarcates a highly concentrated industry – where caution would be exercised by antitrust authorities on horizontal mergers.

17 | Torreyra Top Global Pharmaceutical Company Report
In terms of sheer dollar growth, the most remarkable subsector is China pharma. The value of the China sector went from $354bn in 2015 to $750bn in Sep 2020. The China sector went from roughly 7% of the global pharma market value in 2015 to 11% today.

The INN generic sector fell by 32% in value over the last five years and now comprises barely three percent of the value of the entire industry. This reflects an adverse pricing environment in the US market caused by fierce competition augmented by consolidation of wholesalers and buyer groups.

Also, noteworthy, the animal health sector tripled in size – a reflection of value recognition following Lilly’s spin of Elanco and Pfizer’s spin of Zoetis and high demand for companion animal pharmaceutical products. The branded generic pharmaceutical sector was relatively flat in the same time period – largely because many of these companies reside in Europe and have suffered from repeated price reductions by local governments. The decline in value of royalty receivers largely reflects a reduction in the market multiple associated with these companies.

The bar to be in the Pharma 1000 list has moved up gradually over time. To be in the top 1000 companies by value this year a company would need to have had a valuation of at least $336 million. To be in the top 500 would require a valuation of $1.1 billion while appearing in the top 50 would require a valuation of $22 billion or more. In 2015 the requirements were $327 million, $738 million and $15 billion respectively. In 2003, our list did not go past #800 so there was no way to find a threshold for the top 1000. However, the cutoff for the top 500 was $63 million and the cutoff to be in the top 50 was $4.1 billion.

**Evolution of Pharmaceutical Industry by Drug Modality**

We next ask whether there is a specific drug modality that has experienced outsize growth in recent years. To address this question, we classified each company by its most important drug modality. For example, while AbbVie sells small molecule drugs, its sales are dominated by an antibody, adalimumab, (Humira®). Hence we classify AbbVie as a biologics company.

---

9 Had Lilly and Pfizer not spun out their animal health businesses, the value share of big pharma would be 49.5% rather than 48% and the value of the animal health sector would have been up around 50% rather than over 200%.
Table 4. Evolution of Pharmaceutical Value by Top Modality of Each Company, 2015 to 2020

<table>
<thead>
<tr>
<th>Modality</th>
<th>Count - 2020</th>
<th>Total Value ($ Millions, 2020)</th>
<th>Value Share 2020</th>
<th>Total Value ($ Millions, 2015)</th>
<th>Value Share 2015</th>
<th>Dollar Change (20 vs '15, $ Millions)</th>
<th>Percent Change in Value (20 vs '15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Molecules</td>
<td>724</td>
<td>3,890,143</td>
<td>59.1%</td>
<td>3,596,648</td>
<td>75.4%</td>
<td>$293,495</td>
<td>8.2%</td>
</tr>
<tr>
<td>Biologics</td>
<td>118</td>
<td>2,091,290</td>
<td>31.8%</td>
<td>945,130</td>
<td>19.8%</td>
<td>$1,146,160</td>
<td>121.3%</td>
</tr>
<tr>
<td>Blood Products</td>
<td>16</td>
<td>197,574</td>
<td>3.0%</td>
<td>82,655</td>
<td>1.7%</td>
<td>$114,919</td>
<td>139.0%</td>
</tr>
<tr>
<td>Naturals</td>
<td>43</td>
<td>121,128</td>
<td>1.8%</td>
<td>75,101</td>
<td>1.6%</td>
<td>$46,027</td>
<td>61.3%</td>
</tr>
<tr>
<td>Vaccines</td>
<td>20</td>
<td>105,072</td>
<td>1.6%</td>
<td>18,946</td>
<td>0.4%</td>
<td>$86,126</td>
<td>454.6%</td>
</tr>
<tr>
<td>Nucleic Acids</td>
<td>20</td>
<td>85,184</td>
<td>1.3%</td>
<td>16,918</td>
<td>0.4%</td>
<td>$68,266</td>
<td>403.5%</td>
</tr>
<tr>
<td>Cell Therapy</td>
<td>32</td>
<td>38,899</td>
<td>0.6%</td>
<td>12,030</td>
<td>0.3%</td>
<td>$26,869</td>
<td>223.3%</td>
</tr>
<tr>
<td>Gene Therapy</td>
<td>16</td>
<td>23,139</td>
<td>0.4%</td>
<td>8,060</td>
<td>0.2%</td>
<td>$15,079</td>
<td>187.1%</td>
</tr>
<tr>
<td>Radiopharmaceuticals</td>
<td>4</td>
<td>14,190</td>
<td>0.2%</td>
<td>9,911</td>
<td>0.2%</td>
<td>$4,279</td>
<td>43.2%</td>
</tr>
<tr>
<td>Peptides</td>
<td>4</td>
<td>7,821</td>
<td>0.1%</td>
<td>1,728</td>
<td>0.0%</td>
<td>$6,093</td>
<td>352.6%</td>
</tr>
<tr>
<td>Gene Editing</td>
<td>3</td>
<td>7,359</td>
<td>0.1%</td>
<td>4,956</td>
<td>0.1%</td>
<td>$2,403</td>
<td>48.5%</td>
</tr>
</tbody>
</table>

Source: Torreyan analysis.

Table 4 tells an important story. The small molecule group of companies is and was the largest but is losing value share at the rate of around three percent per year.

Biologics companies grew as a group by $1.1 trillion. Up over 100%. A huge move in just five years. If the current pace of change keeps up, we would expect to see the value of predominantly biologics companies be equal to that of companies which are predominantly small molecules by 2025. Let’s wait and see.

Other big growth areas were, in order, vaccines, nucleic acids, peptides, cell therapy and gene therapy.

It is remarkable to note that the gene therapy field has tripled in value (and this is excluding AveXis - acquired by Novartis) followed by robust growth in blood products (China / rare
disease applications driving much of the growth) and nucleic acids (half of the value added came from including Moderna in our ranking).

It’s important to note that despite rapid growth of the newer modalities (gene therapy, nucleic acids and cell therapy), they are a very small part of the industry. In total, all gene therapy, nucleic acid, cell therapy and gene editing companies are worth $154 billion today. This is less than three percent of the value of the entire pharmaceutical sector. As we noted in our separate publication entitled “The Future of the Pharmaceutical Industry”, we do expect this to change but over a period of many years.

**Country Level Evolution of Pharmaceutical Industry**

We next look at which countries have the most aggregate pharmaceutical company value. To be clear, this is very different from describing the size of the pharmaceutical market in a country. For example, Switzerland has a relatively small pharmaceutical market but is home to two giant pharmaceutical companies (Novartis and Roche) and hence is one the world’s most important locations for the pharmaceutical industry.

It has become fashionable in recent years to domicile a company’s headquarters in low tax countries. For our purpose, we have designated a company’s headquarters generally in the place where its CEO sits and where most corporate functions are found. For example, ENDO is officially headquartered in Ireland but the company’s CEO is based in the US. Hence, we have described ENDO as a U.S.-based company for our purposes of describing where the locus of the industry lays.

Table 5 shows the aggregate value of the pharmaceutical sector in our database by country in 2020 and change in that value going back five years.

A number of key observations arise from this table.
### Table 5. Evolution of Pharmaceutical Value by Country, 2015 to 2020

<table>
<thead>
<tr>
<th>Subsector</th>
<th>Count - 2020</th>
<th>Total Value ($ Millions, 2020)</th>
<th>Value Share 2020</th>
<th>Total Value ($ Millions, 2015)</th>
<th>Value Share 2015</th>
<th>Change in Value (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>286</td>
<td>2,492,839</td>
<td>37.9%</td>
<td>2,035,572</td>
<td>42.5%</td>
<td>22%</td>
</tr>
<tr>
<td>China</td>
<td>205</td>
<td>837,707</td>
<td>12.7%</td>
<td>315,091</td>
<td>6.6%</td>
<td>166%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>18</td>
<td>626,929</td>
<td>9.5%</td>
<td>555,752</td>
<td>11.6%</td>
<td>13%</td>
</tr>
<tr>
<td>Germany</td>
<td>26</td>
<td>442,731</td>
<td>6.7%</td>
<td>298,656</td>
<td>6.2%</td>
<td>48%</td>
</tr>
<tr>
<td>Japan</td>
<td>59</td>
<td>441,662</td>
<td>6.7%</td>
<td>230,513</td>
<td>4.8%</td>
<td>92%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>29</td>
<td>342,080</td>
<td>5.2%</td>
<td>245,438</td>
<td>5.1%</td>
<td>39%</td>
</tr>
<tr>
<td>Denmark</td>
<td>10</td>
<td>214,763</td>
<td>3.3%</td>
<td>159,922</td>
<td>3.3%</td>
<td>34%</td>
</tr>
<tr>
<td>France</td>
<td>26</td>
<td>213,716</td>
<td>3.2%</td>
<td>203,763</td>
<td>4.3%</td>
<td>5%</td>
</tr>
<tr>
<td>India</td>
<td>41</td>
<td>142,420</td>
<td>2.2%</td>
<td>126,807</td>
<td>2.7%</td>
<td>12%</td>
</tr>
<tr>
<td>South Korea</td>
<td>55</td>
<td>116,116</td>
<td>1.8%</td>
<td>43,902</td>
<td>0.9%</td>
<td>164%</td>
</tr>
<tr>
<td>Italy</td>
<td>23</td>
<td>115,106</td>
<td>1.7%</td>
<td>74,017</td>
<td>1.5%</td>
<td>56%</td>
</tr>
<tr>
<td>Australia</td>
<td>5</td>
<td>103,813</td>
<td>1.6%</td>
<td>32,559</td>
<td>0.7%</td>
<td>219%</td>
</tr>
<tr>
<td>Spain</td>
<td>21</td>
<td>66,880</td>
<td>1.0%</td>
<td>36,415</td>
<td>0.8%</td>
<td>84%</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>11</td>
<td>48,545</td>
<td>0.7%</td>
<td>70,271</td>
<td>1.5%</td>
<td>-31%</td>
</tr>
<tr>
<td>Canada</td>
<td>10</td>
<td>45,698</td>
<td>0.7%</td>
<td>18,647</td>
<td>0.4%</td>
<td>145%</td>
</tr>
<tr>
<td>Israel</td>
<td>8</td>
<td>42,676</td>
<td>0.6%</td>
<td>67,989</td>
<td>1.4%</td>
<td>-37%</td>
</tr>
<tr>
<td>Brazil</td>
<td>13</td>
<td>35,682</td>
<td>0.5%</td>
<td>38,276</td>
<td>0.8%</td>
<td>-7%</td>
</tr>
<tr>
<td>Belgium</td>
<td>5</td>
<td>28,174</td>
<td>0.4%</td>
<td>19,123</td>
<td>0.4%</td>
<td>47%</td>
</tr>
<tr>
<td>Russia</td>
<td>14</td>
<td>26,225</td>
<td>0.4%</td>
<td>10,577</td>
<td>0.2%</td>
<td>148%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>9</td>
<td>20,474</td>
<td>0.3%</td>
<td>6,778</td>
<td>0.1%</td>
<td>202%</td>
</tr>
<tr>
<td>Argentina</td>
<td>3</td>
<td>16,291</td>
<td>0.2%</td>
<td>9,918</td>
<td>0.2%</td>
<td>64%</td>
</tr>
<tr>
<td>Sweden</td>
<td>8</td>
<td>15,541</td>
<td>0.2%</td>
<td>4,397</td>
<td>0.1%</td>
<td>253%</td>
</tr>
<tr>
<td>Taiwan</td>
<td>18</td>
<td>13,389</td>
<td>0.2%</td>
<td>7,139</td>
<td>0.1%</td>
<td>88%</td>
</tr>
<tr>
<td>Iran</td>
<td>7</td>
<td>13,371</td>
<td>0.2%</td>
<td>2,170</td>
<td>0.0%</td>
<td>516%</td>
</tr>
<tr>
<td>Turkey</td>
<td>9</td>
<td>10,457</td>
<td>0.2%</td>
<td>5,350</td>
<td>0.1%</td>
<td>95%</td>
</tr>
</tbody>
</table>

Source: Torreya analysis.
China. Most countries have seen the value of their pharmaceutical sectors rise but none more so than China which added over $500 billion in value over the last five years. Notably, the Chinese pharmaceutical sector today is 33% as large as that of the U.S. and is the world’s second largest, surpassing Switzerland, the UK and Germany in the last five years.

United States. The U.S. sector has been up by 22% in the last five years. Among larger U.S. companies, Janssen added $149 billion in value; Pfizer and its spinout Zoetis added $109 billion in value combined; AbbVie added $116 billion in value; while Merck added $66 billion in value. On the biotech side, big gainers were Vertex Pharma ($33 billion in value accretion due to a well-executed strategy in cystic fibrosis) and Moderna (entered the database recently with a valuation of $24 billion). Companies that dragged down the aggregate country gain were Gilead, Biogen and Bausch.

Switzerland. The decline in Swiss pharma company value principally reflects currency movements (we rank companies in US dollars). On January 15, 2015, the Swiss National Bank stopped pegging the Swiss Franc to the dollar which caused the Franc to soar. This, in turn, led to a surge in the values of Roche and Novartis who were briefly the top two companies in the world by value. While Roche has gained value anyway, Novartis has dropped in value despite improving financials (this is partly a reflection of the Alcon spin). Since then, the Swiss Franc has come down and the dollar strengthened, explaining the putative decline in valueshare noted in Table 5.

Germany. The 48% rise in German pharma company value reflects outstanding performance in this country. First, Boehringer Ingelheim has delivered tremendous value growth in the last five years, benefitting from both substantial revenue and profit growth and, also, increases in average branded pharma multiples. BioNTech and Curevac appeared as major forces in our value ranks. And, finally, both Merck Group’s Pharma business and Octapharma saw their values rise by more than $7 billion each.

Japan. Japan is another big story. The 98% jump in value in this country reflects the Takeda / Shire deal and outstanding performance at a number of companies including Chugai (up $56bn), and Daiichi Sankyo (up $46bn). Japanese companies also face a challenging local environment that features mandatory biennial price cuts in long-listed drugs and a burgeoning generic sector. Yet, the Japanese sector has exhibited vitality due to heavy investments in

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innovation, an aging population, growth in biotech and biologics and an extensive campaign of globalization.

Other key points in Table 5 include the hypergrowth of the Korean pharmaceutical sector despite a stagnant local pricing environment. South Korea has seen significant capital flows into new biotech companies and its share market, explaining the rapid accretion of the value in this market.

The UK market has also done well. This primarily reflects the recovery of AstraZeneca which has flourished under Pascal Soriot (up $75 billion). Australia has done quite well. This reflects the outstanding growth of CSL (up $68 billion) and, also, a thriving biotech sector.

France has seen only modest value growth. Declines in value at Sanofi (down $21 billion) mainly attributable to a weakening pricing environment for insulins were offset by strong performance at Servier. French pricing policies are particularly tough, which has not helped the country in its efforts to build a vital biotech sector.

Sweden has seen the second largest percentage value gain of any country, largely due to outstanding value creation at SOBI and Hansa Medical. One will also note very high growth in value of the Iran sector. This principally reflects improved access on the pharmaceutical companies there due to reporting by EMIS.

**Regional Evolution of Pharmaceutical Industry**

It is very common in the pharmaceutical sector for local governments to engage in activities to promote growth in the biopharmaceutical industry. For good reason - this industry creates local wealth and high value employment opportunities.

As a result, we look beyond the country level to understand where the most valuable pharmaceutical companies are located. Table 6 shows the aggregate value of pharmaceutical companies by region. This table includes companies that were in the Top 1000 by value in 2020.

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11 Sweden’s gain would have been even larger had Wilson Therapeutics (its largest biotech) not been acquired by Alexion in early 2018 for $855 million.
**Table 6. Pharmaceutical Industry Value by Top 30 Regions, 2020**

<table>
<thead>
<tr>
<th>Aggregate Value Rank</th>
<th>HQ Location</th>
<th>Number of Firms in Top 1000</th>
<th>Total Value ($ Millions, 2020)</th>
<th>Value Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>New York Area, US</td>
<td>55</td>
<td>$1,247,732</td>
<td>19.0%</td>
</tr>
<tr>
<td>2</td>
<td>Basel, Switzerland</td>
<td>4</td>
<td>$542,549</td>
<td>8.2%</td>
</tr>
<tr>
<td>3</td>
<td>Tokyo, Japan</td>
<td>36</td>
<td>$361,124</td>
<td>5.5%</td>
</tr>
<tr>
<td>4</td>
<td>Rhine Area, Germany</td>
<td>10</td>
<td>$323,452</td>
<td>4.9%</td>
</tr>
<tr>
<td>5</td>
<td>Chicago Area</td>
<td>6</td>
<td>$285,953</td>
<td>4.3%</td>
</tr>
<tr>
<td>6</td>
<td>Boston Area, US</td>
<td>70</td>
<td>$236,422</td>
<td>3.6%</td>
</tr>
<tr>
<td>7</td>
<td>Copenhagen, Denmark</td>
<td>10</td>
<td>$214,763</td>
<td>3.3%</td>
</tr>
<tr>
<td>8</td>
<td>Bay Area, US</td>
<td>62</td>
<td>$204,781</td>
<td>3.1%</td>
</tr>
<tr>
<td>9</td>
<td>Paris, France</td>
<td>16</td>
<td>$200,382</td>
<td>3.0%</td>
</tr>
<tr>
<td>10</td>
<td>Jiangsu Province, China</td>
<td>25</td>
<td>$194,488</td>
<td>3.0%</td>
</tr>
<tr>
<td>11</td>
<td>Los Angeles, US</td>
<td>10</td>
<td>$175,284</td>
<td>2.7%</td>
</tr>
<tr>
<td>12</td>
<td>Cambridge and Oxford, UK</td>
<td>6</td>
<td>$168,273</td>
<td>2.6%</td>
</tr>
<tr>
<td>13</td>
<td>London, United Kingdom</td>
<td>20</td>
<td>$165,534</td>
<td>2.5%</td>
</tr>
<tr>
<td>14</td>
<td>Indiana, US</td>
<td>3</td>
<td>$164,308</td>
<td>2.5%</td>
</tr>
<tr>
<td>15</td>
<td>South Korea</td>
<td>55</td>
<td>$116,116</td>
<td>1.8%</td>
</tr>
<tr>
<td>16</td>
<td>Melbourne, Australia</td>
<td>5</td>
<td>$103,813</td>
<td>1.6%</td>
</tr>
<tr>
<td>17</td>
<td>Sichuan Province, China</td>
<td>13</td>
<td>$75,678</td>
<td>1.1%</td>
</tr>
<tr>
<td>18</td>
<td>Guangdong Province, China</td>
<td>24</td>
<td>$72,049</td>
<td>1.1%</td>
</tr>
<tr>
<td>19</td>
<td>Osaka, Japan</td>
<td>13</td>
<td>$67,751</td>
<td>1.0%</td>
</tr>
<tr>
<td>20</td>
<td>Mumbai, India</td>
<td>19</td>
<td>$64,827</td>
<td>1.0%</td>
</tr>
<tr>
<td>21</td>
<td>San Diego, US</td>
<td>19</td>
<td>$60,990</td>
<td>0.9%</td>
</tr>
<tr>
<td>22</td>
<td>Beijing, China</td>
<td>17</td>
<td>$59,369</td>
<td>0.9%</td>
</tr>
<tr>
<td>23</td>
<td>Berlin, Germany</td>
<td>4</td>
<td>$54,528</td>
<td>0.8%</td>
</tr>
<tr>
<td>24</td>
<td>Shanghai, China</td>
<td>13</td>
<td>$54,249</td>
<td>0.8%</td>
</tr>
<tr>
<td>25</td>
<td>Zhejiang Province, China</td>
<td>18</td>
<td>$52,167</td>
<td>0.8%</td>
</tr>
<tr>
<td>26</td>
<td>US, Other</td>
<td>22</td>
<td>$51,387</td>
<td>0.8%</td>
</tr>
<tr>
<td>27</td>
<td>Hong Kong</td>
<td>11</td>
<td>$48,545</td>
<td>0.7%</td>
</tr>
<tr>
<td>28</td>
<td>Hessen, Germany</td>
<td>6</td>
<td>$48,503</td>
<td>0.7%</td>
</tr>
<tr>
<td>29</td>
<td>Hebei Province, China</td>
<td>8</td>
<td>$46,922</td>
<td>0.7%</td>
</tr>
<tr>
<td>30</td>
<td>Barcelona, Spain</td>
<td>13</td>
<td>$45,797</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

Source: Torreya analysis.

We also look at clustering on a global basis and encompasses both biotech (drug development companies) and the broader pharmaceutical industry.

The two largest locations in the world for the pharmaceutical industry are New York City and its environs and Basel, Switzerland. In total, 19% of the total value of the entire global industry
is to be found in a circle with a 100 mile radius of downtown New York City. This is a reflection of the presence of the most “big phamas” in the area - including J&J, Pfizer, Merck, BMS, Zoetis, Bausch Health and Regeneron. Other less well known but highly valuable companies that can be found in the New York area include Royalty Pharma, Roivant, Immunomedics and Amicus. A further eight percent of the value of the industry can be found in Basel, principally due to the co-location of Novartis and Roche. The third largest company in Basel is Idorsia, the biotech spun out from Actelion.

The next largest areas for the pharmaceutical industry are Tokyo, and the Rhine area in Germany. Chicago, Boston, Copenhagen, the Bay Area, Paris and Jiangsu Province, China round out the world’s top 10 locations for the pharmaceutical industry.

Evolution of Biotechnology Sector at the Regional Level

Obviously, the pharmaceutical industry has become highly globalized.

In a 2017 article, Bruce Booth of Atlas Venture, compiled statistics on venture fund flows into biopharma and noted that the Bay Area and the Boston Area have become the preeminent biotech clusters. He noted that biotech clusters in Europe and the rest of Europe have shrunk, if anything.12

We don’t deny for a minute the importance of clustering in the biopharmaceutical industry. Companies tend to gather in similar areas, driven by history and the availability of both human and financial capital. The business operating environment and attitudes of local governments are also highly relevant.

Table 7 sheds light on this topic. This table stratifies biotechnology sector value by region.

### Table 7. Public biotechnology Sector Value by Top 35 Regions, 2020

<table>
<thead>
<tr>
<th>Value Rank 2020</th>
<th>Value Rank 2015</th>
<th>HQ Location</th>
<th>Count of All Firms / Count of Biotechs Worth $1bn+</th>
<th>Total Value ($mn, 2020)</th>
<th>Value Share 2020</th>
<th>Total Value ($mn, 2015)</th>
<th>Value Share 2015</th>
<th>Change in Value Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>Bay Area, US</td>
<td>43 / 23</td>
<td>69,691</td>
<td>16.8%</td>
<td>17,583</td>
<td>12.1%</td>
<td>4.7%</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>Boston Area, US</td>
<td>46 / 16</td>
<td>69,074</td>
<td>16.7%</td>
<td>28,125</td>
<td>19.4%</td>
<td>-2.7%</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>San Diego, US</td>
<td>12 / 7</td>
<td>37,472</td>
<td>9.1%</td>
<td>9,470</td>
<td>6.5%</td>
<td>2.5%</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>New York Area, US</td>
<td>21 / 9</td>
<td>31,742</td>
<td>7.7%</td>
<td>10,188</td>
<td>7.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>Denmark</td>
<td>3 / 3</td>
<td>30,419</td>
<td>7.3%</td>
<td>7,823</td>
<td>5.4%</td>
<td>2.0%</td>
</tr>
<tr>
<td>6</td>
<td>NA</td>
<td>Rhine Germany</td>
<td>1 / 1</td>
<td>15,378</td>
<td>3.7%</td>
<td>0</td>
<td>0.0%</td>
<td>3.7%</td>
</tr>
<tr>
<td>7</td>
<td>NA</td>
<td>Jiangsu Prov. China</td>
<td>6 / 4</td>
<td>11,257</td>
<td>2.7%</td>
<td>0</td>
<td>0.0%</td>
<td>2.7%</td>
</tr>
<tr>
<td>8</td>
<td>13</td>
<td>South Korea</td>
<td>11 / 5</td>
<td>10,984</td>
<td>2.7%</td>
<td>3,590</td>
<td>2.5%</td>
<td>0.2%</td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>Wash DC Area</td>
<td>6 / 4</td>
<td>10,875</td>
<td>2.6%</td>
<td>9,604</td>
<td>6.6%</td>
<td>-4.0%</td>
</tr>
<tr>
<td>10</td>
<td>24</td>
<td>Netherlands</td>
<td>2 / 2</td>
<td>10,283</td>
<td>2.5%</td>
<td>293</td>
<td>0.2%</td>
<td>2.3%</td>
</tr>
<tr>
<td>11</td>
<td>11</td>
<td>Taiwan</td>
<td>10 / 2</td>
<td>10,049</td>
<td>2.4%</td>
<td>3,985</td>
<td>2.7%</td>
<td>-0.3%</td>
</tr>
<tr>
<td>12</td>
<td>25</td>
<td>Hessen, Germany</td>
<td>1 / 1</td>
<td>9,645</td>
<td>2.3%</td>
<td>231</td>
<td>0.2%</td>
<td>2.2%</td>
</tr>
<tr>
<td>13</td>
<td>19</td>
<td>Tokyo, Japan</td>
<td>5 / 2</td>
<td>9,349</td>
<td>2.3%</td>
<td>1,300</td>
<td>0.9%</td>
<td>1.4%</td>
</tr>
<tr>
<td>14</td>
<td>NA</td>
<td>Tianjin, China</td>
<td>1 / 1</td>
<td>8,206</td>
<td>2.0%</td>
<td>0</td>
<td>0.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>15</td>
<td>26</td>
<td>US, Other</td>
<td>7 / 2</td>
<td>7,015</td>
<td>1.7%</td>
<td>225</td>
<td>0.2%</td>
<td>1.5%</td>
</tr>
<tr>
<td>16</td>
<td>7</td>
<td>Los Angeles, US</td>
<td>5 / 2</td>
<td>6,781</td>
<td>1.6%</td>
<td>4,864</td>
<td>3.3%</td>
<td>-1.7%</td>
</tr>
<tr>
<td>17</td>
<td>NA</td>
<td>Hong Kong</td>
<td>3 / 2</td>
<td>6,488</td>
<td>1.6%</td>
<td>0</td>
<td>0.0%</td>
<td>1.6%</td>
</tr>
<tr>
<td>18</td>
<td>23</td>
<td>Zurich, Switzerland</td>
<td>2 / 1</td>
<td>5,487</td>
<td>1.3%</td>
<td>510</td>
<td>0.4%</td>
<td>1.0%</td>
</tr>
<tr>
<td>19</td>
<td>NA</td>
<td>Guangdong Pr, China</td>
<td>2 / 2</td>
<td>5,451</td>
<td>1.3%</td>
<td>0</td>
<td>0.0%</td>
<td>1.3%</td>
</tr>
<tr>
<td>20</td>
<td>18</td>
<td>Basel, Switzerland</td>
<td>1 / 1</td>
<td>3,889</td>
<td>0.9%</td>
<td>1,398</td>
<td>1.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>21</td>
<td>16</td>
<td>Seattle, US</td>
<td>3 / 2</td>
<td>3,740</td>
<td>0.9%</td>
<td>2,233</td>
<td>1.5%</td>
<td>-0.6%</td>
</tr>
<tr>
<td>22</td>
<td>21</td>
<td>Philadelphia, US</td>
<td>3 / 2</td>
<td>3,703</td>
<td>0.9%</td>
<td>863</td>
<td>0.6%</td>
<td>0.3%</td>
</tr>
<tr>
<td>23</td>
<td>NA</td>
<td>Bangalore, India</td>
<td>1 / 1</td>
<td>3,364</td>
<td>0.8%</td>
<td>0</td>
<td>0.0%</td>
<td>0.8%</td>
</tr>
<tr>
<td>24</td>
<td>17</td>
<td>Munich, Germany</td>
<td>1 / 1</td>
<td>3,306</td>
<td>0.8%</td>
<td>1,429</td>
<td>1.0%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>25</td>
<td>9</td>
<td>Camb + Oxford, UK</td>
<td>4 / 1</td>
<td>3,296</td>
<td>0.8%</td>
<td>4,176</td>
<td>2.9%</td>
<td>-2.1%</td>
</tr>
<tr>
<td>26</td>
<td>8</td>
<td>Geneva, Switzerland</td>
<td>2 / 1</td>
<td>3,255</td>
<td>0.8%</td>
<td>4,633</td>
<td>3.2%</td>
<td>-2.4%</td>
</tr>
<tr>
<td>27</td>
<td>20</td>
<td>Vancouver, Canada</td>
<td>2 / 2</td>
<td>3,059</td>
<td>0.7%</td>
<td>1,153</td>
<td>0.8%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>28</td>
<td>12</td>
<td>Sweden</td>
<td>4 / 1</td>
<td>2,861</td>
<td>0.7%</td>
<td>3,590</td>
<td>2.5%</td>
<td>-1.8%</td>
</tr>
<tr>
<td>29</td>
<td>NA</td>
<td>Melbourne, Australia</td>
<td>3 / 1</td>
<td>2,783</td>
<td>0.7%</td>
<td>0</td>
<td>0.0%</td>
<td>0.7%</td>
</tr>
<tr>
<td>30</td>
<td>NA</td>
<td>Anhui Pr, China</td>
<td>1 / 1</td>
<td>2,589</td>
<td>0.6%</td>
<td>0</td>
<td>0.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>31</td>
<td>15</td>
<td>London, UK</td>
<td>6 / 0</td>
<td>2,531</td>
<td>0.6%</td>
<td>2,264</td>
<td>1.6%</td>
<td>-0.9%</td>
</tr>
<tr>
<td>32</td>
<td>NA</td>
<td>Belgium</td>
<td>1 / 1</td>
<td>2,370</td>
<td>0.6%</td>
<td>0</td>
<td>0.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>33</td>
<td>22</td>
<td>Israel</td>
<td>2 / 1</td>
<td>1,762</td>
<td>0.4%</td>
<td>744</td>
<td>0.5%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>34</td>
<td>10</td>
<td>Paris, France</td>
<td>2 / 0</td>
<td>1,351</td>
<td>0.5%</td>
<td>4,086</td>
<td>0.0%</td>
<td>0.5%</td>
</tr>
<tr>
<td>35</td>
<td>14</td>
<td>North Carolina, US</td>
<td>2 / 0</td>
<td>992</td>
<td>0.2%</td>
<td>2,786</td>
<td>1.9%</td>
<td>-1.7%</td>
</tr>
</tbody>
</table>

Source: Torreya analysis.

Booth’s comments are correct. The Bay Area is home to 16.8% of publicly traded biotech sector value while Boston is home to 16.7% of the total value of the global biotechnology sector. In total, the Boston area is home to 16 biotech companies worth $1 billion or more and 46 biotech companies that fall into Pharma 1000 list (out of 321 in total). Around 34% of the value of
Boston’s biotech cluster is due to Moderna. Other top valued companies in Boston include Acceleron, Relay and Seres.\textsuperscript{13}

By our estimate, one third of the value of the world’s entire biotech industry lays within a 50 mile radius of downtown Boston and downtown San Francisco.

The industry is highly concentrated in two key U.S. clusters. But, while these clusters are growing incredibly quickly, they are not outgrowing the sector overall. Net net, they are up only slightly in value share since 2015 and, actually, down by three share points since 2018.

In the United States, locations that lost significant value share include the Washington DC area (lost 4 points of share). Research Triangle Park (RTP) has lost almost all of its public biotech and has gone from being ranked #14 to #35. Florida has dropped off the list entirely.

Impressively, San Diego has come on strong and is now clearly the world’s #3 biotech hub, displacing New York City. Strong performance of three companies explain much of San Diego’s rise as a value star (Mirati, Samumed, Ionis).

New York City and environs have remained strong in biotech. Key biotech companies in the area include Roivant, TG Therapeutics, Immunovant, Axsome and Y-Mabs.

Denmark’s impressive strength can be ascribed to outstanding performance of Genmab and Ascendis.

Germany (finally!) has come on strong. Two companies account for the move. BioNTech explains the sudden rise of the Rhine Area while Curevac explains the sudden importance of the Hessen area. Interestingly, after years of state aid, both companies can thank long-term financial support from high-net worth individuals for their success. BioNTech has been sponsored for years by the Struengmann family while Curevac has similarly been sponsored by the Hopp family. Biotech value has fared less well in the UK and France.

\textsuperscript{13} We will confess to a bit of surprise that Boston biocluster lost value share and took a look at the data. We noticed that quite a few biotechs in Boston that we had included in 2015 have gone on to get a product approved (putting them in our branded pharma category). Companies with recent drug approvals include Akcea, bluebird, Blueprint, Deciphera, Karyopharm and Sage.
Hidden a bit in the table is China’s remarkable entry into biotech. Divided across six provinces, Chinese companies now account for 8.2% of the world biotech sector by value (up from zero in 2015). Key companies include CanSino Biologics, Amytop, Chipscreen, Zelgen, Ocumension, Akeso, I-mab, Alphamab and Hua Medicine. China is now the #2 country in the world by biotech value and is likely to see rapid growth into the foreseeable future.

Less well known is the fact that South Korea has built up a strong and highly innovative biotech sector focused on cell therapy and biologics manufacturing. South Korea is home to five biotechs with values over $1 billion.

If the Korean biotherapeutics research & manufacturer, Celltrion, were included in the listing, South Korea would be the #3 biotech hub in the world.\(^{14}\)

**Evolution of Branded Pharmaceutical Sector at the Regional Level**

We look at the branded pharmaceutical sector by region in Table 8.

Because this table excludes the 18 largest pharmaceutical companies it can be thought of as representing the distribution of mid-sized and smaller branded pharmaceutical companies across the world.

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\(^{14}\) Because Celltrion has a commercial biosimilar product, we classify it as a generics company.
Table 8. Branded Pharmaceutical Sector Value by Top 20 Regions, 2020

<table>
<thead>
<tr>
<th>Value Rank 2020</th>
<th>Value Rank 2015</th>
<th>HQ Location</th>
<th>Total Value ($mm, 2020)</th>
<th>Value Share 2020</th>
<th>Firm Count</th>
<th>Total Value ($mm, 2015)</th>
<th>Value Share 2015</th>
<th>Change in Value Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>Tokyo, Japan</td>
<td>$243,154</td>
<td>17.2%</td>
<td>27</td>
<td>$126,877</td>
<td>14.2%</td>
<td>2.96%</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>New York Area, US</td>
<td>$168,648</td>
<td>11.9%</td>
<td>21</td>
<td>$244,771</td>
<td>27.5%</td>
<td>-15.6%</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Boston Area, US</td>
<td>$167,347</td>
<td>11.8%</td>
<td>24</td>
<td>$28,125</td>
<td>3.2%</td>
<td>8.68%</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>Paris, France</td>
<td>$78,015</td>
<td>5.5%</td>
<td>12</td>
<td>$51,900</td>
<td>5.8%</td>
<td>-0.31%</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>Osaka, Japan</td>
<td>$60,246</td>
<td>4.3%</td>
<td>9</td>
<td>$81,480</td>
<td>9.1%</td>
<td>-4.89%</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>Berlin, Germany</td>
<td>$52,404</td>
<td>3.7%</td>
<td>3</td>
<td>$44,805</td>
<td>5.0%</td>
<td>-1.32%</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>Bay Area, US</td>
<td>$44,952</td>
<td>3.2%</td>
<td>15</td>
<td>$40,549</td>
<td>4.6%</td>
<td>-1.37%</td>
</tr>
<tr>
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<td>9</td>
<td>Florence, Italy</td>
<td>$44,453</td>
<td>3.1%</td>
<td>4</td>
<td>$29,855</td>
<td>3.4%</td>
<td>-0.21%</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>Barcelona, Spain</td>
<td>$42,243</td>
<td>3.0%</td>
<td>8</td>
<td>$30,641</td>
<td>3.4%</td>
<td>-0.45%</td>
</tr>
<tr>
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<td>11</td>
<td>Geneva, Switzerland</td>
<td>$38,328</td>
<td>2.7%</td>
<td>3</td>
<td>$21,367</td>
<td>2.4%</td>
<td>0.31%</td>
</tr>
<tr>
<td>11</td>
<td>13</td>
<td>Milan, Italy</td>
<td>$37,476</td>
<td>2.7%</td>
<td>6</td>
<td>$19,691</td>
<td>2.2%</td>
<td>0.44%</td>
</tr>
<tr>
<td>12</td>
<td>28</td>
<td>Seattle, US</td>
<td>$30,540</td>
<td>2.2%</td>
<td>2</td>
<td>$5,311</td>
<td>0.6%</td>
<td>1.56%</td>
</tr>
<tr>
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<td>15</td>
<td>Zurich, Switzerland</td>
<td>$28,128</td>
<td>2.0%</td>
<td>3</td>
<td>$16,263</td>
<td>1.8%</td>
<td>0.16%</td>
</tr>
<tr>
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<td>14</td>
<td>Belgium</td>
<td>$25,842</td>
<td>1.8%</td>
<td>4</td>
<td>$16,420</td>
<td>1.8%</td>
<td>-0.02%</td>
</tr>
<tr>
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<td>33</td>
<td>South Korea</td>
<td>$25,690</td>
<td>1.8%</td>
<td>12</td>
<td>$4,273</td>
<td>0.5%</td>
<td>1.34%</td>
</tr>
<tr>
<td>16</td>
<td>17</td>
<td>Denmark</td>
<td>$25,038</td>
<td>1.8%</td>
<td>5</td>
<td>$13,596</td>
<td>1.5%</td>
<td>0.24%</td>
</tr>
<tr>
<td>17</td>
<td>10</td>
<td>Philadelphia Area, US</td>
<td>$21,303</td>
<td>1.5%</td>
<td>2</td>
<td>$22,398</td>
<td>2.5%</td>
<td>-1.01%</td>
</tr>
<tr>
<td>18</td>
<td>20</td>
<td>Italy, Other</td>
<td>$20,112</td>
<td>1.4%</td>
<td>4</td>
<td>$10,770</td>
<td>1.2%</td>
<td>0.21%</td>
</tr>
<tr>
<td>19</td>
<td>0</td>
<td>Brazil</td>
<td>$19,413</td>
<td>1.4%</td>
<td>2</td>
<td>$0</td>
<td>0.0%</td>
<td>1.37%</td>
</tr>
<tr>
<td>20</td>
<td>29</td>
<td>Chicago Area</td>
<td>$18,865</td>
<td>1.3%</td>
<td>2</td>
<td>$5,122</td>
<td>0.6%</td>
<td>0.76%</td>
</tr>
<tr>
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<td>16</td>
<td>Hessen, Germany</td>
<td>$18,722</td>
<td>1.3%</td>
<td>3</td>
<td>$15,027</td>
<td>1.7%</td>
<td>-0.36%</td>
</tr>
<tr>
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<td>21</td>
<td>San Diego, US</td>
<td>$18,545</td>
<td>1.3%</td>
<td>5</td>
<td>$40,549</td>
<td>4.6%</td>
<td>-3.24%</td>
</tr>
<tr>
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<td>44</td>
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<td>$16,951</td>
<td>1.2%</td>
<td>4</td>
<td>$1,292</td>
<td>0.1%</td>
<td>1.05%</td>
</tr>
<tr>
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<td>22</td>
<td>Rhine Area, Germany</td>
<td>$16,654</td>
<td>1.2%</td>
<td>4</td>
<td>$9,653</td>
<td>1.1%</td>
<td>0.09%</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
<td>Russia</td>
<td>$13,284</td>
<td>0.9%</td>
<td>3</td>
<td>$7,090</td>
<td>0.8%</td>
<td>0.14%</td>
</tr>
<tr>
<td>26</td>
<td>34</td>
<td>Sweden</td>
<td>$12,288</td>
<td>0.9%</td>
<td>3</td>
<td>$3,866</td>
<td>0.4%</td>
<td>0.44%</td>
</tr>
<tr>
<td>27</td>
<td>23</td>
<td>Washington DC Area</td>
<td>$10,648</td>
<td>0.8%</td>
<td>4</td>
<td>$8,952</td>
<td>1.0%</td>
<td>-0.25%</td>
</tr>
<tr>
<td>28</td>
<td>12</td>
<td>London, UK</td>
<td>$10,645</td>
<td>0.8%</td>
<td>7</td>
<td>$20,687</td>
<td>2.3%</td>
<td>-1.57%</td>
</tr>
<tr>
<td>29</td>
<td>32</td>
<td>Japan, Other</td>
<td>$8,496</td>
<td>0.6%</td>
<td>5</td>
<td>$4,382</td>
<td>0.5%</td>
<td>0.11%</td>
</tr>
<tr>
<td>30</td>
<td>19</td>
<td>Rome, Italy</td>
<td>$8,216</td>
<td>0.6%</td>
<td>2</td>
<td>$11,074</td>
<td>1.2%</td>
<td>-0.66%</td>
</tr>
</tbody>
</table>

Grand Total: $1,413,648 | 274 | $890,703

Source: Torrey analysis.
Tokyo, Japan owns the crown for having by far the most mid-sized branded pharmaceutical companies and the most valuable pharma ecosystem comprised of mid-sized companies.

In aggregate, the thirty branded companies in the Tokyo region have a value of $243 billion and comprise 19% of the world’s total mid/small branded pharmaceutical sector. The largest players in this region are Chugai, Otsuka, Astellas, Daiichi-Sankyo and Eisai.

New York is a major branded pharma hub outside of big pharma. Key players include Regeneron, Bausch Health and Immunomedics. One will note that the size of the NY sector is down a fair bit since 2015. This reflects the acquisitions of Allergan and Celgene and loss of value at Bausch.

Paris’ presence has picked up nicely with excellent growth at Servier, Ethypharm and Biocodex.

The Boston branded pharma sector is also quite large, notwithstanding Sanofi’s acquisition of Genzyme. Boston is home to Biogen, Vertex and Alexion.

Osaka, Japan has roughly a quarter of the pharma sector by size as Tokyo and is rightly a world class player in the pharmaceutical segment. Companies that call Osaka (the Kansai region) home include Shionogi, Ono, Mitsubishi-Tanabe and Santen.

The next largest clusters of branded pharmaceutical companies are Berlin, the Bay Area, Florence, Barcelona, Geneva and the Milan area.
Attrition in the Pharmaceutical Industry

**Figure 2.** More than a third of members of the Pharma 500 list in 2015 dropped out of the list by September 2020 (source: Torreya analysis).

Source: Torreya analysis

We checked back in on the 500 largest pharma companies in 2015 to see how they fared.

Figure 2 shows that 59% of the class of 2015 remained there five years later. Only one percent of the group had gone bankrupt. Bankruptcies are quite rare in the pharmaceutical sector. But 21% survived but had become less relevant, dropping to a rank between 501 and 1000. Seven percent (35 companies) had dropped out of the Pharma 1000 entirely. Roughly three quarters of these companies had gone through major economic difficulty. A number were in challenging countries – particularly Greece and Turkey. A number were generic companies with portfolios that were impacted by competition and policy changes, particularly in China (which introduced tendering rules). Another quarter had gone through at least one serious clinical failure (e.g., Merrimack Pharmaceuticals).
Rapid Growth of the Biotech Sector

**Section Highlights**

- The value of the most widely used biotech index is up 19 times since 1993.
- The value of biotechs working with nucleic acids (RNAi, ASO, mRNA etc) has gone up 365% in the last five years.
- The value of biotechs working with biologics has gone up much faster (264%) than the value of those working with small molecules.
- The value of biotechs working with cell therapies has more than doubled in five years.
- The value of the Asian biotech sector is up 576% versus 146% for North America and 184% for Europe.
- Half of biotech sector value is from firms focused either on oncology or rare disease.
- But rare disease therapies, hematology, pain therapy and renal disease focused biotechs have exhibited the slowest value growth.
- The most rapid value growth has occurred in vaccines, endocrinology, women’s health, hepatology and neurology.

The biotechnology sector has grown massively by value in recent years and is one of the world’s greatest industrial success stories. Companies in this sector are focused on developing new patented drugs and combine deep expertise in drug design (chemistry, antibody engineering etc) with expertise in development, formulation and clinical development.

No one really knows how many biotechnology companies are in the world. In our internal database at Torreya, we track more than 5,000 of them. The OECD conducts company surveys and counts 12,329 companies in the biotechnology sector as of 2015. We checked S&P CapitalIQ for biotech companies that were currently operating in September 2020 and found that 11,427 companies were listed. Suffice to say, there are a huge number of companies in biotech.
The shares of biotech companies are notoriously volatile and reflect investors’ fickle assessment of future prospects and the sector overall. But, on the whole, the sector has headed in one direction over time: up. This can be seen in the Figure 3 which charts the NASDAQ Biotechnology Index (NBI) from November 1993 to September 2020. The sector has marched from a level of 202 in November 1993 to over 4000 in September 2020 with several major dips along the way (most notably in 2000 and 2015). On the whole, the sector is up 1,911% in this time period. Most recently, a strong biotech market has fed a strong IPO market in 2020.

We expect that the biotechnology sector will continue to boom for many years to come although no one can predict where the indices will go.
Key drivers in the sector are increasing global wealth, increasing life expectancy, the spread of unhealthy lifestyles, technological progress and a relatively friendly regulatory environment. We have been particularly encouraged by progress in understanding the genetic causes of disease (and ways to address those causes), by progress in cellular therapy and by the advent of bioelectronics.

**Growth Across Modalities**

Table 9 shows total growth of the biotech sector by modality in the period from 2015 until September 2020. This subset only includes firms in the Pharma 1000 group (enterprise value of $335mm or above).

In total, 231 biotech firms are represented in this table. Of these, 110 are focused on small molecule targets (41% of total value). The remaining 121 companies are in other modalities, principally biologics (26% of value and 52 companies).

**Table 9. Biotech Sector Value Evolution by Modality of Lead Drug, 2015-2020**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Molecules</td>
<td>110</td>
<td>176,971</td>
<td>41.4%</td>
<td>70,616</td>
<td>47.0%</td>
<td>141%</td>
</tr>
<tr>
<td>Biologics</td>
<td>52</td>
<td>107,126</td>
<td>26.0%</td>
<td>29,410</td>
<td>19.6%</td>
<td>264%</td>
</tr>
<tr>
<td>Nucleic Acids</td>
<td>18</td>
<td>70,167</td>
<td>15.9%</td>
<td>14,075</td>
<td>9.4%</td>
<td>365%</td>
</tr>
<tr>
<td>Cell Therapy</td>
<td>23</td>
<td>30,704</td>
<td>6.5%</td>
<td>12,200</td>
<td>8.1%</td>
<td>118%</td>
</tr>
<tr>
<td>Vaccines</td>
<td>4</td>
<td>15,171</td>
<td>3.7%</td>
<td>4,132</td>
<td>2.8%</td>
<td>267%</td>
</tr>
<tr>
<td>Gene Therapy</td>
<td>14</td>
<td>9,198</td>
<td>2.2%</td>
<td>4,956</td>
<td>3.3%</td>
<td>86%</td>
</tr>
<tr>
<td>Peptides</td>
<td>4</td>
<td>8,016</td>
<td>1.9%</td>
<td>1,728</td>
<td>1.2%</td>
<td>364%</td>
</tr>
<tr>
<td>Gene Editing</td>
<td>3</td>
<td>7,210</td>
<td>1.8%</td>
<td>4,956</td>
<td>3.3%</td>
<td>45%</td>
</tr>
<tr>
<td>Blood Products</td>
<td>1</td>
<td>1,238</td>
<td>0.3%</td>
<td>5,469</td>
<td>3.6%</td>
<td>-77%</td>
</tr>
<tr>
<td>Naturals</td>
<td>1</td>
<td>755</td>
<td>0.2%</td>
<td>2,210</td>
<td>1.5%</td>
<td>-66%</td>
</tr>
<tr>
<td>Radiopharmaceuticals</td>
<td>1</td>
<td>446</td>
<td>0.1%</td>
<td>412</td>
<td>0.3%</td>
<td>8%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>231</td>
<td>414,022</td>
<td></td>
<td>150,164</td>
<td></td>
<td>174%</td>
</tr>
</tbody>
</table>

Source: Torreya analysis.
The most important alternative modalities by value are nucleic acids, especially mRNA and RNAi (15.9%), cell therapy (6.5%), gene therapy (2.2%) and peptides (1.9%).

We earlier noted that these new modalities comprise less than two percent of the value of the entire pharmaceutical sector. However, because the biotech sector is relatively small by value, new modalities comprise over 30% of the value of the biotech sector.

This portends major change in the pharma sector in the decades ahead. The generic sector today is almost entirely focused on small molecules as it reflects drugs that were developed well in the past. The branded sector is in between as it reflects molecules that have largely been approved in the last decade. In contrast, the biotech sector reflects the future of the industry as it is working on drugs that have not yet been approved.

Table 10 provides a listing of the top 25 biotech companies by value as of September 2020. This list of top biotech companies is ever changing as it largely contains companies that are close to commercialization.

The two largest biotech companies (Nektar and Genmab) both have an enterprise value over $10 billion. Each receives substantial royalty income which permit funding of ongoing development programs.

One can’t help but be struck by the high valuations accorded to companies that do not yet market any products of their own. The commercial potential of novel medicines in oncology, CNS and rare disease appear especially high. In total, the combined value of the top 20 biotech companies is $115 billion – roughly the same valuation as Novo Nordisk, the #8 pharma company in the world by value.

The dominance of the U.S. in the biotechnology market is also evident. Twelve of the top twenty-five by value are based in the United States. Europe has eight of the top 25 and Asia has the other five.
<table>
<thead>
<tr>
<th>Value Rank 2020</th>
<th>Company</th>
<th>HQ Location</th>
<th>Total Value 2020 ($mm)</th>
<th>Total Value 2015 ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Moderna</td>
<td>Boston Area, US</td>
<td>23,845</td>
<td>NA</td>
</tr>
<tr>
<td>2</td>
<td>Genmab</td>
<td>Copenhagen, Denmark</td>
<td>22,127</td>
<td>4,876</td>
</tr>
<tr>
<td>3</td>
<td>BioNTech</td>
<td>Rhine Area, Germany</td>
<td>15,378</td>
<td>NA</td>
</tr>
<tr>
<td>4</td>
<td>Samumed</td>
<td>San Diego, US</td>
<td>11,562</td>
<td>NA</td>
</tr>
<tr>
<td>5</td>
<td>Roivant Sciences</td>
<td>New York Area, US</td>
<td>10,000</td>
<td>NA</td>
</tr>
<tr>
<td>6</td>
<td>CureVac</td>
<td>Hessen, Germany</td>
<td>9,645</td>
<td>NA</td>
</tr>
<tr>
<td>7</td>
<td>argenx</td>
<td>Netherlands</td>
<td>8,813</td>
<td>128</td>
</tr>
<tr>
<td>8</td>
<td>CanSino Biologics</td>
<td>Tianjin, China</td>
<td>8,206</td>
<td>NA</td>
</tr>
<tr>
<td>9</td>
<td>Ascendis Pharma</td>
<td>Copenhagen, Denmark</td>
<td>7,091</td>
<td>321</td>
</tr>
<tr>
<td>10</td>
<td>Mirati Therapeutics</td>
<td>San Diego, US</td>
<td>6,375</td>
<td>386</td>
</tr>
<tr>
<td>11</td>
<td>Ionis</td>
<td>San Diego, US</td>
<td>6,065</td>
<td>6,530</td>
</tr>
<tr>
<td>12</td>
<td>MyoKardia</td>
<td>Bay Area, US</td>
<td>5,868</td>
<td>341</td>
</tr>
<tr>
<td>13</td>
<td>Acceleron</td>
<td>Boston Area, US</td>
<td>5,736</td>
<td>803</td>
</tr>
<tr>
<td>14</td>
<td>Novavax</td>
<td>Washington DC Area, US</td>
<td>5,711</td>
<td>2,709</td>
</tr>
<tr>
<td>15</td>
<td>CRISPR Therapeutics</td>
<td>Zurich, Switzerland</td>
<td>5,065</td>
<td>NA</td>
</tr>
<tr>
<td>16</td>
<td>PeptiDream</td>
<td>Tokyo, Japan</td>
<td>5,054</td>
<td>1,397</td>
</tr>
<tr>
<td>17</td>
<td>Chi-Med</td>
<td>Hong Kong</td>
<td>4,505</td>
<td>1,478</td>
</tr>
<tr>
<td>18</td>
<td>Iovance</td>
<td>Bay Area, US</td>
<td>4,467</td>
<td>235</td>
</tr>
<tr>
<td>19</td>
<td>Allogene</td>
<td>Bay Area, US</td>
<td>4,114</td>
<td>NA</td>
</tr>
<tr>
<td>20</td>
<td>Idorsia</td>
<td>Basel, Switzerland</td>
<td>3,889</td>
<td>NA</td>
</tr>
<tr>
<td>21</td>
<td>Oneness Biotech</td>
<td>Taiwan</td>
<td>3,863</td>
<td>NA</td>
</tr>
<tr>
<td>22</td>
<td>Relay Therapeutics</td>
<td>Boston Area, US</td>
<td>3,644</td>
<td>NA</td>
</tr>
<tr>
<td>23</td>
<td>Legend Biotech</td>
<td>Jiangsu Province, China</td>
<td>3,627</td>
<td>NA</td>
</tr>
<tr>
<td>24</td>
<td>Allakos</td>
<td>Bay Area, US</td>
<td>3,592</td>
<td>NA</td>
</tr>
<tr>
<td>25</td>
<td>Genexine</td>
<td>South Korea</td>
<td>3,528</td>
<td>NA</td>
</tr>
<tr>
<td>26</td>
<td>Denali Therapeutics</td>
<td>Bay Area, US</td>
<td>3,471</td>
<td>NA</td>
</tr>
<tr>
<td>27</td>
<td>FibroGen</td>
<td>Bay Area, US</td>
<td>3,379</td>
<td>1,226</td>
</tr>
<tr>
<td>28</td>
<td>Vir Biotechnology</td>
<td>Bay Area, US</td>
<td>3,379</td>
<td>NA</td>
</tr>
<tr>
<td>29</td>
<td>Schrodinger</td>
<td>Bangalore, India</td>
<td>3,364</td>
<td>NA</td>
</tr>
<tr>
<td>30</td>
<td>MorphoSys</td>
<td>Munich Area, Germany</td>
<td>3,306</td>
<td>1,689</td>
</tr>
</tbody>
</table>

Note: biotechnology companies are defined as those which do not themselves market a pharmaceutical product. Data source: CapitalIQ.
Emergence of the Asian Biotechnology Market

Table 11 shows five Asian biotech companies and there are, of course, a number of other prominent Asian success stories including Celltrion and Samsung Biologics in South Korea; Wuxi Biologics and BeiGene in China and Peptidream in Japan.

**Table 11. Top 20 Biotech Companies in Asia**

<table>
<thead>
<tr>
<th>Value Rank 2020</th>
<th>Company</th>
<th>Lead Modality</th>
<th>HQ Location</th>
<th>Total Value 2020 ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CanSino Biologics</td>
<td>Vaccines</td>
<td>China</td>
<td>$8,206</td>
</tr>
<tr>
<td>2</td>
<td>PeptiDream</td>
<td>Peptides</td>
<td>Japan</td>
<td>$5,054</td>
</tr>
<tr>
<td>3</td>
<td>Chi-Med</td>
<td>Small Molecules</td>
<td>Hong Kong</td>
<td>$4,505</td>
</tr>
<tr>
<td>4</td>
<td>Oneness Biotech</td>
<td>Small Molecules</td>
<td>Taiwan</td>
<td>$3,863</td>
</tr>
<tr>
<td>5</td>
<td>Legend Biotech</td>
<td>Cell Therapy</td>
<td>China</td>
<td>$3,627</td>
</tr>
<tr>
<td>6</td>
<td>Chipscreen</td>
<td>Biologics</td>
<td>South Korea</td>
<td>$3,528</td>
</tr>
<tr>
<td>7</td>
<td>Akeso</td>
<td>Small Molecules</td>
<td>India</td>
<td>$3,364</td>
</tr>
<tr>
<td>8</td>
<td>Zelgen Bio</td>
<td>Small Molecules</td>
<td>China</td>
<td>$2,823</td>
</tr>
<tr>
<td>9</td>
<td>Ocumension</td>
<td>Biologics</td>
<td>China</td>
<td>$2,628</td>
</tr>
<tr>
<td>10</td>
<td>I-Mab</td>
<td>Small Molecules</td>
<td>China</td>
<td>$2,589</td>
</tr>
<tr>
<td>11</td>
<td>Mesoblast</td>
<td>Small Molecules</td>
<td>China</td>
<td>$2,492</td>
</tr>
<tr>
<td>12</td>
<td>Alphamab Oncology</td>
<td>Biologics</td>
<td>China</td>
<td>$2,326</td>
</tr>
<tr>
<td>13</td>
<td>AnGes</td>
<td>Cell Therapy</td>
<td>Australia</td>
<td>$2,010</td>
</tr>
<tr>
<td>14</td>
<td>Innocare</td>
<td>Biologics</td>
<td>China</td>
<td>$1,626</td>
</tr>
<tr>
<td>15</td>
<td>Mezzion</td>
<td>Nucleic Acids</td>
<td>Japan</td>
<td>$1,609</td>
</tr>
<tr>
<td>16</td>
<td>Helixsmith</td>
<td>Small Molecules</td>
<td>Hong Kong</td>
<td>$1,469</td>
</tr>
<tr>
<td>17</td>
<td>Oscotec</td>
<td>Small Molecules</td>
<td>South Korea</td>
<td>$1,154</td>
</tr>
<tr>
<td>18</td>
<td>Pharmicell</td>
<td>Cell Therapy</td>
<td>South Korea</td>
<td>$1,118</td>
</tr>
<tr>
<td>19</td>
<td>Adimmune</td>
<td>Vaccines</td>
<td>Taiwan</td>
<td>$1,015</td>
</tr>
<tr>
<td>20</td>
<td>Sosei</td>
<td>Small Molecules</td>
<td>Japan</td>
<td>$940</td>
</tr>
</tbody>
</table>


The idea of Asia as a destination for biotechnology companies is relatively new. For biotech to be successful need access to human capital, financial capital and innovation. Certain Asian countries have seen an influx of human capital with expertise in advanced drug development methods. South Korea, for example, has become a world center of expertise in the fields of cell therapy and biologics development and manufacture. China has made a deliberate effort to
attract home its nationals from Western countries and to encourage them to engage in entrepreneurial activities in the biotechnology industry. The effects of China’s efforts have been striking. An ecosystem of biotech companies has grown rapidly and abundant financial capital has flown into the sector.

A key related development in Asia involves development of appropriate stock exchanges for biotech companies. One of the great success stories has been the development of the Kosdaq, a Korean exchange that has encouraged biotechs to list. Maeil Business News Korea wrote on November 22, 2017:

“According to the country’s securities market operator Korea Exchange on Wednesday, the combined market value of 73 shares of Kosdaq-listed pharmaceutical and biotech companies recorded 59.2 trillion won ($54.2 billion) as of Monday, accounting for 21.49 percent of the secondary stock market’s total valuation of 275.5 trillion won.”15

Japan has also made significant progress in facilitating the listing of biotechnology companies. In addition to facilitating biotech listings on the main markets, Japan Exchange Group has also established the MOTHERS exchange which explicitly works to attract bio-venture companies.

The main exchanges in China (Shanghai and Shenzen exchanges) do not, in general allow non-profitable companies to list. Hence, there has been great excitement about the agreement by the Hong Kong stock exchange to allow biotech companies to list on that market in 2017. Interestingly, HKEX (the Hong Kong exchange group) has sensibly indicated that they will look at the business of biotech companies carefully:

“In its proposals, the Exchange offers specific guidance on the listing eligibility for pre-profit/pre-revenue biotech issuers that produce pharmaceuticals (small molecule drugs), biologics, and medical devices (including diagnostics). Manufacturers of other biotech products will be considered on a case by case basis. Since issuers listed under the proposed biotech chapter would not meet any of the financial eligibility tests of the Main Board, these issuers potentially carry additional risks to investors. Accordingly, the proposals include detailed eligibility and suitability criteria for determining

15 See the following web link: http://pulsenews.co.kr/view.php?sc=30800020&year=2017&no=774950
appropriate applicants, a higher market capitalisation requirement, enhanced disclosure requirements as well as restrictions on fundamental changes of business.\textsuperscript{16}

The HKEX has gone so far as to create a panel of well-known experts to review biotech listing applications with an eye to balancing investor opportunity against risk.\textsuperscript{17}

A further important development is the advent of the STAR market on the Shenzhen Stock Exchange. The exchange, also known as the Technology and Innovation Board, has been promoted by the Chinese government and has seen numerous IPOs in 2020.\textsuperscript{18}

Listing requirements in other parts of Asia are much less hospitable to pre-revenue biotech companies. Despite India’s position as having the world’s second largest population, the rules of the Bombay Stock Exchange, continue to discourage the listing of biotech companies. Singapore has also yet to make the process of listing a biotech to be easy.

### Biotech Valuation by Regions

Table 12 shows the aggregate value of the biotech sector in our database by global region in 2015 and 2020. All regions have seen good growth and, as emphasized, no region has seen more total value growth than Asia/Pacific with more than a sixfold increase in total sector value. The Europe sector has also come close to tripling in value in the last five years.

**Table 12. Evolution of Biotechnology Valuations by Region**

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
<th>Total Value - 2020</th>
<th>Total Value - 2015</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>153</td>
<td>245,782</td>
<td>100,051</td>
<td>146%</td>
</tr>
<tr>
<td>Europe</td>
<td>32</td>
<td>95,336</td>
<td>33,609</td>
<td>184%</td>
</tr>
<tr>
<td>Asia/Pacific</td>
<td>44</td>
<td>71,163</td>
<td>10,521</td>
<td>576%</td>
</tr>
<tr>
<td>Rest of World</td>
<td>6</td>
<td>1,762</td>
<td>1,027</td>
<td>72%</td>
</tr>
</tbody>
</table>

Source: Torreya analysis.

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\textsuperscript{16} See the following web link: https://www.hkex.com.hk/News/News-Release/2018/180223news?sc_lang=en

\textsuperscript{17} See the web link: https://www.hkex.com.hk/News/News-Release/2018/1805042news?sc_lang=en

\textsuperscript{18} See, for example, “Star Market technology board second only to Nasdaq, leads Hong Kong in terms of funds raised amid Chinese stock market euphoria,” *South China Morning Post*, July 15, 2020.
Biotech Valuation by Therapeutic Area

Table 13 shows the aggregate value of biotech companies in the Pharma 1000 by the therapeutic area associated with each company’s lead development compound. The results in this table are quite striking. Fully 38% of all value of development stage drug companies is associated with novel treatments for oncology.

Rare disease and neurology account for another 19% of value. The top five therapeutic areas account for more than two thirds of all biotech sector value.

Biotech drug development strategies are remarkably concentrated by therapeutic area.

The WHO compiles global health statistics and notes that the top five causes of death worldwide are heart attacks, stroke, respiratory infections, COPD and lung cancer.\textsuperscript{19}

One cannot help but notice the mismatch between where biotech valuations are to be had and the burden of global disease. One does not have to look hard to find the sources.

In particular, we looked at U.S. data since the U.S. is the largest source of pharmaceutical spending. Express Scripts in 2019 noted that that largest sources of pharmaceutical spend in the U.S. for commercial insurance plans are in the following order:\textsuperscript{20}

1. Drugs for inflammatory conditions such as RA and psoriasis
2. Drugs for diabetes
3. Drugs for cancer care
4. Drugs for multiple sclerosis
5. Drugs for HIV
6. Drugs for pain
7. Drugs for ADHD
8. Drugs for asthma
9. Drugs for high blood pressure
10. Drugs for cholesterol

\textsuperscript{19} http://www.who.int/gho/mortality_burden_disease/en/

\textsuperscript{20} See Express Scripts, "2019 Drug Trend Report".
Table 13. Evolution of Biotechnology Valuations by Therapeutic Area

<table>
<thead>
<tr>
<th>Therapeutic Area</th>
<th>Number</th>
<th>Value Share 2020</th>
<th>Total Value 2020</th>
<th>Value Share 2015</th>
<th>Total Value 2015</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oncology</td>
<td>140</td>
<td>38.0%</td>
<td>157,146</td>
<td>36.3%</td>
<td>51,515</td>
<td>205%</td>
</tr>
<tr>
<td>Rare Disease</td>
<td>45</td>
<td>11.8%</td>
<td>48,782</td>
<td>15.6%</td>
<td>22,048</td>
<td>121%</td>
</tr>
<tr>
<td>Neurology</td>
<td>31</td>
<td>7.3%</td>
<td>30,371</td>
<td>3.8%</td>
<td>5,000</td>
<td>40%</td>
</tr>
<tr>
<td>Anti-Infectives</td>
<td>5</td>
<td>5.7%</td>
<td>23,460</td>
<td>2.5%</td>
<td>3,594</td>
<td>553%</td>
</tr>
<tr>
<td>Virology</td>
<td>9</td>
<td>4.1%</td>
<td>17,002</td>
<td>3.8%</td>
<td>5,340</td>
<td>218%</td>
</tr>
<tr>
<td>Vaccines</td>
<td>11</td>
<td>3.7%</td>
<td>15,419</td>
<td>2.2%</td>
<td>3,064</td>
<td>403%</td>
</tr>
<tr>
<td>Respiratory</td>
<td>11</td>
<td>3.3%</td>
<td>13,627</td>
<td>3.5%</td>
<td>4,983</td>
<td>173%</td>
</tr>
<tr>
<td>Bone &amp; Osteo</td>
<td>4</td>
<td>2.9%</td>
<td>11,970</td>
<td>0.0%</td>
<td>-</td>
<td>&gt; 100%</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>2</td>
<td>2.9%</td>
<td>11,966</td>
<td>0.2%</td>
<td>310</td>
<td>&gt; 100%</td>
</tr>
<tr>
<td>Broad</td>
<td>3</td>
<td>2.2%</td>
<td>9,311</td>
<td>3.5%</td>
<td>4,956</td>
<td>88%</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>14</td>
<td>2.2%</td>
<td>9,230</td>
<td>2.0%</td>
<td>2,894</td>
<td>219%</td>
</tr>
<tr>
<td>Immunology</td>
<td>9</td>
<td>2.2%</td>
<td>9,050</td>
<td>0.0%</td>
<td>-</td>
<td>&gt; 100%</td>
</tr>
<tr>
<td>Hematology</td>
<td>7</td>
<td>2.1%</td>
<td>8,738</td>
<td>8.0%</td>
<td>1,1354</td>
<td>-23%</td>
</tr>
<tr>
<td>Cardiometabolic</td>
<td>10</td>
<td>1.7%</td>
<td>6,948</td>
<td>3.4%</td>
<td>4,765</td>
<td>46%</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>7</td>
<td>1.6%</td>
<td>6,561</td>
<td>2.6%</td>
<td>3,717</td>
<td>77%</td>
</tr>
<tr>
<td>Wound Care</td>
<td>3</td>
<td>1.1%</td>
<td>4,487</td>
<td>0.9%</td>
<td>1,210</td>
<td>27%</td>
</tr>
<tr>
<td>Renal</td>
<td>5</td>
<td>1.1%</td>
<td>4,367</td>
<td>4.2%</td>
<td>5,959</td>
<td>-27%</td>
</tr>
<tr>
<td>Hepatology</td>
<td>10</td>
<td>1.0%</td>
<td>4,133</td>
<td>0.6%</td>
<td>822</td>
<td>403%</td>
</tr>
<tr>
<td>Dermatology</td>
<td>13</td>
<td>1.0%</td>
<td>4,121</td>
<td>1.7%</td>
<td>2,389</td>
<td>72%</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>4</td>
<td>0.8%</td>
<td>3,199</td>
<td>0.6%</td>
<td>848</td>
<td>277%</td>
</tr>
<tr>
<td>Pain</td>
<td>5</td>
<td>0.7%</td>
<td>2,774</td>
<td>2.7%</td>
<td>3,881</td>
<td>-29%</td>
</tr>
<tr>
<td>Womens Health</td>
<td>3</td>
<td>0.6%</td>
<td>2,426</td>
<td>0.3%</td>
<td>374</td>
<td>549%</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>3</td>
<td>0.5%</td>
<td>2,140</td>
<td>1.5%</td>
<td>2,068</td>
<td>3%</td>
</tr>
<tr>
<td>ENT</td>
<td>3</td>
<td>0.2%</td>
<td>1,019</td>
<td>0.2%</td>
<td>337</td>
<td>202%</td>
</tr>
</tbody>
</table>

Source: Torreya analysis.

There is not a clear relationship between the burden of disease and how society’s resources are allocated to pharmaceutical spend for a number of reasons including (1) drugs for heart disease prevention (ACEs, ARBs and statins) are largely genericized, (2) many diseases do not lead to death but are, nonetheless, a significant source of spend (e.g., inflammatory conditions), (3) rare disease drugs (e.g., multiple sclerosis) command high prices and (4) some diseases cannot be effectively treated at all with pharmaceuticals.

Valuations accorded to biotech companies by therapeutic area provide a perspective on where the market believes that future breakthroughs in pharmaceuticals will come and where those breakthroughs will be rewarded.
It is fair to say that investors today believe that spend is likely to increase significantly in the areas of cancer care and rare disease.

It is also noteworthy how few resources are being spent on a relative basis on the largest killers of heart attacks and stroke. One wonders whether the FDA’s decision to require outcomes studies for drugs involving cardiometabolic disease has discouraged investment in this area excessively (at least by biotech companies) and whether the fast approval pathways accorded to rare disease drugs has encouraged too much investment in this area (at least, in a relative sense).

We noted in our earlier report on the future of pharma that somewhere between 10% and 20% of all valuations accorded to pharmaceutical companies worldwide is related to rare disease treatments even though the number of patients that benefit is less than 0.05% of the world’s population. We continue to believe that both political and social factors will continue to relatively high spending for rare disease drugs in wealthy countries but also believe that the forward valuation accorded to companies in this sector is likely to decline on a relative basis over time.\textsuperscript{21}

\textsuperscript{21} See p. 42 of “The Future of the Pharmaceutical Industry”. 
Evolving Branded Pharmaceutical Sector

**Section Highlights**

- The branded pharma sector includes companies who drugs are patented and commercial stage.
- These companies comprise 69% of the value of the entire industry.
- These companies generated over $700 billion in revenue in 2019.
- The most valuable companies with a lead TA in cardiometabolic care are Lilly and Novo.
- The most valuable with a lead TA in CNS are Biogen, UCB and Otsuka.
- The most valuable with a lead TA in dermatology are Galderma, Pierre Fabre, LEO Pharma, Merz and Maruho.
- The most valuable with a lead TA in gastroenterology are Takeda, AlfaSigma and Norgine.
- The most valuable with a lead TA in oncology are Pfizer, Merck and Roche.
- The most valuable with a lead TA in rare disease are Takeda and Vertex.

In this section we discuss the prospects of companies whose main business involves the development, manufacture and sale of on-patent pharmaceutical products including the Top 18 pharma – all of whom fall into this group.

Table 14 lists the world’s 75 largest commercial-stage branded pharmaceutical companies as of September 4, 2020. In total, these companies have a valuation of $3.6 trillion (69% of the total value of the industry). These companies generated $733 billion in pharmaceutical revenue in 2019.

The companies are overwhelmingly publicly traded. Five of the seventy-five (6.7%) are privately held and in several cases we split out a pharma segment from a larger public company and valued the segment for the ranking.
### Table 14. Top 75 Branded Pharmaceutical Companies by Value in 2020 ($millions)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>Value</th>
<th>Rank</th>
<th>Company</th>
<th>Value</th>
<th>Rank</th>
<th>Company</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Roche</td>
<td>$328,145</td>
<td>26</td>
<td>Seattle Gen.</td>
<td>$29,605</td>
<td>51</td>
<td>R-Pharm</td>
<td>$9,457</td>
</tr>
<tr>
<td>2</td>
<td>Janssen (J&amp;J)</td>
<td>$278,507</td>
<td>27</td>
<td>Menarini</td>
<td>$29,540</td>
<td>52</td>
<td>Gr Insud</td>
<td>$9,266</td>
</tr>
<tr>
<td>3</td>
<td>Pfizer</td>
<td>$257,146</td>
<td>28</td>
<td>Bausch Health</td>
<td>$29,305</td>
<td>53</td>
<td>LEO Pharm</td>
<td>$9,142</td>
</tr>
<tr>
<td>4</td>
<td>AbbVie</td>
<td>$241,890</td>
<td>29</td>
<td>Astellas</td>
<td>$26,159</td>
<td>54</td>
<td>SK Bio</td>
<td>$8,640</td>
</tr>
<tr>
<td>5</td>
<td>Merck</td>
<td>$232,850</td>
<td>30</td>
<td>Grifols</td>
<td>$26,009</td>
<td>55</td>
<td>Grünenthal</td>
<td>$8,599</td>
</tr>
<tr>
<td>6</td>
<td>Novartis</td>
<td>$209,847</td>
<td>31</td>
<td>Alexion</td>
<td>$25,299</td>
<td>56</td>
<td>Vifor Pharm</td>
<td>$8,372</td>
</tr>
<tr>
<td>7</td>
<td>Amgen</td>
<td>$164,097</td>
<td>32</td>
<td>Eisai</td>
<td>$24,273</td>
<td>57</td>
<td>Bracco</td>
<td>$7,956</td>
</tr>
<tr>
<td>8</td>
<td>AstraZeneca</td>
<td>$162,079</td>
<td>33</td>
<td>UCB</td>
<td>$23,649</td>
<td>58</td>
<td>Ipsen</td>
<td>$7,873</td>
</tr>
<tr>
<td>9</td>
<td>BMS</td>
<td>$157,855</td>
<td>34</td>
<td>Otsuka</td>
<td>$22,063</td>
<td>59</td>
<td>Sarepta</td>
<td>$7,776</td>
</tr>
<tr>
<td>10</td>
<td>Novo Nordisk</td>
<td>$155,271</td>
<td>35</td>
<td>Galderma</td>
<td>$20,328</td>
<td>60</td>
<td>Neurocrine</td>
<td>$7,728</td>
</tr>
<tr>
<td>11</td>
<td>Eli Lilly</td>
<td>$150,506</td>
<td>36</td>
<td>Pierre Fabre</td>
<td>$18,691</td>
<td>61</td>
<td>Sobi</td>
<td>$7,711</td>
</tr>
<tr>
<td>12</td>
<td>Boehringer</td>
<td>$147,949</td>
<td>37</td>
<td>Immunomedics</td>
<td>$18,623</td>
<td>62</td>
<td>Merz</td>
<td>$7,475</td>
</tr>
<tr>
<td>13</td>
<td>GlaxoSmithKline</td>
<td>$136,144</td>
<td>38</td>
<td>Incyte</td>
<td>$18,482</td>
<td>63</td>
<td>Jazz</td>
<td>$7,462</td>
</tr>
<tr>
<td>14</td>
<td>Bayer</td>
<td>$133,274</td>
<td>39</td>
<td>Horizon Tx</td>
<td>$17,908</td>
<td>64</td>
<td>Alfasigma</td>
<td>$7,197</td>
</tr>
<tr>
<td>15</td>
<td>Sanofi</td>
<td>$120,109</td>
<td>40</td>
<td>Octapharma</td>
<td>$17,134</td>
<td>65</td>
<td>Mit Tanabe</td>
<td>$7,075</td>
</tr>
<tr>
<td>16</td>
<td>Takeda</td>
<td>$103,742</td>
<td>41</td>
<td>Ferring</td>
<td>$16,698</td>
<td>66</td>
<td>Lundbeck</td>
<td>$6,683</td>
</tr>
<tr>
<td>17</td>
<td>CSL</td>
<td>$100,405</td>
<td>42</td>
<td>Chiesi</td>
<td>$15,514</td>
<td>67</td>
<td>Santen</td>
<td>$6,596</td>
</tr>
<tr>
<td>18</td>
<td>Gilead</td>
<td>$87,242</td>
<td>43</td>
<td>Ono</td>
<td>$14,699</td>
<td>68</td>
<td>Angelini</td>
<td>$6,262</td>
</tr>
<tr>
<td>19</td>
<td>Chugai</td>
<td>$71,526</td>
<td>44</td>
<td>BioMarin</td>
<td>$13,815</td>
<td>69</td>
<td>Schwabe</td>
<td>$6,107</td>
</tr>
<tr>
<td>20</td>
<td>Vertex Pharma</td>
<td>$64,577</td>
<td>45</td>
<td>Alnylam</td>
<td>$13,525</td>
<td>70</td>
<td>Exelixis</td>
<td>$6,041</td>
</tr>
<tr>
<td>21</td>
<td>Regeneron</td>
<td>$57,507</td>
<td>46</td>
<td>Shionogi</td>
<td>$13,325</td>
<td>71</td>
<td>Aché</td>
<td>$5,728</td>
</tr>
<tr>
<td>22</td>
<td>Daiichi Sankyo</td>
<td>$54,030</td>
<td>47</td>
<td>Mundipharma</td>
<td>$13,200</td>
<td>72</td>
<td>Dainippon</td>
<td>$5,619</td>
</tr>
<tr>
<td>23</td>
<td>Merck KGaA</td>
<td>$49,731</td>
<td>48</td>
<td>NC / EMS</td>
<td>$12,813</td>
<td>73</td>
<td>Orion</td>
<td>$5,429</td>
</tr>
<tr>
<td>24</td>
<td>Biogen</td>
<td>$47,574</td>
<td>49</td>
<td>Kyowa Kirin</td>
<td>$12,186</td>
<td>74</td>
<td>Kedrion</td>
<td>$5,389</td>
</tr>
<tr>
<td>25</td>
<td>Servier</td>
<td>$35,942</td>
<td>50</td>
<td>Recordati</td>
<td>$12,154</td>
<td>75</td>
<td>Emergent</td>
<td>$5,222</td>
</tr>
</tbody>
</table>


Some branded companies are quite diversified by therapeutic area but most tend to have a sweet spot – characterized by one or a few particularly significant products that fall into a single therapeutic area. For this reason, in the tables that follow, we identify the top branded players in a number of key therapeutic areas.

Our analysis does not, in general, attribute value of a specific company to drugs for a particular disease area. Thus, a diversified company, such as Eli Lilly, is classified as being in cardiometaabolic care since diabetes care accounts for the largest portion of its revenues. But, in fact, Lilly creates value in many other disease areas such as oncology.
Top Branded Companies in Cardiometabolic Care

Table 15 provides a listing of the most valuable branded players whose leading product(s) are in the field of cardiometabolic care.

Table 15. Top Branded Pharmaceutical Companies in Cardiometabolic Care

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>HQ Country</th>
<th>Focus Area</th>
<th>Value ($mm)</th>
<th>Revenue ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Novo Nordisk</td>
<td>Denmark</td>
<td>Diabetes Care</td>
<td>151,258</td>
<td>22,950</td>
</tr>
<tr>
<td>2</td>
<td>Eli Lilly</td>
<td>United States</td>
<td>Diabetes Care</td>
<td>147,636</td>
<td>19,104</td>
</tr>
<tr>
<td>3</td>
<td>Boehringer</td>
<td>Germany</td>
<td>Diabetes Care</td>
<td>106,476</td>
<td>22,606</td>
</tr>
<tr>
<td>4</td>
<td>Bayer</td>
<td>Germany</td>
<td>Cardiology</td>
<td>95,109</td>
<td>20,193</td>
</tr>
<tr>
<td>5</td>
<td>Servier</td>
<td>France</td>
<td>Cardiometabolic</td>
<td>23,725</td>
<td>5,492</td>
</tr>
<tr>
<td>6</td>
<td>Menarini</td>
<td>Italy</td>
<td>Cardiometabolic</td>
<td>18,144</td>
<td>4,200</td>
</tr>
<tr>
<td>7</td>
<td>Recordati</td>
<td>Italy</td>
<td>Cardiometabolic</td>
<td>11,894</td>
<td>1,687</td>
</tr>
<tr>
<td>8</td>
<td>Italfarmaco</td>
<td>Italy</td>
<td>Cardiometabolic</td>
<td>4,425</td>
<td>1,083</td>
</tr>
<tr>
<td>9</td>
<td>Grupo Ferrer</td>
<td>Spain</td>
<td>Cardiometabolic</td>
<td>3,732</td>
<td>864</td>
</tr>
<tr>
<td>10</td>
<td>Kowa Pharma</td>
<td>Japan</td>
<td>Cardiometabolic</td>
<td>3,444</td>
<td>797</td>
</tr>
<tr>
<td>11</td>
<td>Grupo Uriach</td>
<td>Spain</td>
<td>Cardiometabolic</td>
<td>2,392</td>
<td>1,300</td>
</tr>
<tr>
<td>12</td>
<td>HanAll Biopharma</td>
<td>South Korea</td>
<td>Cardiometabolic</td>
<td>1,651</td>
<td>82</td>
</tr>
<tr>
<td>13</td>
<td>Intercept Pharma</td>
<td>United States</td>
<td>Hepatology</td>
<td>1,566</td>
<td>362</td>
</tr>
<tr>
<td>14</td>
<td>Atnahs</td>
<td>United Kingdom</td>
<td>Cardiometabolic</td>
<td>1,516</td>
<td>283</td>
</tr>
<tr>
<td>15</td>
<td>Amarin</td>
<td>United States</td>
<td>Cardiometabolic</td>
<td>1,183</td>
<td>274</td>
</tr>
<tr>
<td>16</td>
<td>LACER</td>
<td>Spain</td>
<td>Cardiometabolic</td>
<td>1,161</td>
<td>546</td>
</tr>
<tr>
<td>17</td>
<td>Lantheus</td>
<td>United States</td>
<td>Cardiology</td>
<td>1,009</td>
<td>332</td>
</tr>
<tr>
<td>18</td>
<td>Esperion</td>
<td>United States</td>
<td>Cardiometabolic</td>
<td>994</td>
<td>396</td>
</tr>
<tr>
<td>19</td>
<td>Mochida</td>
<td>Japan</td>
<td>Cardiometabolic</td>
<td>929</td>
<td>216</td>
</tr>
<tr>
<td>20</td>
<td>Osiris</td>
<td>United States</td>
<td>Cardiology</td>
<td>827</td>
<td>953</td>
</tr>
<tr>
<td>21</td>
<td>Curax Pharma</td>
<td>United States</td>
<td>Cardiometabolic</td>
<td>700</td>
<td>162</td>
</tr>
<tr>
<td>22</td>
<td>Amryt Pharma</td>
<td>United States</td>
<td>Rare Metabolic</td>
<td>491</td>
<td>624</td>
</tr>
<tr>
<td>23</td>
<td>Jiel</td>
<td>South Korea</td>
<td>Cardiometabolic</td>
<td>475</td>
<td>110</td>
</tr>
<tr>
<td>24</td>
<td>MannKind</td>
<td>United States</td>
<td>Diabetes Care</td>
<td>436</td>
<td>62</td>
</tr>
<tr>
<td>25</td>
<td>TOA EIOY</td>
<td>Japan</td>
<td>Cardiovascular</td>
<td>416</td>
<td>131</td>
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<tr>
<td>26</td>
<td>PDL</td>
<td>United States</td>
<td>Cardiovascular</td>
<td>399</td>
<td>140</td>
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<tr>
<td>27</td>
<td>Malladi</td>
<td>India</td>
<td>Cardiometabolic</td>
<td>291</td>
<td>28</td>
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<tr>
<td>28</td>
<td>Lexicon Pharma</td>
<td>United States</td>
<td>Diabetes Care</td>
<td>216</td>
<td>320</td>
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<tr>
<td>29</td>
<td>Aralez Newco</td>
<td>United States</td>
<td>Cardiometabolic</td>
<td>162</td>
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<td>30</td>
<td>Evoke Pharma</td>
<td>United States</td>
<td>Diabetes Care</td>
<td>150</td>
<td>110</td>
</tr>
</tbody>
</table>

Source: Torrey analysis and CapitalIQ.
All three of the top players in cardiometabolic care are focused on the treatment of diabetes:

1. Eli Lilly generated $10.9 billion in diabetes care products led by Humalog® and Trulicity® in 2019;
2. Novo Nordisk generated $16.3 billion in revenue from diabetes care and obesity products that was comprised roughly two thirds in insulin sales and one third in GLP-1 sales.
3. Boehringer-Ingelheim generated $4.3 billion from cardiometabolic sales with strong results from its Trajenta® and Jardiance® franchise.

Major players in diabetes care not listed here due to the strength of other franchise areas include Merck and Sanofi.

Beyond diabetes care, core drivers in the cardiometabolic disease area were legacy sales from statins/blood pressure medications and novel anticoagulants led by $4.8bn in revenues from Bayer’s Xarelto®.
Top Branded Companies in CNS Disease Care

Table 16 provides a listing of the most valuable branded players whose leading product(s) are in the field of central nervous system diseases (CNS).

Biogen tops the list on the back of an impressive $9.2 billion franchise in multiple sclerosis and SMA drugs.

CSPC is the largest marketer of CNS drugs in China and has generated excellent sales in recent years. Their principal focus has been drugs in psychiatry.

UCB generated $2.8 billion in neurology revenue led by Vimpat® and Keppra® for epilepsy in 2019 and has an impressive pipeline of neurology drugs.

Otsuka continues to thrive in psychiatry with ongoing sales with its Abilify® franchise.

The consumption of opiate drugs is down massively in the United States. Nonetheless, the Sackler-owned Mundipharma / Purdue business remains highly ranked (#5 in CNS) with a wide range of other non-opiate medicines marketed across the globe.

SK Biopharma is a new entrant in our ranks after a strong IPO. SK is launching cenobamate, a newly approved epilepsy drug.

Other top players include Neurocrine and Sarepta, both making strong progress in neurology.

Neurocrine has generated excellent growth with its drug valbenazine for Tardive Dyskinesia and now has four approved products.

Sarepta has become a gene therapy and ASO powerhouse focused on neurological diseases. Key approved drugs include EXONDYS 51® (eteplirsen) and VYONDYS 53® (golodirsen), both exon skippers for the treatment of Duchenne Muscular Dystrophy.

argenx has generated impressive data for Efgartigimod, a blocker of the IgG binding site on the FcRn complex, in generalized myasthenia gravis.

Lundbeck is the #10 pure play company by value in CNS and is doing well with Brintellix®, Rxulti®, Northera®, Vyepti® and AbilifyMaintena®.
### Table 16. Top Biopharmaceutical Companies in CNS Disease Care

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>HQ Country</th>
<th>Focus Area</th>
<th>Value ($mn)</th>
<th>Revenue ($mn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Biogen</td>
<td>United States</td>
<td>Neurology</td>
<td>47,186</td>
<td>14,487</td>
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<tr>
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<td>Psychiatry</td>
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<tr>
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<td>Neurology</td>
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<td>Japan</td>
<td>Psychiatry</td>
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<tr>
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<td>Mundipharma</td>
<td>United States</td>
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<tr>
<td>6</td>
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<td>South Korea</td>
<td>Neurology</td>
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<td>1,006</td>
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<tr>
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<td>Germany</td>
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<td>Neurology</td>
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<td>Neurology</td>
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<td>Neurology</td>
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<td>1,272</td>
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<tr>
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<tr>
<td>16</td>
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<td>Neurology</td>
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<tr>
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<td>Neurology</td>
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<td>Esteve</td>
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<td>Pain</td>
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<tr>
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<td>Hisamitsu</td>
<td>Japan</td>
<td>Pain</td>
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<td>1,269</td>
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<td>France</td>
<td>Pain</td>
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<td>571</td>
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<td>Psychiatry</td>
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<td>Pain</td>
<td>1,960</td>
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<td>Haw Par Corporation</td>
<td>Singapore</td>
<td>Psychiatry</td>
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<td>Indivior</td>
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<td>Addiction</td>
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<td>634</td>
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</table>

Source: Torreya analysis and CapitalIQ.
Top Branded Companies in Dermatology

Table 17 provides a listing of the most valuable branded players whose leading product(s) are in the field of dermatology.

The field of dermatology has seen the emergence of big pharma interest but in no case does the big pharma have a primary focus on dermatology. Key larger pharma players include Novartis, Pfizer, Janssen, AbbVie (absorbed Allergan’s aesthetic business), BMS, Lilly (plus Dermira), Sun Pharma and Amgen. The larger pharma companies are principally focused on serious inflammatory skin conditions such as atopic dermatitis and psoriasis.

Table 17. Top Branded Pharmaceutical Companies in Dermatology

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>HQ Country</th>
<th>Focus Area</th>
<th>Value ($mm)</th>
<th>Revenue ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Galderma</td>
<td>Switzerland</td>
<td>Diversified</td>
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<td>4,243</td>
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<tr>
<td>2</td>
<td>Pierre Fabre</td>
<td>France</td>
<td>Diversified</td>
<td>13,306</td>
<td>3,080</td>
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<td>3</td>
<td>LEO Pharma</td>
<td>Denmark</td>
<td>Med derm</td>
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<td>Germany</td>
<td>Aesthetics</td>
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<td>1,730</td>
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<tr>
<td>5</td>
<td>Maruho</td>
<td>Japan</td>
<td>Med derm</td>
<td>5,619</td>
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<tr>
<td>6</td>
<td>ROHTO</td>
<td>Japan</td>
<td>Med derm</td>
<td>3,659</td>
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<td>Hugel</td>
<td>South Korea</td>
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<td>2,423</td>
<td>982</td>
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<tr>
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<td>Isdin</td>
<td>Spain</td>
<td>Aesthetics</td>
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<td>Kaken Pharma</td>
<td>Japan</td>
<td>Med derm</td>
<td>1,496</td>
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<td>Aesthetics</td>
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<td>Dr. August Wolff</td>
<td>Germany</td>
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<td>13</td>
<td>Labs. Genévrier</td>
<td>France</td>
<td>Med derm</td>
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<td>Cassiopea S.p.A.</td>
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<tr>
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<td>PharmaResearch</td>
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<td>Ferndale Pharma</td>
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<td>Diomed Devps</td>
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<td>Aesthetics</td>
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<tr>
<td>18</td>
<td>Luqa Pharma</td>
<td>China</td>
<td>Aesthetics</td>
<td>419</td>
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<td>19</td>
<td>Foamix</td>
<td>Israel</td>
<td>Med derm</td>
<td>407</td>
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<td>20</td>
<td>Biofrontera</td>
<td>Germany</td>
<td>Med derm</td>
<td>382</td>
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</tbody>
</table>

Source: Torrey analysis and CapitalIQ.

Thus, the list in Table 16 gives more of a sense of the ranking of the pure play companies in dermatology.
Galderma tops the list following its recent spinout from Nestle. Galderma has $4.2mm in revenues and is focused on growth in the fields of rare dermatologic and dermo-inflammatory diseases.

Pierre-Fabre has a formidable franchise in dermo-cosmetics and medical dermatologic products. Other key players include LEO, Merz, Maruho, ROHTO and Almirall.

**Top Branded Companies in Gastroenterology**

Table 18 provides a listing of the most valuable branded players whose leading product(s) are in the field of gastroenterology.

**Table 18. Top Branded Pharmaceutical Companies in Gastroenterology**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>HQ Country</th>
<th>Value ($mm)</th>
<th>Revenue ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alfasigma</td>
<td>Italy</td>
<td>$8,201</td>
<td>$1,243</td>
</tr>
<tr>
<td>2</td>
<td>Norgine</td>
<td>Netherlands</td>
<td>$3,263</td>
<td>$494</td>
</tr>
<tr>
<td>3</td>
<td>Dr. Falk Pharma</td>
<td>Germany</td>
<td>$3,201</td>
<td>$485</td>
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<td>4</td>
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<td>$350</td>
</tr>
<tr>
<td>5</td>
<td>Ironwood Pharma</td>
<td>United States</td>
<td>$1,813</td>
<td>$427</td>
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<tr>
<td>6</td>
<td>Sebela Pharma</td>
<td>United States</td>
<td>$1,650</td>
<td>$250</td>
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<td>7</td>
<td>Kolmar Medicine Unit</td>
<td>South Korea</td>
<td>$1,637</td>
<td>$567</td>
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<td>8</td>
<td>Cosmo Pharma</td>
<td>Switzerland</td>
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<td>$75</td>
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<td>9</td>
<td>Nestlé Pharma Ops</td>
<td>Switzerland</td>
<td>$1,302</td>
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<td>10</td>
<td>Zeria Pharma</td>
<td>Japan</td>
<td>$1,169</td>
<td>$544</td>
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<td>Mayoly Spindler</td>
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<td>$1,063</td>
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<tr>
<td>12</td>
<td>Cristalia</td>
<td>Brazil</td>
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<td>Germany</td>
<td>$1,020</td>
<td>$155</td>
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<tr>
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<td>Sciclone</td>
<td>China</td>
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<td>NA</td>
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<tr>
<td>15</td>
<td>ASKA Pharmaceutical</td>
<td>Japan</td>
<td>$475</td>
<td>$485</td>
</tr>
<tr>
<td>16</td>
<td>Romark</td>
<td>United States</td>
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<td>$70</td>
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<tr>
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<td>RedHill Biopharma</td>
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<td>$25</td>
</tr>
<tr>
<td>18</td>
<td>Anterogen</td>
<td>South Korea</td>
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<td>$3</td>
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<td>19</td>
<td>Ardelyx</td>
<td>United States</td>
<td>$392</td>
<td>$8</td>
</tr>
<tr>
<td>20</td>
<td>VIVUS / Icahn Enterprises</td>
<td>United States</td>
<td>$376</td>
<td>$57</td>
</tr>
</tbody>
</table>

*Source: Torreya analysis and CapitalIQ.*
Like dermatology, we have seen large pharma players make significant progress in this area with biologics and small molecule therapies aimed at autoimmune disease. These players include AbbVie, Amgen, Eli Lilly, Janssen, and Pfizer.

Another important player is Bausch Health which is not a pure play and also has a significant business. Takeda holds a leadership position in gastroenterology specialty companies led by Entyvio (Vedolizumab) for ulcerative colitis and Crohn’s disease.

AlfaSigma is also a major leader in GI with a number of products led by Rifaximin® (Xifaxin), an antibiotic used for a number of disease states.

Ironwood markets Linzess® for constipation with AbbVie and has built a strong commercial business in gastroenterology.

There are a number of highly focused pure play companies which include Cosmo, Zeria, Sebela, Mayoly Spindler, Ardelyx, RedHill and Romark. These companies have grown nicely over time.
Top Branded Companies in Oncology

Table 19 provides a listing of the most valuable branded players whose leading product(s) are in the field of cancer care.

**Table 19. Top Branded Pharmaceutical Companies in Oncology**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>HQ Country</th>
<th>Focus Area</th>
<th>Value ($mm)</th>
<th>Revenue ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Roche</td>
<td>Switzerland</td>
<td>Kinase inhibitors</td>
<td>253,889</td>
<td>49,197</td>
</tr>
<tr>
<td>2</td>
<td>Pfizer</td>
<td>United States</td>
<td>Immuno-oncology</td>
<td>235,456</td>
<td>47,194</td>
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<tr>
<td>3</td>
<td>Merck</td>
<td>United States</td>
<td>Antibodies</td>
<td>234,176</td>
<td>49,719</td>
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<td>4</td>
<td>Novartis</td>
<td>Switzerland</td>
<td>Kinase inhibitors</td>
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<td>49,528</td>
</tr>
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<td>AstraZeneca</td>
<td>UK</td>
<td>Kinase inhibitors</td>
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<td>25,699</td>
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<td>Bristol-Myers Squibb</td>
<td>United States</td>
<td>Immuno-oncology</td>
<td>158,919</td>
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<td>Chugai</td>
<td>Japan</td>
<td>Antibodies</td>
<td>70,880</td>
<td>6,809</td>
</tr>
<tr>
<td>8</td>
<td>Hengrui Medicine</td>
<td>China</td>
<td>Diversified</td>
<td>69,196</td>
<td>3,478</td>
</tr>
<tr>
<td>9</td>
<td>Daiichi Sankyo</td>
<td>Japan</td>
<td>ADCs</td>
<td>62,280</td>
<td>3,600</td>
</tr>
<tr>
<td>10</td>
<td>Merck KGaA Pharma</td>
<td>Germany</td>
<td>Diversified</td>
<td>51,134</td>
<td>8,993</td>
</tr>
<tr>
<td>11</td>
<td>Seattle Genetics</td>
<td>United States</td>
<td>ADCs</td>
<td>32,551</td>
<td>7,535</td>
</tr>
<tr>
<td>12</td>
<td>Hansoh Pharma</td>
<td>China</td>
<td>Kinase inhibitors</td>
<td>26,305</td>
<td>11,815</td>
</tr>
<tr>
<td>13</td>
<td>Astellas</td>
<td>Japan</td>
<td>Androgen depriv.</td>
<td>25,140</td>
<td>1,016</td>
</tr>
<tr>
<td>14</td>
<td>Eisai</td>
<td>Japan</td>
<td>Cytotoxics</td>
<td>24,765</td>
<td>1,141</td>
</tr>
<tr>
<td>15</td>
<td>Qilu Pharma</td>
<td>China</td>
<td>Cytotoxics</td>
<td>23,972</td>
<td>6,560</td>
</tr>
<tr>
<td>16</td>
<td>Genmab</td>
<td>Denmark</td>
<td>Immuno-oncology</td>
<td>21,540</td>
<td>6,000</td>
</tr>
<tr>
<td>17</td>
<td>BeiGene</td>
<td>China</td>
<td>Diversified</td>
<td>18,929</td>
<td>225</td>
</tr>
<tr>
<td>18</td>
<td>Immunomedics*</td>
<td>United States</td>
<td>ADCs</td>
<td>18,276</td>
<td>2,388</td>
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<tr>
<td>19</td>
<td>Incyte</td>
<td>United States</td>
<td>Immuno-oncology</td>
<td>14,187</td>
<td>2,721</td>
</tr>
<tr>
<td>20</td>
<td>BioNTech</td>
<td>Germany</td>
<td>Immuno-oncology</td>
<td>10,464</td>
<td>147</td>
</tr>
<tr>
<td>21</td>
<td>Ono</td>
<td>Japan</td>
<td>Immuno-oncology</td>
<td>9,628</td>
<td>60</td>
</tr>
<tr>
<td>22</td>
<td>R-Pharm</td>
<td>Russia</td>
<td>Cytotoxics</td>
<td>9,526</td>
<td>3,046</td>
</tr>
<tr>
<td>23</td>
<td>Innoven Biologics</td>
<td>China</td>
<td>Diversified</td>
<td>7,776</td>
<td>1,800</td>
</tr>
<tr>
<td>24</td>
<td>Bracco</td>
<td>Italy</td>
<td>Kinase inhibitors</td>
<td>6,708</td>
<td>247</td>
</tr>
<tr>
<td>25</td>
<td>Junshi Biosciences</td>
<td>China</td>
<td>Kinase inhibitors</td>
<td>6,683</td>
<td>1,547</td>
</tr>
<tr>
<td>26</td>
<td>Ipsen</td>
<td>France</td>
<td>Kinase inhibitors</td>
<td>5,389</td>
<td>29</td>
</tr>
<tr>
<td>27</td>
<td>CureVac</td>
<td>Germany</td>
<td>Kinase inhibitors</td>
<td>5,222</td>
<td>998</td>
</tr>
<tr>
<td>28</td>
<td>Betta Pharm</td>
<td>China</td>
<td>Kinase inhibitors</td>
<td>4,231</td>
<td>209</td>
</tr>
<tr>
<td>29</td>
<td>Exelixis</td>
<td>United States</td>
<td>Precision Oncology</td>
<td>3,608</td>
<td>75</td>
</tr>
<tr>
<td>30</td>
<td>Mirati Therapeutics</td>
<td>United States</td>
<td>ADCs</td>
<td>3,177</td>
<td>84</td>
</tr>
</tbody>
</table>

Source: Torreya analysis and CapitalIQ.
Notes: * has agreed to be acquired by Gilead.
Oncology is one of the three largest therapeutic areas for pharma matched only by immunology and cardiometabolic diseases. As a result, disentangling importance of the various players using our company aggregated data is not as straightforward as it could be with drug level data.

It is fair to say that oncology is largely the land of the biggest pharmaceutical companies with strong contributions from specialty players such as Ipsen, Incyte, Ono and Seattle Genetics. It’s also noteworthy how large Chugai has become, largely by selling Roche antibodies in the Japan market.

Similarly, Hengrui has become quite large on the back of selling a deep portfolio of cytotoxics and kinase inhibitors into the China market. Like Hengrui, Qilu has become an increasingly important player in the China market, selling several billion dollars of oncology products into the Chinese hospital system. A key emerging player for the China market is BeiGene. This company is marketing a group of Celgene products in China while developing its own pipeline of differentiated kinase inhibitors and immune-oncology antibodies.

Pfizer delivered $9 billion in oncology revenue in 2019 led by $5 billion in Ibrance® sales (kinase inhibitor for metastatic breast cancer). Pfizer has a deep pipeline and substantial growth potential in oncology.

Merck delivered over $11 billion in oncology revenue in 2019 led by Keytruda®, a PD-1 antibody.

Roche delivered a highly impressive haul of $29 billion in oncology revenue in 2019 making it the world’s largest developer and marketer of drugs for cancer. This formidable accomplishment was bolstered by growth in a new generation of medications including Perjeta® (mAb for HER2+ cancer) and Tecentriq® (PD-L1 mAb).

Novartis delivered $14.4 billion in oncology revenue in 2019 despite suffering the results of genericization of Glivec®. Strong performance of Tasigna® plus the launch of new products including Kisqali®, Rydapt®, Sandostatin® and Kymriah® helped offset Glivec® genericization. Novartis has a strong pipeline including exciting potential for canakinumab in cancer care.

AstraZeneca delivered $8.7 billion in oncology revenue in 2019 led by Tagrisso® for lung cancer. Sales of Imfinzi® for lung and bladder cancer has done well as has Lynparza® for BRCA mutated cancers.

Bristol-Myers Squibb is on track to deliver nearly $26 billion in oncology revenue in 2020 led by Revlimid®, Opdivo®, a PD-1 antibody; Sprycel®, a BCR/Abl targeted drug for liquid tumors and Yervoy, a CTLA-4 antibody.
Top Branded Companies in Rare Disease

Table 20 provides a listing of the most valuable branded players whose leading product(s) are in the field of rare and orphan diseases.

**Table 20. Top Branded Pharmaceutical Companies in Rare Disease**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>HQ Country</th>
<th>Focus Area</th>
<th>Value ($mm)</th>
<th>Revenue ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sanofi</td>
<td>France</td>
<td>Genetic Disease</td>
<td>$120,109</td>
<td>$42,417</td>
</tr>
<tr>
<td>2</td>
<td>Takeda</td>
<td>Japan</td>
<td>Genetic Disease</td>
<td>$103,742</td>
<td>$30,091</td>
</tr>
<tr>
<td>3</td>
<td>Vertex Pharma</td>
<td>United States</td>
<td>Cystic Fibrosis</td>
<td>$64,577</td>
<td>$5,403</td>
</tr>
<tr>
<td>4</td>
<td>Grifols</td>
<td>Spain</td>
<td>IVIG + A1AT</td>
<td>$26,009</td>
<td>$6,024</td>
</tr>
<tr>
<td>5</td>
<td>Alexion</td>
<td>United States</td>
<td>PNH</td>
<td>$25,299</td>
<td>$5,537</td>
</tr>
<tr>
<td>6</td>
<td>Horizon Therapeutics</td>
<td>United States</td>
<td>Rare endocrine</td>
<td>$17,908</td>
<td>$1,518</td>
</tr>
<tr>
<td>7</td>
<td>BioMarin</td>
<td>United States</td>
<td>Genetic Disease</td>
<td>$13,815</td>
<td>$1,847</td>
</tr>
<tr>
<td>8</td>
<td>Sobi</td>
<td>Sweden</td>
<td>Rare immune</td>
<td>$8,711</td>
<td>$1,670</td>
</tr>
<tr>
<td>9</td>
<td>Jazz Pharma</td>
<td>United States</td>
<td>Sleep disorders</td>
<td>$8,417</td>
<td>$2,217</td>
</tr>
<tr>
<td>10</td>
<td>Mallinckrodt</td>
<td>United Kingdom</td>
<td>Corticotropin</td>
<td>$4,520</td>
<td>$2,381</td>
</tr>
<tr>
<td>11</td>
<td>Ultragenyx</td>
<td>United States</td>
<td>Genetic Disease</td>
<td>$4,152</td>
<td>$159</td>
</tr>
<tr>
<td>12</td>
<td>Amicus Therapeutics</td>
<td>United States</td>
<td>Genetic Disease</td>
<td>$3,492</td>
<td>$227</td>
</tr>
<tr>
<td>13</td>
<td>Dompé</td>
<td>Italy</td>
<td>Hematology</td>
<td>$3,349</td>
<td>$507</td>
</tr>
<tr>
<td>14</td>
<td>PTC Therapeutics</td>
<td>United States</td>
<td>Rare neurology</td>
<td>$3,095</td>
<td>$311</td>
</tr>
<tr>
<td>15</td>
<td>United Therapeutics</td>
<td>United States</td>
<td>PAH</td>
<td>$2,926</td>
<td>$1,431</td>
</tr>
<tr>
<td>16</td>
<td>bluebird bio</td>
<td>United States</td>
<td>Genetic Disease</td>
<td>$2,170</td>
<td>$240</td>
</tr>
<tr>
<td>17</td>
<td>Corcept Therapeutics</td>
<td>United States</td>
<td>Cushing's disease</td>
<td>$1,646</td>
<td>$351</td>
</tr>
<tr>
<td>18</td>
<td>Leadiant Biosciences</td>
<td>Italy</td>
<td>Diversified</td>
<td>$1,191</td>
<td>$181</td>
</tr>
<tr>
<td>19</td>
<td>AOP Orphan</td>
<td>Austria</td>
<td>Diversified</td>
<td>$794</td>
<td>$120</td>
</tr>
<tr>
<td>20</td>
<td>Retrophin</td>
<td>United States</td>
<td>Rare Kidney</td>
<td>$755</td>
<td>$187</td>
</tr>
<tr>
<td>21</td>
<td>Clinuvel Pharma</td>
<td>Switzerland</td>
<td>Rare Derm</td>
<td>$751</td>
<td>$23</td>
</tr>
<tr>
<td>22</td>
<td>Pharming</td>
<td>Netherlands</td>
<td>HAE</td>
<td>$744</td>
<td>$202</td>
</tr>
<tr>
<td>23</td>
<td>Saol Therapeutics</td>
<td>United States</td>
<td>Rare neurology</td>
<td>$462</td>
<td>$70</td>
</tr>
<tr>
<td>24</td>
<td>Vyera Pharma</td>
<td>United States</td>
<td>Neglected dis.</td>
<td>$462</td>
<td>$62</td>
</tr>
<tr>
<td>25</td>
<td>Catalyst Pharma</td>
<td>United States</td>
<td>Rare neurology</td>
<td>$233</td>
<td>$120</td>
</tr>
</tbody>
</table>

Source: Torreya analysis and CapitalIQ.

The rare disease field is growing rapidly and is becoming increasingly mainstream as evidenced by Takeda’s recent acquisition for Shire. Key Shire products now at Takeda include including Cinryze® for HAE and various immune globulin products. Takeda sells Elprase® and Replagal® for rare disease.
Other leaders include Vertex with a growing and strong franchise in CFTR modulators for cystic fibrosis; Alexion with Soliris for PNH and a growing portfolio; Grifols with a strong position in immune globulins for rare disease; Horizon with a strong position in Grave’s Disease and BioMarin with a strong franchise in drugs for ultra-rare diseases.

**Top Branded Companies in Ophthalmology**

Table 21 provides a listing of the most valuable branded players whose leading product(s) are in the field of ophthalmic diseases.

**Table 21.** Top Branded Pharmaceutical Companies in Ophthalmic Care

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>HQ Country</th>
<th>Focus Area</th>
<th>Value ($mm)</th>
<th>Revenue ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regeneron</td>
<td>United States</td>
<td>AMD</td>
<td>$57,507</td>
<td>$8,693</td>
</tr>
<tr>
<td>2</td>
<td>Bausch Health</td>
<td>Canada</td>
<td>Front of eye</td>
<td>$29,305</td>
<td>$8,109</td>
</tr>
<tr>
<td>3</td>
<td>Santen</td>
<td>Japan</td>
<td>Diversified</td>
<td>$7,080</td>
<td>$2,226</td>
</tr>
<tr>
<td>4</td>
<td>Kanghong Pharma</td>
<td>China</td>
<td>Back of eye</td>
<td>$5,800</td>
<td>$443</td>
</tr>
<tr>
<td>5</td>
<td>Laboratoires Théa</td>
<td>France</td>
<td>Diversified</td>
<td>$4,478</td>
<td>$679</td>
</tr>
<tr>
<td>6</td>
<td>URSAPHARM</td>
<td>Germany</td>
<td>Dry eye</td>
<td>$2,492</td>
<td>$0</td>
</tr>
<tr>
<td>7</td>
<td>Omeros</td>
<td>United States</td>
<td>Surgical pain</td>
<td>$1,642</td>
<td>$75</td>
</tr>
<tr>
<td>8</td>
<td>Farmigea</td>
<td>Italy</td>
<td>Diversified</td>
<td>$1,363</td>
<td>$207</td>
</tr>
<tr>
<td>9</td>
<td>Aerie Pharmaceuticals</td>
<td>United States</td>
<td>Glaucoma</td>
<td>$935</td>
<td>$100</td>
</tr>
<tr>
<td>10</td>
<td>NTC Pharma</td>
<td>Italy</td>
<td>Dry eye</td>
<td>$932</td>
<td>$2</td>
</tr>
<tr>
<td>11</td>
<td>Senju</td>
<td>Japan</td>
<td>Diversified</td>
<td>$838</td>
<td>$401</td>
</tr>
<tr>
<td>12</td>
<td>Nitto Medic</td>
<td>Japan</td>
<td>Diversified</td>
<td>$830</td>
<td>$61</td>
</tr>
<tr>
<td>13</td>
<td>Nicox</td>
<td>France</td>
<td>Glaucoma</td>
<td>$790</td>
<td>$120</td>
</tr>
<tr>
<td>14</td>
<td>EyePoint</td>
<td>United States</td>
<td>Diversified</td>
<td>$711</td>
<td>$340</td>
</tr>
<tr>
<td>15</td>
<td>Alimera Sciences</td>
<td>Untied States</td>
<td>Retinal Health</td>
<td>$516</td>
<td>$7</td>
</tr>
</tbody>
</table>

Source: Torreyan analysis and CapitalIQ.

Regeneron is the largest branded player whose lead product (Eylea®) is in ophthalmology. They have built a significant sales force in the U.S. in the area.

Bausch Health is also highly committed to the field and has recently indicated that they intend to spin out their eye business as Bausch+Lomb.

Santen has built a very strong franchise in Japan and is increasingly focused on international expansion.
Kanghong has introduced an anti-VEGF antibody into the China market and is doing quite well there. Laboratoires Théa is world leader in ophthalmic innovation and positions themselves as providing a diversified set of products that will satisfy many different types of patients that are seen by an ophthalmologist.

Some key players that are not shown here because ophthalmology is not their primary indication include Novartis (full product set including Xiidra® from Shire) and AbbVie (acquired Allergan). Bayer and Roche are also major players in the field with a focus on back of the eye biologics.
### Table 22. Top Animal Health Companies by Value, September 2020

<table>
<thead>
<tr>
<th>AH Rank</th>
<th>Global Rank</th>
<th>Company</th>
<th>Location</th>
<th>Value ($mm)</th>
<th>Revenue ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19</td>
<td>Zoetis</td>
<td>United States</td>
<td>$79.2 billion</td>
<td>$6.3 billion</td>
</tr>
<tr>
<td>2</td>
<td>62</td>
<td>Elanco</td>
<td>United States</td>
<td>$14 billion</td>
<td>$2.8 billion</td>
</tr>
<tr>
<td>3</td>
<td>154</td>
<td>Ceva Santé Animale</td>
<td>Germany</td>
<td>$5 billion</td>
<td>$1.4 billion</td>
</tr>
<tr>
<td>4</td>
<td>164</td>
<td>Dechra Pharma</td>
<td>United Kingdom</td>
<td>$4.7 billion</td>
<td>$637.7 million</td>
</tr>
<tr>
<td>5</td>
<td>234</td>
<td>China Animal Husbandry</td>
<td>China</td>
<td>$3 billion</td>
<td>$644.4 million</td>
</tr>
<tr>
<td>6</td>
<td>236</td>
<td>Genus</td>
<td>United Kingdom</td>
<td>$3 billion</td>
<td>$682.7 million</td>
</tr>
<tr>
<td>7</td>
<td>306</td>
<td>Virbac</td>
<td>France</td>
<td>$2.3 billion</td>
<td>$1 billion</td>
</tr>
<tr>
<td>8</td>
<td>309</td>
<td>Kyoritsu Seiyaku</td>
<td>Japan</td>
<td>$2.3 billion</td>
<td>$524 million</td>
</tr>
<tr>
<td>9</td>
<td>348</td>
<td>Brilliant Pharma</td>
<td>China</td>
<td>$1.8 billion</td>
<td>$500 million</td>
</tr>
<tr>
<td>10</td>
<td>407</td>
<td>Huvepharma</td>
<td>Bulgaria</td>
<td>$1.4 billion</td>
<td>$320 million</td>
</tr>
<tr>
<td>11</td>
<td>408</td>
<td>Norbrook Laboratories</td>
<td>United Kingdom</td>
<td>$1.4 billion</td>
<td>$317.5 million</td>
</tr>
<tr>
<td>12</td>
<td>466</td>
<td>Phibro Animal Health</td>
<td>United States</td>
<td>$1.1 billion</td>
<td>$800.3 million</td>
</tr>
<tr>
<td>13</td>
<td>519</td>
<td>Bimeda Animal Health</td>
<td>Ireland</td>
<td>$942.3 million</td>
<td>NA</td>
</tr>
<tr>
<td>14</td>
<td>533</td>
<td>IDT Biologika</td>
<td>Germany</td>
<td>$907.9 million</td>
<td>$210.1 million</td>
</tr>
<tr>
<td>15</td>
<td>538</td>
<td>Vétoquinol</td>
<td>France</td>
<td>$891 million</td>
<td>$444.3 million</td>
</tr>
<tr>
<td>16</td>
<td>561</td>
<td>Jinhe Biotech</td>
<td>China</td>
<td>$841.1 million</td>
<td>$254.3 million</td>
</tr>
<tr>
<td>17</td>
<td>569</td>
<td>Laboratorios Bio-vet</td>
<td>Brazil</td>
<td>$828.1 million</td>
<td>NA</td>
</tr>
<tr>
<td>18</td>
<td>568</td>
<td>Biovet</td>
<td>Bulgaria</td>
<td>$828.1 million</td>
<td>NA</td>
</tr>
<tr>
<td>19</td>
<td>575</td>
<td>Komipharm International</td>
<td>South Korea</td>
<td>$811.6 million</td>
<td>$31.6 million</td>
</tr>
<tr>
<td>20</td>
<td>576</td>
<td>HIPRA</td>
<td>Spain</td>
<td>$810.8 million</td>
<td>$187.6 million</td>
</tr>
<tr>
<td>21</td>
<td>726</td>
<td>ZENOAQ</td>
<td>Japan</td>
<td>$539.1 million</td>
<td>$293 million</td>
</tr>
<tr>
<td>22</td>
<td>781</td>
<td>Fatro</td>
<td>Italy</td>
<td>$481.6 million</td>
<td>$111.5 million</td>
</tr>
<tr>
<td>23</td>
<td>938</td>
<td>Ouro Fino Saúde Animal</td>
<td>Brazil</td>
<td>$326.9 million</td>
<td>$115.9 million</td>
</tr>
<tr>
<td>24</td>
<td>1062</td>
<td>Farmabase</td>
<td>Brazil</td>
<td>$226.8 million</td>
<td>$52.5 million</td>
</tr>
<tr>
<td>25</td>
<td>1083</td>
<td>Oasnia</td>
<td>Sweden</td>
<td>$213.7 million</td>
<td>$21.1 million</td>
</tr>
</tbody>
</table>

Source: Torreya analysis and CapitalIQ.

The animal health sector is distinct from human branded pharmaceutical sales in a number of ways. Distribution channels are different as are the nature of products. There is, in general, no notion of substitution of off-patent medicines at the pharmacy. For both companion animals
and livestock, off patent medicines and patented medicines are routinely sold together. Companies in this area often sell therapeutics together with vaccines, diagnostics and other value added products for veterinarians.

Table 22 provides a listing of the most valuable players in animal health therapeutics as of September 2020. Zoetis is by far the most valuable player. With trailing EBITDA of $2.6 billion Zoetis serves veterinarians, livestock producers and people who raise and care for farm and companion animals in more than 100 countries.

Fresh from its spin from Eli Lilly, Elanco Animal Health has moved rapidly to build up its franchise through the acquisition of Bayer’s animal health business. Focused on delivering growth, Elanco has posted trailing EBITDA of over $500 million and is working on a new generation of animal medicines including biologics.

Other large players in the sector include Ceva Santé Animale, Dechra Pharma, China Animal Husbandry, Genus plc and Virbac.

Not shown here are large animal businesses embedded inside other companies. These include (1) Boehringer-Ingelheim’s animal health business with $4.7 billion in revenue in 2019 and (2) Merck’s Merial business with revenues of $4.4 billion in 2019 and $1.6 billion in operating cash flow.
The Unsettled Generic Pharma Sector

Section Highlights

- The aggregate value of the INN generic companies in the Pharma 1000 list is $207 billion on $73 billion in total revenue (2.8 times revenue).
- The aggregate value of the branded generics companies is $255 billion on $85.9 billion in revenue (3.0 times revenue).
- We predict major challenges to come in the complex generics sector due to high levels of entry in this field.
- We also predict a shift in distribution models including more distribution direct to the consumer, direct to the clinic and via combination between providers and producers of generics.

The Evolving Generic Sector

The generic pharmaceutical sector has never been more important for global health. And yet, recent years have been challenging for many players in the industry.

Roughly speaking the world of generics follows two models. In the U.S., Canada, the UK, the Nordic countries and Germany (usually) generic drugs are interchangeable and can be substituted for brands at the pharmacy unless a physician expressly requests that a specific brand be written. Such generic products are referred to as INN generics and compete on price. Little to no promotion of such products is required by the manufacturer.

In the rest of the world, generic products are sold as non-patented ethical pharmaceuticals but are generally not substitutable at the pharmacy. Even when INN generics are available, in many countries physicians are encouraged not to request such generics prescribing. In such countries we term generic products that are sold as “Branded Generics”.

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Branded generic manufacturers can face fierce competition. One can often find more than a dozen manufacturers vying to sell the same active ingredient through different formulations in numerous global locales. But despite this competition and the need to engage in promotion, branded generic manufacturers are more profitable, on average, and trade for higher multiples.

We count at least 60 companies that are principally manufacturers of INN generics (e.g., Teva, Mylan) and over 500 companies that are principally manufacturers of branded generics.

The aggregate value of the INN generic companies in the Pharma 1000 list is $207 billion on $73 billion in total revenue (2.8 times revenue). The aggregate value of the branded generics companies is $255 billion on $85.9 billion in revenue (3.0 times revenue).

Because of the relative ease of entry into the generics sector and the lack of need of a sales force, the INN generics field has seen margins decline rapidly in the last several years – particularly in the United States.

Overall, INN generics companies have lost value in the last four years and are a rare part of the pharmaceutical sector that is not thriving amidst global growth and increasing life spans.

In contrast, the branded generic sector has been expanding quickly and has reflected increasing usage/access to modern medicines in many countries such as Brazil, China, India, Indonesia, Poland and Russia. Some manufacturers based in the U.S. and Europe (e.g., Abbott EPD, Acino and Zentiva) have specifically focused their efforts outside of those territories in an effort to gain greater exposure to the branded generics opportunity in emerging markets.

**Leading Players in INN Generics**

Table 23 lists the 25 largest players in INN generics by value. Many of these companies are understandably diversified in both branded patented and non-patented drugs as well. For this list, we have also included divisions of pharma companies that are in INN generics (e.g., Sandoz division of Novartis) and have valued these as if they were private companies.
The sector is led by Sandoz which has the second largest revenue total in the sector. Teva follows at #2 and is down in value from revenue a bit from recent years, largely due to challenges in the U.S. market.

Mylan follows at #3 and has performed quite well during a tough period; Mylan revenue is up over 20% in the last five years whereas Teva and Sandoz are down.

**Table 23. Top 25 INN Generic Pharmaceutical Companies**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>HQ Country</th>
<th>Portfolio</th>
<th>Value ($mm)</th>
<th>Revenue ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sandoz</td>
<td>Germany</td>
<td>Diversified</td>
<td>$35,766</td>
<td>$9,935</td>
</tr>
<tr>
<td>2</td>
<td>Teva Generic Segment</td>
<td>Israel</td>
<td>Diversified</td>
<td>$33,574</td>
<td>$9,326</td>
</tr>
<tr>
<td>3</td>
<td>Mylan</td>
<td>United States</td>
<td>Diversified</td>
<td>$20,138</td>
<td>$11,504</td>
</tr>
<tr>
<td>4</td>
<td>Sun Pharma</td>
<td>India</td>
<td>Diversified</td>
<td>$16,272</td>
<td>$4,243</td>
</tr>
<tr>
<td>5</td>
<td>Fresenius Kabi Segment</td>
<td>Germany</td>
<td>Injectables, biosims</td>
<td>$12,591</td>
<td>$3,497</td>
</tr>
<tr>
<td>6</td>
<td>Dr. Reddy's</td>
<td>India</td>
<td>Diversified</td>
<td>$9,870</td>
<td>$2,387</td>
</tr>
<tr>
<td>7</td>
<td>Hetero Drugs</td>
<td>India</td>
<td>Diversified</td>
<td>$8,594</td>
<td>$2,387</td>
</tr>
<tr>
<td>8</td>
<td>Hikma</td>
<td>UK/Jordan</td>
<td>Injectables</td>
<td>$8,265</td>
<td>$2,292</td>
</tr>
<tr>
<td>9</td>
<td>Cipla</td>
<td>India</td>
<td>Diversified</td>
<td>$7,962</td>
<td>$2,308</td>
</tr>
<tr>
<td>10</td>
<td>STADA</td>
<td>Germany</td>
<td>Diversified</td>
<td>$7,184</td>
<td>$3,163</td>
</tr>
<tr>
<td>11</td>
<td>Torrent Pharma</td>
<td>India</td>
<td>Diversified</td>
<td>$7,047</td>
<td>$1,056</td>
</tr>
<tr>
<td>12</td>
<td>Endo Generics</td>
<td>United States</td>
<td>Injectables, Orals</td>
<td>$6,995</td>
<td>$1,943</td>
</tr>
<tr>
<td>13</td>
<td>Aurobindo</td>
<td>India</td>
<td>Diversified</td>
<td>$6,693</td>
<td>$3,121</td>
</tr>
<tr>
<td>14</td>
<td>Zydus Cadila</td>
<td>India</td>
<td>Diversified</td>
<td>$6,161</td>
<td>$1,906</td>
</tr>
<tr>
<td>15</td>
<td>Lupin</td>
<td>India</td>
<td>Complex Generics</td>
<td>$5,923</td>
<td>$1,989</td>
</tr>
<tr>
<td>16</td>
<td>Apotex</td>
<td>Canada</td>
<td>Diversified</td>
<td>$5,055</td>
<td>$2,014</td>
</tr>
<tr>
<td>17</td>
<td>Alkem</td>
<td>India</td>
<td>Oral Solid Dose</td>
<td>$4,818</td>
<td>$1,125</td>
</tr>
<tr>
<td>18</td>
<td>Amneal Generics</td>
<td>United States</td>
<td>Diversified</td>
<td>$4,712</td>
<td>$1,309</td>
</tr>
<tr>
<td>19</td>
<td>Intas Pharma</td>
<td>India</td>
<td>Biosimilars, Orals</td>
<td>$4,602</td>
<td>$1,833</td>
</tr>
<tr>
<td>20</td>
<td>American Regent / DS</td>
<td>United States</td>
<td>Injectables</td>
<td>$3,996</td>
<td>$1,110</td>
</tr>
<tr>
<td>21</td>
<td>Perrigo Rx Business</td>
<td>United States</td>
<td>Topicals</td>
<td>$3,485</td>
<td>$968</td>
</tr>
<tr>
<td>22</td>
<td>Dermapharm</td>
<td>Germany</td>
<td>Topicals, Oral Solids</td>
<td>$3,413</td>
<td>$817</td>
</tr>
<tr>
<td>23</td>
<td>Ipca</td>
<td>India</td>
<td>Oral Solid Dose, API</td>
<td>$3,361</td>
<td>$618</td>
</tr>
<tr>
<td>24</td>
<td>Jubilant Cadista</td>
<td>India</td>
<td>Oral Solids</td>
<td>$2,732</td>
<td>$759</td>
</tr>
<tr>
<td>25</td>
<td>Alembic</td>
<td>India</td>
<td>Diversified</td>
<td>$2,693</td>
<td>$662</td>
</tr>
</tbody>
</table>

*Source: Torreya analysis and S&P Capital IQ*

Remarkably, Mylan trades for less than two times revenue and less than six times EBITDA. This may be a reflection of the company’s travails with the Epi-Pen market. Mylan has relatively low leverage compared to its peers like ENDO and Teva. Sun Pharma is now #4 in the world on an
impressive topline revenue performance of $16.3 billion. Many other leading Indian generic players (e.g., Zydus, Lupin, Aurobindo) have suffered from a difficult pricing environment in the United States and generally trade for less than three times revenue.

Figure 4 shows trading performance of eight leading generic companies versus the S&P 500 Index over the last five years. The chart is self-explanatory. Poor market conditions have severely affected the generic sector.

**Figure 4.** S&P 500 Index versus an Index of the Generic Company Shares (Mylan, Teva, Sun, ENDO, Lupin, Dr. Reddys, Aurobindo, Hikma, Cipla), Sep 2015 to Sep 2020.
Comprehensive Generic Industry Value League Table

In February 2016 we published a report that valued the top 100 generic companies in the world. This report used the same method applied here except that it also pulled out generic segments from companies such as Novartis (Sandoz), Pfizer (Pfizer Essential Health), etc. In addition, some of the segments were trimmed down to just include generics (e.g., this was done for Fresenius). In this way, we were able to provide a comprehensive generic industry league table.

We thought it would be interesting to recreate the previous list and show how the Top 25 from our Feb 2016 report have fared since. See Table 24.

You will note that the list has changed dramatically in just five years. Because the INN sector has been hit by U.S. competitive dynamics, both revenues and multiples of those companies are down. As a result, most INN generic companies have fallen down in the league table. In addition, because of exceptional growth, China pharma companies are both larger today. The result is that Chinese companies have displaced many of the INN generic companies on this list.

Teva has suffered greatly, in part due to excessive debt associated with its acquisition of Actavis generics.

Sandoz and Sun have declined in line with the INN sector multiples and US dynamics.

Mylan and Abbott EPD have suffered less due to their international exposure. Dr. Reddys, Hikma, Cipla and Aurobindo have all gone up in value. Each of these companies has selected their portfolios well and has shown an ability to grow a global business despite a difficult market.

Aurobindo, for example, has done quite well in Europe while Reddy’s has performed well in India and has built up a branded business.

Hikma’s business delivered $861mm in generic revenue in 2015 and by 2019 this jumped to $1.6 billion. Our conversations with Hikma reveal a company that is fanatically focused on portfolio selection and on delivering the right approvals.

Table 24. The Top Generic Companies of 2016 – Where Are They Now?

<table>
<thead>
<tr>
<th>Rank in 2016</th>
<th>Rank in 2020</th>
<th>Company</th>
<th>HQ Country</th>
<th>2020 Value</th>
<th>2016 Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>Pfizer Essential Health²</td>
<td>United States</td>
<td>68,040</td>
<td>84,621</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>Teva Generics</td>
<td>Israel</td>
<td>33,574</td>
<td>70,301</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>Sandoz</td>
<td>Germany</td>
<td>35,766</td>
<td>36,495</td>
</tr>
<tr>
<td>4</td>
<td>21</td>
<td>Sun Pharma</td>
<td>India</td>
<td>16,272</td>
<td>30,035</td>
</tr>
<tr>
<td>5</td>
<td>12</td>
<td>CR Pharma Rx</td>
<td>Hong Kong</td>
<td>NA¹</td>
<td>29,047</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>Yangtze River Pharma</td>
<td>China</td>
<td>43,507</td>
<td>28,185</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>Mylan</td>
<td>United States</td>
<td>20,210</td>
<td>28,170</td>
</tr>
<tr>
<td>8</td>
<td>18</td>
<td>EMS</td>
<td>Brazil</td>
<td>NA¹</td>
<td>16,464</td>
</tr>
<tr>
<td>9</td>
<td>25</td>
<td>Abbott EPD Segment</td>
<td>United States</td>
<td>16,150</td>
<td>14,533</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>Hengrui Medicine</td>
<td>China</td>
<td>NA¹</td>
<td>13,235</td>
</tr>
<tr>
<td>11</td>
<td>44</td>
<td>Lupin</td>
<td>India</td>
<td>6,408</td>
<td>11,019</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>Fresenius IV Drugs</td>
<td>Germany</td>
<td>12,485</td>
<td>10,463</td>
</tr>
<tr>
<td>13</td>
<td>22</td>
<td>Aspen Pharmacare</td>
<td>South Africa</td>
<td>5,660</td>
<td>9,864</td>
</tr>
<tr>
<td>14</td>
<td>32</td>
<td>ENDO Generics</td>
<td>Ireland</td>
<td>6,995</td>
<td>9,549</td>
</tr>
<tr>
<td>15</td>
<td>10</td>
<td>Celltrion</td>
<td>South Korea</td>
<td>33,467</td>
<td>9,533</td>
</tr>
<tr>
<td>16</td>
<td>94</td>
<td>Perrigo Rx</td>
<td>Ireland</td>
<td>3,485</td>
<td>7,868</td>
</tr>
<tr>
<td>17</td>
<td>7</td>
<td>Sanofi Mature/Gx</td>
<td>France</td>
<td>4,374</td>
<td>7,775</td>
</tr>
<tr>
<td>18</td>
<td>50</td>
<td>Dr. Reddy’s</td>
<td>India</td>
<td>10,070</td>
<td>7,317</td>
</tr>
<tr>
<td>19</td>
<td>88</td>
<td>Sinopharm Shyndec</td>
<td>China</td>
<td>1,841</td>
<td>7,208</td>
</tr>
<tr>
<td>20</td>
<td>52</td>
<td>Hikma</td>
<td>Jordan</td>
<td>8,435</td>
<td>6,503</td>
</tr>
<tr>
<td>21</td>
<td>62</td>
<td>Apotex</td>
<td>Canada</td>
<td>7,250</td>
<td>6,388</td>
</tr>
<tr>
<td>22</td>
<td>14</td>
<td>GSK Est. Pharma</td>
<td>UK</td>
<td>41,072</td>
<td>6,272</td>
</tr>
<tr>
<td>23</td>
<td>34</td>
<td>Cipla</td>
<td>India</td>
<td>8,326</td>
<td>6,164</td>
</tr>
<tr>
<td>24</td>
<td>40</td>
<td>Zydus</td>
<td>India</td>
<td>6,297</td>
<td>6,164</td>
</tr>
<tr>
<td>25</td>
<td>45</td>
<td>Aurobindo</td>
<td>India</td>
<td>6,942</td>
<td>5,942</td>
</tr>
<tr>
<td>26</td>
<td>24</td>
<td>Huadong Medicine</td>
<td>China</td>
<td>6,395</td>
<td>5,558</td>
</tr>
<tr>
<td>27</td>
<td>19</td>
<td>CSPC Pharma</td>
<td>China</td>
<td>NA¹</td>
<td>5,473</td>
</tr>
<tr>
<td>28</td>
<td>16</td>
<td>Fosun Pharma</td>
<td>China</td>
<td>NA¹</td>
<td>4,781</td>
</tr>
<tr>
<td>29</td>
<td>33</td>
<td>Roemmers</td>
<td>Argentina</td>
<td>10,800</td>
<td>4,116</td>
</tr>
<tr>
<td>30</td>
<td>6</td>
<td>Qilu Pharma</td>
<td>China</td>
<td>NA¹</td>
<td>3,834</td>
</tr>
</tbody>
</table>

Source: Torreya analysis.

¹This is no longer classified by us as a generic company. CR Pharma is almost entirely engaged in Traditional Chinese Medicines which are not generic versions of chemical drugs. We have classified Fosun, Hengrui and Qilu and branded pharma companies given the large preponderance of branded products that they have introduced to the China market since 2015. We have also classified NC Pharma as a branded pharma company as it is introducing a significant fraction of branded patented drugs to the Brazil market since 2015.

²Pfizer reclassified its segment reporting in 2017. In FY 2016, Pfizer listed $29.1bn in Innovative Health and $23.6bn in Essential Health. In 2017, Pfizer’s newly created Biopharma business increased to $35.3bn while its Upjohn (branded generic) business showed $13.4bn. It is the latter business which is being merged into Mylan. To get an apples to apples comparison we added back revenue in 2019 from biosimilars, hospital products and CentreOne to Upjohn. Upjohn revenues in 2019 were $10.23bn. With the addbacks ($8.68bn), Pfizer Essential Health would have done $18.9bn.
Table 25. The Top Generic Companies of 2020 (Branded and INN Generics Combined)

<table>
<thead>
<tr>
<th>Value Rank</th>
<th>Revenue Rank</th>
<th>Company</th>
<th>HQ Country</th>
<th>Value ($mm)</th>
<th>Revenue ($mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Pfizer Legacy Medicines</td>
<td>United States</td>
<td>$68,040</td>
<td>$18,900</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Yangtze River Pharma</td>
<td>China</td>
<td>$43,507</td>
<td>$12,085</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>GSK Established Brands</td>
<td>United Kingdom</td>
<td>$41,072</td>
<td>$11,409</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>Sandoz</td>
<td>Germany</td>
<td>$35,766</td>
<td>$9,935</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>Teva Generic Segment</td>
<td>Israel</td>
<td>$33,574</td>
<td>$9,326</td>
</tr>
<tr>
<td>6</td>
<td>56</td>
<td>Celltrion</td>
<td>South Korea</td>
<td>$33,467</td>
<td>$1,228</td>
</tr>
<tr>
<td>7</td>
<td>63</td>
<td>Changchun Tech</td>
<td>China</td>
<td>$22,597</td>
<td>$1,118</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>Kelun Group</td>
<td>China</td>
<td>$21,600</td>
<td>$6,000</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>Mylan</td>
<td>United States</td>
<td>$20,210</td>
<td>$11,504</td>
</tr>
<tr>
<td>10</td>
<td>16</td>
<td>Sun Pharma</td>
<td>India</td>
<td>$16,394</td>
<td>$4,243</td>
</tr>
<tr>
<td>11</td>
<td>13</td>
<td>Abbott EPD</td>
<td>United States</td>
<td>$16,150</td>
<td>$4,486</td>
</tr>
<tr>
<td>12</td>
<td>144</td>
<td>Hualan Bio</td>
<td>China</td>
<td>$13,054</td>
<td>$521</td>
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<tr>
<td>13</td>
<td>17</td>
<td>Fresenius Kabi IV Drugs</td>
<td>Germany</td>
<td>$12,485</td>
<td>$3,468</td>
</tr>
<tr>
<td>14</td>
<td>300</td>
<td>Walvax</td>
<td>China</td>
<td>$12,451</td>
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<td>19</td>
<td>Shanghai Pharma - mfg</td>
<td>China</td>
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<td>$3,374</td>
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<td>20</td>
<td>Tianjin Pharma</td>
<td>China</td>
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<td>$3,338</td>
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<tr>
<td>17</td>
<td>23</td>
<td>Roemmers</td>
<td>Argentina</td>
<td>$10,800</td>
<td>$3,000</td>
</tr>
<tr>
<td>18</td>
<td>28</td>
<td>Dr. Reddy’s</td>
<td>India</td>
<td>$10,070</td>
<td>$2,387</td>
</tr>
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<td>19</td>
<td>25</td>
<td>Harbin Pharma</td>
<td>China</td>
<td>$9,720</td>
<td>$2,700</td>
</tr>
<tr>
<td>20</td>
<td>169</td>
<td>Gan &amp; Lee Pharma</td>
<td>China</td>
<td>$9,278</td>
<td>$445</td>
</tr>
</tbody>
</table>

Source: Torreya analysis.

Table 25 shows an integrated generic industry ranking as of September 2020. We have already touched on many of the key themes that emerge from this table.

We wish to call out manufactures of biosimilars for outstanding performance. Celltrion has delivered on its promise in 2015 (at the time there were many skeptics). Also Changchun, Hulan and Walvax have all built up impressive biosimilar portfolios for the China market.

Predictions from the 2016 Generics Yearbook

One hates to ever go back and look at what was said before in the way of predictions. This is generally not done in polite company in the pharmaceutical sector.

We thought it would, nonetheless, be interesting to see how our 2016 prognostications for the generic industry have fared four years later.

We predicted:
1. Continued consolidation. Larger players have more power against wholesalers and an advantage over others.
2. Continued focus on advanced technologies.
3. Continued globalization.
4. Continued benefit for consumers due to low prices.

**Prediction 1:** Looking back, there has not been nearly the consolidation that we would have imagined. The years 2014 and 2015 were peak years for generic industry M&A. We got this wrong.

**Prediction 2:** New generic products have, indeed, become more sophisticated and advanced technologies in microspheres, biologics, peptides, liquids have taken increasing share of the industry. We got this largely right.

**Prediction 3:** We got the globalization theme right. The value share of the industry has shifted away from U.S., European, Indian and Israeli players towards China and South Korea. We did not anticipate the significant number of acquisitions of European and Western companies by Chinese players.

**Prediction 4:** Deep price cuts have continued in Europe and especially the U.S. with consequent benefits for consumers. We got this prediction right.

Looking forward we have a number of new predictions to make for the generic sector:

**Prediction 1:** Stabilization of the U.S. market due to less market entry. The generic market is continually remaking itself as products go off patent and become open for genericization. We believe that there will be less investment. Figure 5 below, for example, shows the decline in submission of ANDA’s to the US FDA in recent years.
**Prediction 2:** Challenges in the complex generics sector. As the generic market has become more competitive, quite a few players have shifted their focus to complex generics and injectable products. These include depot products, respiratory products, long peptides and hospital sterile products. While complex products are harder to compete in we see a market that risks excess entry over time. To add to this, a number of governments are starting to focus on price regulation in the complex sphere more aggressively.

**Prediction 3:** Shift to alternative distribution models. Generic drugs are distributed in many different ways across the world. In China, for example, they are typically dispensed at the hospital pharmacy. In India, they are purchased at the pharmacist who is to be found on every block. Distribution in all of these countries has been impacted by heavy payments to middlemen. This is a particular issue in the United States. China was the first to act, instituting a so called two invoice system which has cut out layers of middlemen in the system. India is
starting to consolidate distribution. Europe is continuing to consolidate and simplify distribution. We see a world where consumers have much more input into their generic drug consumption. This is evident across the world in 2020 as consumers are resorting to telemedicine consultations. Consumers are learning to demand the medicines they want through the telemedicine system. In the U.S. generic drugs are being sold through private pay direct-to-consumer companies like HIMS, ro.co, Lemonaid, Capsule and the Pill Club. Similar companies are popping up in other geographies, especially India, South Europe and Southeast Asia. Institutional users are also shifting to more sophisticated buying patterns, perhaps most evidently seen with the advent of CivicaRx in the U.S. – in which hospitals have directly entered the generic manufacturing business. We see much more diversity in how drugs are delivered through the system in years ahead. It should be good for manufacturers, bad for middlemen and great for consumers.
Top 1000 Global Pharmaceutical Companies Ranked by Value
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<th>Revenue (Trailing)</th>
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# Pharma 1000, Ranks 601 to 640

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## Pharma 1000, Ranks 761 to 800

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<td>Value Rank 2020</td>
<td>Name</td>
<td>Headquarters Location</td>
<td>Value Estimate (Sep 2020)</td>
<td>Revenue (Trailing)</td>
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<td>Mumbai, India</td>
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<td>The Searle Company</td>
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<td>$94 mn</td>
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<td>Zhejiang Province, China</td>
<td>$335.5 mn</td>
<td>$55 mn</td>
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Profiles of the Top 500 Global Pharmaceutical Companies
Roche is headquartered in Basel, Switzerland and was founded in 1896 by Fritz Hoffmann-La Roche. The company’s first products were thyroid preparations. After WWI, Roche became the first company to mass-produce vitamin C. Today Roche operates in two divisions, pharmaceuticals and diagnostics, and sells products in over 190 countries and territories. Roche acquired Genentech in full in 2009 and owns 60% of Chugai. Roche’s 97,000+ employees help to deliver $67 billion in group revenues in 2019. Roche’s therapeutic priorities in pharma are oncology, immunology, ophthalmology, infectious diseases and neuroscience. Key growth drivers include Esbriet® for IPF, the multiple sclerosis medicine Ocrevus® and the new hemophilia medicine Hemlibra®. Roche has been at the forefront of cancer treatments for over 50 years and is renowned for its in vitro diagnostics. Roche is the world’s largest marketer of drugs for cancer, delivering $27.9 billion in sales in 2019 (key products are Avastin®, Herceptin® and Rituxan®). At the same time Roche is building the franchise by running more than 45 Phase 3 cancer trials. A pioneer in personalized healthcare, Roche offers doctors and patients in-depth information to guide treatments, recognizing the power of knowledge and the importance of individuality. Many of Roche’s activities help advance the Sustainable Development Goals, with a focus on good health with a particular focus on improved global access to healthcare for the most vulnerable. Roche went public in 2003.

Recent Developments
Roche has continued to build its formidable franchise with recent introductions of Hemlibra® for hemophilia and Perjeta® and Tecentriq® for cancer. Roche has aggressively built its business with acquisitions of Spark Therapeutics, Promedior, Foundation Medicine and Flatiron. Roche has helped to combat the COVID-19 virus by making its cobas SARS-CoV-2 test available for COVID-19 pneumonia. Roche is also making rapid tests available. Roche is the world’s most valuable pharmaceutical company in our rankings. This distinction reflects decades of hard work by its many employees, astute drug development and the long-term support of its ownership family.

Financials (September 2020)
Enterprise Value: $328 billion
Annual Revenue: $49 billion

Notes
We valued Roche’s pharma area as a standalone business segment excluding both Chugai and Roche Diagnostics. The Company’s segment data from 2019 was used to obtain pharma revenue. Then the branded pharma sector average revenue multiple was applied to obtain a value estimate of the pharma business.
**Description**

Janssen was established in 1973 and is headquartered in Titusville, New Jersey. The Company is the pharmaceutical division of Johnson & Johnson, which was founded in 1886. Janssen takes its name from Janssen Pharmaceutica N.V. which became part of the Johnson & Johnson family of companies in 1961. Its founder Dr. Paul Janssen was responsible for many disease breakthroughs and often said “There is so much more to be done; the patients are waiting.” Janssen develops treatments in the therapeutic areas of cardiovascular and metabolism, immunology, infectious diseases, vaccines, neurosciences, oncology and pulmonary hypertension. J&J delivered a stunning $82 billion in revenue in 2019 making it the world’s largest and most valuable healthcare company. This included $42.2 billion from Janssen which we value as a separate segment given that it comprises roughly half of all J&J revenue. Key Janssen products include REMICADE®, STELARA® and SIMPONI® for immunology, INVEGA SUSTENNA® for neuroscience, PREZCOBIX® and OLYSIO® in infectious disease, INVOKANA® in cardiovascular, DARZALEX® and ZYTIGA® in oncology and TRACLEER® in pulmonary hypertension. Present in 150 countries, Janssen focuses on their ability to collaborate globally to better the health of everyone in the world. The company’s credo puts the needs and well-being of the people they serve first.

**Recent Developments**

Janssen has thrived [thus far] in 2020 with strong revenue growth from STELARA® (IL-12/IL-23 mAb) in Crohn’s Disease and TREMFYA® (anti IL-23) in Psoriasis. DARZALEX® and IMBRUVICA® have both done well in hematology. On the neuroscience side, Janssen has also seen excellent growth off of its INVEGA® franchise. Key developments in 2020 include strong contributions to combatting COVID-19, some headwinds from talc litigation and superb data on its CAR-t BCMA program.

**Financials (September 2020)**

- Enterprise Value: $279 billion
- Annual Revenue: $42 billion

**Notes**

We valued J&J’s pharma business (Janssen) as a standalone business segment. J&J segment data from 2019 was used to obtain pharma revenue. We multiplied this times the median multiple for publicly-traded branded phamas to impute a value estimate of Janssen.
Pfizer

GLOBAL VALUE RANK
(September 2020)

3

235 East 42nd Street
New York, New York
10017
United States

+1212 733 2323

www.pfizer.com

NYSE:PFE

DESCRIPTION
Founded in 1849 and headquartered in New York City, Pfizer was primarily a manufacturer of fine chemicals. Fifty years later, the Company provided a worldwide import-export business, boasting a diverse portfolio of industrial and pharmacological products including cream of tartar, citric acid, and iodine. In 1950, the discovery of oxytetracycline allowed Pfizer to eventually mass-produce the drug Terramycin, and today it is a globally-renowned research-based biopharmaceutical company. Pfizer’s strategy is based on leading through innovation, maximizing value, and building a sustainable culture that fosters idea creation and teamwork. Principal products include Ibrance® (breast cancer), Eliquis® (anticoagulant), Prevnar® (vaccine) and Xeljanz® (JAK inhibitor for rheumatoid arthritis). Key acquisitions in recent years have included Array, Medivation, Anacor, Bamboo Therapeutics and Hospira. Pfizer has also used large mergers to aid its growth. In 2000 Pfizer acquired Warner Lambert for $90 billion. In 2003 Pfizer acquired Pharmacia for $60 billion. Pfizer is working with the United Nations to help achieve the Sustainable Development Goals, and is committed to using their knowledge, expertise and resources to help advance these goals. Pfizer went public in 1942.

RECENT DEVELOPMENTS
Led by CEO Albert Bourla, Pfizer is transforming into a pure play pharma innovation platform. Pfizer has contributed its consumer product business to a joint venture with GSK and spun out its animal health business as Zoetis. Pfizer is also in the process of spinning out its Upjohn legacy product business to Mylan through a combination that will be headquartered in China. Key areas of focus are internal medicine, oncology, vaccines and immunology. Pfizer has been pushing ahead on many fronts in 2020 including gene therapy programs, rare disease, oncology, new indications for Ibrance® and filings for Abrocitinib in Atopic Dermatitis.

FINANCIALS (SEPTEMBER 2020)
Enterprise Value: $257 billion
Annual Revenue: $49 billion

NOTES
We used Pfizer’s enterprise value of September 30, 2020 as our estimate of value. We deducted the value of Pfizer’s 16% stake in Allogene.
Description
Formed in 2013, when Abbott Laboratories split, AbbVie is headquartered in North Chicago, Illinois. AbbVie is a research-driven pharmaceutical manufacturer and is present in over 170 countries. It focuses on therapies in immunology, oncology, neuroscience, eye care, virology, women’s health, aesthetics and gastroenterology. AbbVie’s lead product, Humira® is used to treat autoimmune diseases. The Company targets difficult-to-cure diseases in order to leverage their research and development expertise to advancing science, hoping to create solutions that go beyond treating illness to having a positive impact on society. The culture at AbbVie focuses on fostering innovation and discovery with integrity and passion, driven by Abbott’s 135-year legacy and guided by deeply-held values to provide solutions for patients in need. The Company was listed on the NYSE in January 2013.

Recent Developments
After its split off from Abbott, Abbvie has faced the challenge of diversifying its revenue base away from Humira®, the world’s largest pharmaceutical product, which is facing biosimilar competition. Led by CEO Rick Gonzalez, Abbvie has been strategically decisive, spending $106 billion on acquisitions, including Allergan, Stemcentrx and Pharmacyclics. The result today is a diversified and vital franchise. The acquisition of Allergan was completed in 2020 and has brought more than 30 brands and a leadership position in aesthetic medicine to AbbVie’s portfolio. Non-Humira sales are now expected to grow to more than $35 billion in 2025 anchored by Imbruvica® and Venclexta® in hematology and Upacitinib and Risankizumab in immunology. Analyst consensus revenue forecast for 2025 is $54 billion.

Financials (September 2020)
Enterprise Value: $242 billion
Annual Revenue: $36 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Merck

GLOBAL VALUE RANK
(September 2020)

5

2000 Galloping Hill Road
Kenilworth, New Jersey 07033
United States

+1908 740 4000

www.merck.com

NYSE:MRK

DETAILS

Sector: Big Pharma
Lead Modality: Small Molecules
Therapeutic Focus: Broad
TA of Lead Product Area: Oncology

Value Rank History (by year):
19: 4 | 18: 6 | 15: 4 | 12: 5 | 03: 5

Revenue Rank: 4
EBITDA Rank: 3

Description
Headquartered in Kenilworth, New Jersey, Merck was founded in 1891 as a subsidiary of German-based Merck KGAA, when George W. Merck emigrated to the United States. In 1917, it was re-established as an independent American company, merging in 1953 with Sharpe & Dohme, combining Merck's scientific research and chemical manufacturing expertise with Sharpe & Dohme’s sales, distribution and marketing prowess. The merger with Schering-Plough in 2009 added further scale and brought in Keytruda®, Merck’s largest product today. Merck’s pharmaceutical division includes human health pharmaceutical and vaccine products marketed either directly by the Company or through joint ventures. Merck’s animal health segment is responsible for the discovery, development, manufacturing and marketing of animal health products, including vaccines. Merck has a strong history of success in translating cutting-edge research into life-saving medical breakthroughs. The Company developed the first measles and mumps vaccines, as well as breakthrough treatments for critical conditions such as hepatitis C, high blood pressure, cancer and diabetes.

Recent Developments
Led by CEO Ken Frazier, Merck has bet big on growing Keytruda®, a PD-1 inhibitor, in immuno-oncology. Keytruda® became the company’s largest product in 2019 and helped drive 11% year on year growth. Led by Roger Perlmutter, Merck Research Laboratories has been aggressive in the pursuit of novel scientific ideas for big unmet needs such as chronic cough. In February 2020, Merck announced its intention to spin-off products from its women’s health, legacy brands and biosimilars into a new company called Organon. Most recently, Merck and Pfizer Inc.’s Phase 3 VERTIS CV cardiovascular (CV) outcomes trial for ertugliflozin and SGLT2 inhibitor, achieved its key endpoint in diabetes and atherosclerosis. Merck has been focused on bolstering its oncology pipeline with acquisitions of Arqule, Immune Design, Peloton and Tilos. Other acquisitions have included Cubist (antibiotics, 2015), Themis (vaccines, 2020), Afferent (cough, 2016). Merck has a significant franchise in cardiometabolic disease as well.

Financials (September 2020)
Enterprise Value: $233 billion
Annual Revenue: $47 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Novartis

GLOBAL VALUE RANK
(September 2020)

Description
Headquartered in Basel, Switzerland, Novartis was formed in 1996 as a result of the merger between two Swiss pharmaceutical giants: Ciba-Geigy and Sandoz Laboratories. All three companies, Sandoz, CIBA, and Geigy, have long histories, with roots going as far back as the 18th century. In 1948, a chemist at Geigy, the oldest of the three companies, was responsible for discovering the effectiveness of DDT against malaria-bearing insects and it was in the Sandoz Laboratories that the psychedelic effects of LSD were discovered. Today, Novartis operates in different segments: innovative medicines, Sandoz, and the Novartis Institutes for BioMedical Research (NIBR). The Innovative Medicines division focuses on oncology therapies and ophthalmology, neuroscience, immunology, among others. The Sandoz division focuses on generic and biosimilar pharmaceuticals while NIBR is responsible for innovation, with six campuses globally. Expanding access to healthcare for lower-income societies is one of the Company’s top priorities. Novartis strives to discover new ways to improve and extend people’s lives by leading in growing areas of healthcare, and hopes to use science-based innovation to address society’s most challenging healthcare issues.

Recent Developments
Novartis has exhibited strong financial performance in the last two years. Key growth products include Cosentyx® for inflammatory conditions, Entresto® for heart failure and Piqray® for cancer. With new CEO Vas Narasimhan in place Novartis is doubling down on innovation and focused on driving long-term growth. Novartis has aggressively built its portfolio through acquisitions of companies that have developed first-in-class medicines for significant unmet needs including Advanced Accelerator Applications, AveXis, Endocyte and the Medicines Company. The company’s pipeline is also progressing well with key opportunities via Zolgensma (SMA gene therapy), Inclisiran (PCSK9 RNAi), Iscalimab (CD40 mAb), Tropifexor (FXR agonist), Ofatumumab (CD20) and Canakinumab (IL-1 mAb).

Financials (September 2020)
Enterprise Value: $210 billion
Annual Revenue: $49 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value. We subtracted the value of the company’s Roche holding ($21.5 billion) when estimating enterprise value.
**Amgen**

**GLOBAL VALUE RANK**
(September 2020)

7

One Amgen Center Drive
Thousand Oaks, California 91320
United States

+1 805 447 1000

www.amgen.com

NasdaqGS: AMGN

**DETAILS**

**Sector:** Big Pharma

**Lead Modality:** Biologics

**Therapeutic Focus:** Broad

**TA of Lead Product Area:** Immunology

**Value Rank History (by year):**
19: 11 | 18: 8 | 15: 13 | 12: 11 | 03: 7

Revenue Rank: 12
EBITDA Rank: 7

**Description**
Amgen was founded in 1980 by venture capitalist William K. Bowes and his associates and is headquartered in Thousand Oaks, California. The Company’s name stems from a combination of the words ‘applied molecular genetics,’ and Amgen uses tools such as advanced human genetics to understand the intricacies of disease and human biology. A pioneer in protein therapies, Amgen strives to use this knowledge to discover and commercialize naturally-occurring proteins, antibodies, and small molecules in the hope of triggering the body’s own powerful therapeutic responses. Amgen believes pioneering medicines that provide significant clinical benefits in addressing serious diseases will not only help patients but will also reduce the social burden of disease. Amgen focuses on developing innovative and novel medicines based on advances in oncology, cardiovascular disease, nephrology, neuroscience, osteology, and inflammation. In 1983, a team led by Fu-Kuen Lin was tasked with finding and cloning the erythropoietin gene. After working tirelessly for two years, they do it. This achievement enabled the creation of one of the most successful drugs in biotech history, EPOGEN® (epoetin alfa). Later, Larry Souza and his team clone granulocyte colony-stimulating factor (G-CSF) leading to development of NEUPOGEN® (filgrastim) in 1985. Reaching over 100 countries worldwide. Amgen funds evidence-based science education programs globally. Amgen went public in 1983.

**Recent Developments**
Led by Bob Bradway, Amgen has made excellent progress in driving growth, led by products such as Repatha®, KYPROLIS®, and Prolia®. Amgen has generated steady results from ENBREL®, for inflammation and recently acquired Øtezla® (apremilast) for psoriasis and psoriatic arthritis. Revenues in 2019 were down 2% due to patent expiries. However, Amgen has delivered over 70% shareholder returns since 2015, reflecting a focus on innovation, patients and profitability. Amgen has created a thriving biosimilars business that delivered $568 million in revenue in 2019. In 2019, Amgen announced a strategic collaboration with BeiGene—a biotechnology company with a large presence in China—to expand Amgen’s oncology business there. A key pipeline item is AMG 510 for the treatment of patients with metastatic NSCLC with KRAS G12C mutation.

**Financials (September 2020)**
Enterprise Value: $164 billion
Annual Revenue: $24 billion

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value. We subtracted the value of the company’s holding in Beigene when computing enterprise value.
Description
Cambridge, UK-based AstraZeneca ("AZ") was founded in 1999, as a result of a merger between Swedish Astra AB and British Zeneca Group. Astra was founded in 1913 and introduced penicillin and anesthetics to the Swedish market. Zeneca was created through a demerger from ICI in 1993 and focused on oncology. A key milestone was the acquisition of Medimmune for $15.6 billion in 2007, bringing in biologics development capability. AstraZeneca has a global presence, with operations in over 100 countries. AstraZeneca currently concentrates its research on the therapeutic areas of cardiovascular and metabolic diseases, oncology, respiratory, inflammation and autoimmunity. Striving to be valued for great medicines, AstraZeneca values access to healthcare and environmental sustainability. The Company wants to push the boundaries of science to deliver life changing medicines because they believe in what science can do.

Recent Developments
AstraZeneca turned down an $118 billion acquisition offer from Pfizer in 2014. CEO Pascal Soriot argued that AZ could create more value by staying independent. Mr. Soriot was vindicated when AZ’s valuation went over $118 billion in mid 2018. Today, with a value well over this level, AZ is on a long-term growth pathway after enduring a series of patent expiries. The company has delivered the goods including great data and great sales from TAGRISSO® for lung cancer; rapid growth in its China business; a powerful franchise in renal medicine; high growth from LYNPARZA® and IMFINZI® (both for cancer) and a re-energized franchised in respiratory and inflammation. AZ has carried out a series of acquisitions and high impact business development deals including the partnership with Daiichi-Sankyo for ENHERTU®, a $4 billion payment to acquire 55% of Acerta which has brought the approved BTK inhibitor CALQUENCE® and ZS Pharma for $2.7 billion.

Financials (September 2020)
Enterprise Value: $162 billion
Annual Revenue: $25 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value. We subtracted the value of its 6.5% stake in Moderna and 26.8% stake in Viela.
Bristol-Myers Squibb (BMS) is based in New York City and formed from a 1989 merger between the Bristol-Myers and Squibb. Bristol-Myers started as a small pharmaceutical company in 1887, whose first product was a mineral laxative. The Squibb Corporation was founded in 1858 to produce quality pharmaceuticals and by the 1940s was the largest penicillin production company in the world. Today BMS has offices and facilities throughout North America, Europe and Asia. The Company offers an extensive range of products covering oncology, cardiology, immunology and fibrosis across a variety of platforms, including small molecules, biologics, antibody-drug conjugates and gene therapy. Bristol-Myers’ largest products today include Revlimid® for Multiple Myeloma, Eliquis®, an anti-coagulant, OPDIVO® for cancer and Orencia® for autoimmune diseases. The Company’s mission is to, ‘discover, develop and deliver innovative medicines that help patients prevail over serious diseases.’ BMS is committed to operating with integrity, similar to the principals set by founder Edward Robinson Squibb, their high standards of ethical behavior, alongside their dedication to economic, social and environmental sustainability are also expected from their partners and suppliers alike.

Recent Developments
Facing some challenges in 2018 by its failure to grow OPDIVO® fast enough, Bristol-Myers Squibb agreed to acquire Celgene for $74 billion. The effect has been to take BMS from a company that posted $26 billion in 2019 revenue to one that is expected to deliver $45 billion in revenue in 2021. Rather than being ranked the world’s 9th largest pharma company by value, without the Celgene deal we estimate that BMS would otherwise be ranked #16 today. Led by Giovanni Caforio, BMS has delivered approvals in 2020 for ZEPOSIA® in MS, Reblozyl® in low-risk RS+MDS and the OPDIVO®/YERVoy® combo in HCC.

Financials (September 2020)
Enterprise Value: $158 billion
Annual Revenue: $34 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 less the value of BMS’ holdings in Acceleron, Agios and BeiGene as our estimate of value.
Novo Nordisk

GLOBAL VALUE RANK
(September 2020)

10

Novo Allé
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Denmark

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www.novonordisk.com

CPSE: NOVO B

Description
Bagsvaerd, Denmark-based Novo Nordisk is a publicly-traded branded pharmaceutical company. The Company's origin pre-dates the foundation of Novo Nordisk by many decades, with the creation of two small Danish firms in the 1920s, both of which obtained the rights to manufacture insulin (Nordisk Insulinaboratorium and Novo Therapeutisk Laboratorium). After the merger of the two companies in 1989, Novo expanded to cover additional areas such as hemophilia care, hormone replacement therapy, growth hormone therapy and delivery systems. Today, Novo Nordisk is the world’s largest producer of insulin. Novo has introduced high value GLP-1 medications that it has taken to the market for diabetes and obesity. In total, Novo’s revenues in 2019 from diabetes care were $14.8 billion. Today, through drugs such as OZEMPIC®, Novo Nordisk is the #1 player worldwide in obesity care. Novo Nordisk sees itself as having a dual mission: on one hand, driving change to defeat diabetes and other serious diseases and on the other hand, building a sustainable business. Goals for the future involve even stronger leadership in the fields of diabetes, obesity care, and the biopharm business area.

Recent Developments
Novo Nordisk has delivered impressive growth despite headwinds in the pricing of insulin in key markets such as the United States. Novo has been working hard to build its capabilities in modalities besides pure protein therapies. In November 2019, for example, Novo Nordisk entered into a major deal with Dicerna to a series of RNAi drug candidates for liver disease. In October 2019, Novo entered into a collaboration with bluebird bio in gene therapy for hemophilia A. Novo Nordisk is also interested in growing its presence in cardiometabolic disease. In June 2020 Novo Nordisk acquired Corvidia with an IL-6 modulator for heart disease for $725 million upfront.

Financials (September 2020)
Enterprise Value: $155 billion
Annual Revenue: $19 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Description
The Company was founded in 1876 by Colonel Eli Lilly, and is based in Indianapolis, Indiana. Inspired by the Colonel, Lilly is dedicated to creating high quality pharmaceuticals on a continuous quest to fight disease through innovation. For example, in 1923, when diabetes had no good treatment Lilly worked with the University of Toronto to develop the first commercially produced insulin. Lilly scientists (Minot and Murphy) won a Nobel Prize in 1934 for drugs to treat pernicious anemia. In 1955, Lilly was the first to distribute the Salk Polio Vaccine. By the mid-1970s, Lilly crossed $1 billion in sales for the first time, with 23,000 employees spread across 39 international subsidiaries or divisions. Today, Lilly’s 34,000+ employees help its products to be marketed in 120 countries. Sales exceed $22 billion. Lilly has a growing portfolio that includes products in the fields of oncology, immunology, diabetes, CNS, and musculoskeletal medicine. Lilly heavily emphasizes biologics R&D and is committed to innovative therapies in the areas of immunology, cancer and pain medicine. Lilly’s oncology research is directed mainly at precision oncology and tumor cell signaling. Lilly has taken steps over the years to focus on innovative medicines. Lilly solds its Elizabeth Arden cosmetics business in 1987; split off Guidant in 1995; and spun out animal health into Elanco in 2019. Eli Lilly’s core values are integrity, excellence and respect for people and they guide everything Lilly does. Lilly went public in 1978.

Recent Developments
Led by Dave Ricks, Lilly has built up formidable franchises in the fields of inflammation, oncology and diabetes. Key growth products launched since 2014, include Trulicity®, Taltz®, Jardiance®, Verzenio®, Olumiant®, Emgality®, Basaglar®, and Cyramza®. These products contributed 14 percentage points of 2019 revenue growth and represented approximately 46 percent of total revenue in 2019. Notable recent actions include the acquisitions of Loxo which brought in a precision oncology business and Dermira which came with a high value IL-13 antibody. In 2019, Lilly took important actions to improve insulin affordability. Lilly’s ongoing growth and excellent financial performance is all the more impressive in light of the recent divestiture of Elanco.

Financials (September 2020)
Enterprise Value: $151 billion
Annual Revenue: $22 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Description
Boehringer Ingelheim ("BI") was founded in 1885 by Albert Boehringer and is headquartered in Ingleheim, Germany. Today, BI employs over 50,000 people and is the world’s most valuable privately-held pharmaceutical company. Boehringer Ingelheim is focused on the development of breakthrough medicines by integrating research, preclinical and early clinical development, translational medicine, and partnering. BI markets medicines in cardiology, oncology, respiratory disease, neuroscience, diabetes, and immunology. Its lead product, Jardiance®, for diabetes, grew 47% last year ending with €2.15bn in revenue. In June 2016, BI struck an asset-swap deal with Sanofi, trading its consumer division for Sanofi’s Merial animal health business. As a result, BI is the second largest animal health company in the world (behind Zoetis). Boehringer Ingelheim creates, ‘value through innovation,’ and nurtures a ‘diverse, collaborative and open environment...driven by results... [fueled] by respect, trust and empathy.’ BI has steadily climbed in our rankings (jumping five rungs in less than two decades - no easy feat given the large size of the competition). Remarkably, this has been done without major acquisitions and without using debt (today BI has less than $250mm in debt). Albert Boehringer emphasized the importance of independence and the importance of organic growth. He focused early on research and employee satisfaction. And on a sense of family. Today, 135 years later, this approach has led to a thriving, growing and vital pharmaceutical enterprise.

Recent Developments
The owners of BI (the Liebrecht's, von Baumbach's and the Boehringer's) have never shied away from investment in innovation. Last year, BI spent 18.2% of its revenue on R&D. Examples of BI innovation: (1) BI has become one of the world’s largest players after entering from scratch, (2) BI has a full pipeline of innovative respiratory drugs, (3) BI's neuroscience R&D largely ignores disease labels and views mental illness as electrical disorders and (4) sponsorship of the IMP where basic research in biological sciences takes place.

Financials (September 2020)
Enterprise Value: $148 billion
Annual Revenue: $22 billion

Notes
Revenues for 2019 were disclosed by BI in April 2020. We multiplied this times the median multiple for publicly-traded branded pharma to impute a value estimate.
Description
Headquartered in Brentford, UK, GlaxoSmithKline began as an apothecary in London in 1715. With a history that spans more than three centuries, the originally-named Plough Court Pharmacy was the first in a series of companies that contributed, through a series of mergers and acquisitions, to what is now GlaxoSmithKline ("GSK"). Two further companies: Smith, Kline & Co., a US-based drugstore founded in 1830, and Joseph Nathan & Co., a New Zealand-based company established in 1873, also made significant contributions to what is now GSK. The latter used the trademark ‘Glaxo,’ on its 1924 launch of a vitamin D supplement, the Company’s first pharmaceutical product. By 1995, Joseph Nathan was known as Glaxo Welcome, while research-focused Smith Kline had evolved into SmithKline Beecham. In 2000, Glaxo Welcome and SmithKline Beecham merged to form GSK. The Company produces prescription medicines, vaccines and consumer healthcare products for a wide variety of therapeutic areas. GSK’s product portfolio includes medications for HIV and respiratory conditions, as well as pain and oral health treatments. Top selling products include TRIUMEQ®, a triple combination, for HIV; BREO ELLIPTA® and TRELLEGY ELLIPTA® for COPD and asthma; and Shingrix®, a vaccine for shingles. The Company’s mission is to ‘help people do more, feel better and live longer.’ GSK is focused on the main priorities of innovation, trust and performance.

Recent Developments
In April 2014, Novartis and Glaxo agreed on more than US$20 billion in deals, with Novartis selling its vaccine business to GSK and buying GSK’s cancer business. Since then GSK has re-entered the cancer market with a robust internal effort in immuno-oncology buttressed by the acquisition in Dec 2018 of TESARO for $5.1 billion. The deal brought control of ovarian cancer treatment, Zejula®, a PARP inhibitor. Under new CEO Emma Walmsley, GSK has moved to spin its consumer health JV with Pfizer into a new company. R&D Head Hal Barron has defined a clear strategy and GSK is showing significantly improved results in its drug pipeline.

Financials (September 2020)
Enterprise Value: $136 billion
Annual Revenue: $43 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Bayer

GLOBAL VALUE RANK
(September 2020)

14

1 Kaiser-Wilhelm Allee
Leverkusen, North
Rhine-Westphalia
51368
Germany

+49 214 301

www.bayer.com

DB: BAYN

Description
Established in 1863, Bayer is headquartered in Leverkusen, Germany. Founded upon a friendship between Friedrich Bayer and Johann Weskott, the duo discovered how to make the dye fuchsin and developed a chemical company with an international reach, adding new areas of business and growing steadily until 1914. As a result of both World Wars, Bayer lost foreign assets, patents and access to export markets but soon it reestablished sales activities abroad and focused on breathing new life into the R&D operations in the mid-1900s. Bayer operates out of six business segments today including Bayer Pharmaceuticals which is focused on developing and marketing ethical pharmaceutical products. Bayer Pharma is a $20.1 billion revenue business that generated $6.7 billion in EBITDA in 2019. We value this business at $133 billion, which is more than Bayer’s trading enterprise value in September 2020 ($109 billion). Given that its crop science business generated $5.3 billion in EBITDA in 2020 there seems to be a disconnect. The culprit is readily found in the thousands of ongoing lawsuits involving Roundup® and $49 billion in debt on the balance sheet following the Monsanto acquisition.

Recent Developments
Bayer Pharma has been a growing business over time, bolstered by the acquisition of Schering AG in 2006. Revenue is up 37% over the last six years. Led by Stefan Olreich, Bayer Pharma is seeing excellent sales from Xarelto®, an anti-coagulant; Eylea® and its China business. Going forward, Bayer is focused on cardiovascular disease and cancer, the two largest killers worldwide. Bayer is spending nearly $3 billion on R&D annually to build out its pipeline of drug candidates. A key recent R&D accomplishment involved the successful data generated from the VICTORIA trial for Vericiguat in patients with worsening chronic heart failure. Bayer is also betting big on Finerenone for diabetic kidney disease. In August 2020 Bayer paid $425 million to acquire Kandy which has a next generation product for postmenopausal symptoms. Bayer has boldly stepped into the future with its “Leaps by Bayer” program, making early stage investments in disruptive technologies including Bluerock for cell therapy (acquired), Pyxis, Century Therapeutics, Khloris Biosciences and others.

Financials (September 2020)
Enterprise Value: $133 billion
Annual Revenue: $20 billion

Notes
We valued Bayer Pharma as a standalone business segment. Bayer segment data from 2019 was used to obtain pharma revenue. We multiplied this times the median multiple for publicly-traded branded pharmas to impute a value estimate.
Sanofi

**GLOBAL VALUE RANK**
(September 2020)

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54 Rue La Boétie
Paris, Ile-de-France
75008
France

+33 153 77 40 00

www.sanofi.com

ENXTPA:SAN

**DETAILS**

- **Sector:** Big Pharma
- **Lead Modality:** Small Molecules
- **Therapeutic Focus:** Broad
- **TA of Lead Product Area:** Immunology
- **Value Rank History (by year):** 19: 10 | 18: 12 | 15: 7 | 12: 8 | 03: 14
- **Revenue Rank:** 6
- **EBITDA Rank:** 8

**Description**
Sanofi is a leading European publicly held pharmaceutical company. The company is most immediately the result of mergers of Sanofi, Synthelabo and Aventis. Each of these companies have long lineages going back well into the 1800s. Sanofi is known for developing the first influenza vaccine in 1948. Today Sanofi focuses on vaccines and infectious disease, immunology, neurology, oncology, and rare disease. Sanofi maintains a global presence in over 100 countries, serving customers in more than 170 international markets. Top pharmaceutical products include Dupixent® for allergic diseases and atopic dermatitis; Lantus®, an insulin for diabetes; Lovenox®, an anti-coagulant; AUBAGIO® for multiple sclerosis; Cerezyme® for Gaucher’s disease, Myozyme® for Pompé's disease and Fabrazyme® for Fabry’s disease. Sanofi has a large business in vaccines (Sanofi Pasteur) and a significant consumer health business. The Company continues to seek innovative collaborations with strategic partners to create value for global health. Sanofi’s mission is to provide, ‘innovative solutions for unmet needs’ they see life as a health journey and Sanofi as ‘a health journey partner.’ The Sanofi logo is a bird at the center of a planet, which illustrates the company’s ambition to put the patient at the heart of their activities.

**Recent Developments**
In December 2019 CEO Paul Hudson made a presentation to external stakeholders on Sanofi’s strategy for long-term growth. Key aspects of the strategy include: prioritization of key growth drivers including Dupixent® and vaccines and acceleration of R&D commitment on certain potentially transformational medicines including fiturisan for hemophilia; BIVV001 for hemophilia A; Venglustat for rare diseases; SERD ‘859 for breast cancer and Nirvenimab for RSV. Sanofi also acquired Synthorx which has bolstered its pipeline in the all important immuno-oncology area. Under Mr. Hudson Sanofi has also aligned its business into three units which are aligned with the strategy: (1) specialty care, (2) vaccines and (3) general medicines.

**Financials (September 2020)**
- **Enterprise Value:** $120 billion
- **Annual Revenue:** $42 billion

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value. We deducted the $22.8 billion in proceeds received from the sale of Regeneron shares in Q2 2020.
### Takeda

**GLOBAL VALUE RANK**  
(September 2020)

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<tr>
<th>Rank</th>
<th>Description</th>
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<tr>
<td>16</td>
<td>Takeda was established in 1781 and has its headquarters in Tokyo, Japan. The Company has a global presence in over 80 countries throughout the Asia Pacific, North and South America, Europe, Africa and the Middle East. Takeda focuses its R&amp;D efforts on four therapeutic areas: Oncology, Gastroenterology (GI), Neuroscience and Rare Diseases. Takeda focuses on developing highly innovative medicines that contribute to making a difference in people’s lives by advancing the frontier of new treatment options and leveraging an enhanced collaborative R&amp;D engine and capabilities to create a robust, modality-diverse pipeline. Built on the principles of Takeda-ism, the company’s mission is to, ‘strive towards better health and a brighter future for people worldwide.’ Takeda went public in 1949. Takeda has undergone a number of key acquisitions including the purchase of Millenium in 2008 for $8.8 billion and Ariad for $5.2 billion in 2017. But no acquisition has been greater than CEO Christophe Weber’s bold move to acquire Shire for $62 billion in 2019. The effect of the Shire acquisition has been to transform Takeda from a Japanese pharma company with a global presence to a truly global pharmaceutical player with more than $30 billion in revenue, more than 50,000 employees and an experienced and diverse executive team.</td>
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<td>Gastroenterology</td>
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<td><strong>EBITDA Rank:</strong></td>
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**Recent Developments**

Following the Shire acquisition Takeda has taken aggressive steps to deleverage its balance sheet through divestitures, a critical priority because the company is rated BBB+ by S&P with a negative outlook. At FY year end 2020 Takeda reported $51 billion in debt, which may explain why it trades at multiples somewhat below its big pharma peers. Despite balance sheet pressure, Takeda has not shied away from R&D investment. Today, Takeda has a full pipeline of R&D projects including 12 new molecular entities with the potential to launch by 2024, 40 clinical stage NME’s and a wide number of modalities. Takeda has also entered into more than 110 research collaborations and has helped to form 20 new companies. Takeda’s three largest products today include Entyvio® for GI diseases, immunoglobulins and Vyvanse® for ADHD.

**Financials (September 2020)**

- Enterprise Value: $104 billion
- Annual Revenue: $30 billion

**Notes**

We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Description
Founded in 1916 and based in Parkville, Australia, CSL is a leading global biotech company that develops and delivers innovative biotherapies and influenza vaccines that save lives and help people with life-threatening medical conditions live full lives. Through its subsidiaries, the Company develops, manufactures and markets a range of vaccines and antivenoms in addition to recombinant proteins. CSL is also a leader in blood plasma-derived therapies for rare conditions such as von Willebrand disease (VWD) and hemophilia, as well as hemolytic disease of the newborn, and prevention products for bleeding in emergencies and surgery. CSL more than 26,000 employees, revenues that exceed $8.5 billion and manufacturing sites in six countries. In a story entitled “Beautiful Blood”, company Chairman (and former CEO) Brian McNamee commented how CSL has evolved in the last quarter century: “Back then, as it does now, the company had great technical depth – a deep understanding of what patients with rare and serious diseases need, the science to successfully innovate and the operational expertise to manufacture and commercialize high quality therapies.” CSL maintains a firm, ‘commitment to enhancing the quality of life for people with rare and serious diseases around the globe.’ The Company was listed in 1994.

Recent Developments
Under CEO Paul Perreault, CSL is the #1 global player in plasma therapeutics and has been benefiting from high demand for immunoglobulins. CSL has been one of the most impressive performers in the industry, rising from a value rank of #59 in 2003 to #17 today. CSL has moved in recent years to its own distribution model in China, expansion of its hemophilia portfolio and acquisitions of biotechnology companies (such as Vitaeris and Calimmune). Key innovation products include CSL200 (lentiviral stem cell gene therapy) for sickle cell anemia, CSL889 (Hemopexin), CSL312 Garadacimab for contact-mediated thrombosis, CSL311 (Anti-Beta common) for respiratory disease and CSL346 for diabetic nephropathy.

Financials (September 2020)
Enterprise Value: $100 billion
Annual Revenue: $9 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Gilead was founded in 1987 and operates from its headquarters in Foster City, California. The Company operates offices and facilities across six continents and recognizes ‘Strength through Partnership’, fostering collaborations of all kinds to develop innovative and efficient medicines. Gilead’s product portfolio includes treatments for indications in the therapeutic areas of HIV/AIDS, inflammatory diseases, oncology and hepatology. Gilead’s core values are excellence, teamwork, inclusion, integrity and accountability. Gilead is committed to, providing resources for physicians, collaborating with patients and caregivers, and fostering employee commitment, to ensure that the unmet medical needs of patients living with life-threatening diseases around the world are addressed. The Company completed its initial public offering in 1992.

Recent Developments
Gilead has experienced unusual share price moves over the last decade. Initially revenues skyrocketed following the Pharmasset acquisition (hence the ranking as #6 in the world in 2015). Then, the revenues from this Hep C product fell off and Gilead’s attempt to reinvest capital in oncology (by buying Kite) did not meet expectations. Under newly appointed CEO Dan O’Day, Gilead has moved to build up in both immunology and immuno-oncology. On Jul 14, 2019, Gilead put over $5 billion into Galapagos giving Gilead access to an innovative portfolio of compounds, including six molecules currently in clinical trials, more than 20 preclinical programs and a proven drug discovery platform. As part of the collaboration, Gilead gained rights to GLPG1690, Galapagos’ Phase 3 candidate for idiopathic pulmonary fibrosis. Gilead also received option rights for GLPG1972, a Phase 2b candidate for osteoarthritis, in the US. In a further move, Gilead acquired Forty-Seven for $4.9 billion, bringing in magrolimab, a CD47 antibody. Subsequently, Gilead entered into a collaboration with Arcus, further extending its access to innovative oncology drug candidates. Most recently, Gilead has agreed to acquire Immunomedics for $21 billion which brings Trodelvy®, a highly promising ADC for breast cancer and other indications. Gilead has been a key contributor to efforts to combat COVID-19 throughout 2020 by making its drug remdesivir widely available worldwide.

Financials (September 2020)
Enterprise Value: $87 billion
Annual Revenue: $22 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value. The value of the company’s 25% position in Galapagos was subtracted from the value estimate.
**GLOBAL VALUE RANK**  
(September 2020)

**19**

10 Sylvan Way  
Parsippany, New Jersey  
07054  
United States

+1973 822 7000

www.zoetis.com

NYSE:ZTS

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**Description**
Established as the dedicated animal agriculture division of Pfizer in 1952, Parsippany, New Jersey-based Zoetis became an independent company in 2013. Zoetis is devoted to R&D, manufacturing and commercializing animal health medicines, vaccines, diagnostics, genetic tests and biodevices. The Company boasts about 300 product lines covering vaccines, parasiticides, anti-infectives, medicine feed additives and other pharmaceutical products for animal health. Zoetis products are sold in over 100 countries worldwide and their foundations are built upon direct customer relationships, high quality manufacturing and continuous innovation. The Company is dedicated to, 'supporting the veterinarians and livestock producers everywhere who raise and care for the farm and companion animals on which we all depend.' Zoetis was listed in 2013.

**Recent Developments**
As is so often the case with spinoffs, Zoetis has thrived after its separation from Pfizer. The company has gone from an EV of $16.9 billion at the time of its IPO in 2013 to $82 billion today. This has been accomplished by strong organic growth, investment in the companion animal health area, focus on chronic diseases in pets and investment in biologic treatments. Led by CEO Kristen Peck, Zoetis has not been afraid to use capital efficient acquisitions as a means to leverage its global animal health platform. In total, Zoetis has carried out 14 acquisitions since it separated from Pfizer. Today, Zoetis has over 300 product lines across eight species; a direct presence in 45 countries; and more than $6 billion in revenue. The result has been clear. Zoetis is the #1 animal health company in the world with leadership positions in cattle, companion animals, fish and swine.

**Financials (September 2020)**
Enterprise Value: $82 billion  
Annual Revenue: $6.3 billion

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Chugai

GLOBAL VALUE RANK
(September 2020)

20

Nihonbashi Mitsui Tower (Reception 15F),
1-1 Nihonbashi-Muromachi, 2-Chome,
Chuo-ku
Tokyo, Kanto 103-8324 Japan

+81 3 3281 6611

www.chugai-pharm.co.jp

TSE:4519

Description
Established in 1925 by Juzu Ueno, Tokyo, Japan-headquartered Chugai was created to import pharmaceuticals into Japan following the Great Kanto Earthquake. Mr. Ueno's mission to, 'Create drugs that benefit the world,' remains a core value for the Company to this day. Chugai's goal is to generate a consistent stream of products that address unmet medical needs to benefit human health globally. The Company has developed a robust portfolio and pipeline of products in oncology, urology, immunology, neurology and other specialist areas, creating a number of proprietary antibody techniques to support their drug development. Chugai entered into an agreement to sell a 50.1% interest to Roche in 2001. This agreement allowed each company to benefit the other. Chugai maintained a significant measure of independence while Roche was able to leverage Chugai's market access to boost sales in Japan. Simultaneously, Chugai's impressive R&D pipeline could support Roche globally. Chugai operates a number of regional branches, production facilities and research laboratories across Japan and became a publicly traded company in 1956.

Recent Developments
Led by Chairman and CEO Tatsuo Kosaka, Chugai has exhibited exceptional performance in recent years, triggered in part by its own innovation efforts and in part by the effect of introducing Roche drugs to Japan. Key strengths today include carrying a quarter of the antibody market in Japan; the strategic alliance with Roche; high growth driven by inline drugs such as Hemlibra®; a rich pipeline of innovative drugs; a commitment to genetics and personalized healthcare and provision of advanced-patient centric solutions. An important fact is that while 60% owned by Roche, Chugai is very much a self-determined company with its own innovative capacity. Consider that two of Roche's top-selling drugs were invented at Chugai: Hemlibra® and Actemra®. Chugai today has a full pipeline of drug development candidates in oncology and is more committed than ever to being an innovative leader in its industry.

Financials (September 2020)
Enterprise Value: $72 billion
Annual Revenue: $6.8 billion

Notes
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.
Description
Founded in 1970 and headquartered in Lianyungang, China, Hengrui Medicine is dedicated to developing effective products that address unmet clinical needs within their specialty areas. Hengrui (pronounced “heng-ray”) became the most important marketer of oncology products in China over the years. Initially the focus was on the rapid development of “me too” type products in chemotherapy and targeted therapies. Over time, Hengrui has evolved into being a developer of more innovative drugs. With 4,200 people in R&D Hengrui has increasingly become a powerhouse in oncology R&D for China. Hengrui spent $395 million in R&D in 2018, about 15.3% of its 2018 revenue (on par with the average that global pharma companies spend). Hengrui is in late stage development of a PARP inhibitor and several drug candidates in immune-oncology. Hengrui has five new molecular entities approved in China, two applications under China NDA, as well as 30+ programs in clinical development across oncology, anesthesiology & pain management, autoimmune, women's health, ophthalmology, endocrinology and metabolic & cardiovascular diseases. Hengrui has more than 150 clinical trials currently underway. Hengrui’s revenue growth has been prodigious as has its march through our value rankings. We ranked Hengrui as the 236th most valuable public pharma company in 2003. By 2015 it had moved up to #53 and, today, with a $60+ billion value it is ranked in the top 25 worldwide.

Recent Developments
As it looks to the future, Hengrui has been building up its innovative pipeline. In the last 12 months, Hengrui has licensed Oteseconazole from Mycovia for RVVC (recurrent vulvovaginal candidiasis) and several dry-eye disease drugs from Novaliq. Hengrui has also undergone some changes in leadership. Chairman Piaoyang Sun has stepped aside, ceding the position to Zhou Yunshu, who has been President for the last 17 years. Mr. Sun is maintaining his ownership and remains on the strategy committee.

Financials (September 2020)
Enterprise Value: $69 billion
Annual Revenue: $3.4 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
# Vertex Pharma

**GLOBAL VALUE RANK**  
(September 2020)  

<table>
<thead>
<tr>
<th>Rank</th>
<th>22</th>
</tr>
</thead>
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**Address**  
50 Northern Avenue  
Boston, Massachusetts  
02210  
United States

**Contact**  
+1 617 341 6100

**Website**  
www.vrtx.com

**Stock**  
NasdaqGS: VRTX

## Description
Vertex Pharma is headquartered in Boston, Massachusetts and was founded in 1989 by Joshua Boger and Kevin Kinsella. Vertex was one of the first biotech firms to use an explicit strategy of rational drug design rather than combinatorial chemistry. By 2004, its product pipeline focused on viral infections, inflammatory and autoimmune disorders, and cancer. Today, Company discovers, develops and commercializes a portfolio of pharmaceuticals that target serious diseases such as cystic fibrosis and sickle cell anemia. The Company’s goal is to, ‘create transformative medicines for people with serious diseases with a high unmet medical need.’ To this end, Vertex has developed external alliances with academic and industry institutions as well as non-profit organizations in addition to encouraging an internal culture of innovation through its Vertex Opportunities for Intrapreneurship & Corporate Evolution (VOICE) program. The Company has received numerous awards, both for its products and in recognition of its value as a world-class employer. Vertex went public in 1991.

## Recent Developments
Chairman Jeff Leiden has helped to transform Vertex from a company focused largely on cystic fibrosis five years to one that today is pursuing a wide range of medically serious, niche disease states. This effort has been accompanied by appointing Chief Medical Officer Reshma Kewalramani as CEO as of April 1, 2020. She, of course, is putting her own stamp on the company but the core focus on rational drug design and treatment of serious disease remains. Importantly, with a growing cystic fibrosis franchise, Vertex has been positioned to expand into new areas and has aggressively done so with partnerships and acquisitions that have gotten into muscular dystrophy, sickle cell anemia and Type I diabetes. The companies with whom it has partnered or acquired are themselves like Vertex: focused on bold disease modifying solutions for serious disease.

## Financials (September 2020)
- **Enterprise Value**: $65 billion
- **Annual Revenue**: $5.4 billion

## Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Headquartered in Tarrytown, New York, Regeneron was established in 1988. Founded by Len Schleifer (CEO) and George Yancopoulos (CSO), the name ‘Regeneron’ connotes the regeneration of neurons, with ‘gene’ in the middle. The Company operates global offices and facilities across North America and Europe and develops 100% of its products in-house. Regeneron has not relied on external M&A to build its business. The company has a portfolio covering areas as diverse as ophthalmology, cancer, rheumatoid arthritis, asthma, pain, and infectious diseases. Regeneron also operates The Regeneron Genetics Center (RGC), home of one of the world’s most comprehensive genetics databases. Today, Regeneron can claim the following: (1) it has more than 8,100 employees of whom roughly 12% have a doctoral degree; (2) it has sequenced more than 1 million exomes; (3) it has been the highest ranking firm in Science magazine’s global Top Employer survey for six of the past nine years; (4) its employees published more than 200 peer-reviewed publications in 2019 and (5) it has more than twenty drug candidates in clinical development. Regeneron completed its IPO in 1991.

Recent Developments
Regeneron has been an extraordinary success story, rising from a rank of #110 by value in 2003 to #23 today. Since 2000 Regeneron has generated an average shareholder return of 21.1%. To put this in perspective, the value of a share has gone up more than fifty times since Jan 1, 2000 – showing the value of focused organic innovation built around a strong platform. Specifically, Regeneron has undertaken excellent execution of a business plan that combines an efficient way to generate fully human antibodies using the VelocImmune® mouse with deep research into innovative biological targets to create a range of antibodies. Today, Regeneron can point to seven FDA approved medicines that have resulted from its efforts including Eylea®, Dupixent®, Kevzara® and Praluent®. Regeneron is doubling down today on research and broadening out into modalities such as RNAi. Key 2020 events have been the repurchase of $5B of shares from Sanofi and the successful placement of the remaining Sanofi stake in a secondary offering; expansion of the oncology pipeline and taking an anti-COVID-19 antibody into the clinic within four months.

Financials (September 2020)
Enterprise Value: $58 billion
Annual Revenue: $8.6 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Daiichi Sankyo

GLOBAL VALUE RANK
(September 2020)

24

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Tokyo, Kanto 103-8426
Japan

+8133243 6051

www.daiichisankyo.com

TSE:4568

DETAILS

Sector:
Branded Pharma

Lead Modality:
Small Molecules

Therapeutic Focus:
Oncology

TA of Lead Product Area:
Oncology

Value Rank History (by year):
19: 28 | 18: 50 | 15: 73 | 12: 37 | 03: 30

Revenue Rank: 26
EBITDA Rank: 33

Description
Headquartered in Tokyo, Japan, Daiichi Sankyo (“DS”) was formally established in 2005 by the merger of Sankyo and Daiichi Pharmaceutical. Its history stretches further back, to the founding of Sankyo in 1899 and Daiichi in 1915. The Company’s R&D focuses on the creation of novel therapeutics as well as new methods of drug discovery. DS strives to produce innovative vaccines, small molecule drugs, gene therapies, ADCs and antibodies in a range of areas including oncology, cardiology, and neurology. The Company markets products to more than 20 markets globally and seeks to contribute towards the enrichment of human lives through the provision of quality products targeted at meeting diverse medical needs. Daiichi Sankyo has been publicly listed since 2005 and has more than 15,000 employees.

Recent Developments
Daiichi-Sankyo’s appearance among the world’s top 25 pharma companies reflects a triumph of science and intelligent strategic planning over more than a decade. One will note on the lower left that just five years ago DS was not in the top 50. The company’s share price has gone up nearly four times over the last 3 years reflecting, above all, extraordinary data Trastuzumab Deruxtecan (or ENHERTU®). This is a HER2-directed antibody and topoisomerase inhibitor conjugate for HER2 positive breast cancers. This product has been approved in the U.S. and is set for approval in a number of countries (in collaboration with AstraZeneca). ENHERTU® was assessed in a single-arm trial of 184 females with HER2+ unresectable and/or metastatic breast cancer who had received ≥2 prior anti-HER2 therapies. The results indicated a 60%+ overall response rate and PFS of well over a year. DS also has a formidable Japan business that continues to grow, albeit slowly. On the global stage, DS has launched TURALIO® for a form of giant cell tumor (TGCT). DS also recently launched Edoxaban (Lixiana®) in 2016 and is taking Esperion’s NILEMDO® into the European market. As for the future, DS is making major investments in cell therapy and gene therapy. Led by Sunao Manabe, Daiichi Sankyo is a story of corporate rebirth built around science and R&D prowess.

Financials (September 2020)
Enterprise Value: $54 billion
Annual Revenue: $8.9 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Merck KGaA Pharma

GLOBAL VALUE RANK
(September 2020)

25

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Darmstadt, Hessen
64293
Germany

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www.emdgroup.com

DB:MRK

DESCRIPTION
Merck KGaA was established in 1668 in Darmstadt, Germany, where it is still headquartered. Merck KGaA Pharma is the world’s oldest pharmaceutical company. Merck originated as a pharmacy, becoming a research-based industrial company in 1827. Merck Group conducts business through four divisions: biopharmaceuticals, consumer health, life science and performance materials. Merck KGaA Pharma carries out research into the therapeutic areas of oncology, CNS, fertility, and endocrinology. ‘Inspired by the world under the microscope’ the Company’s motivation is ‘progress for people everywhere.’ Merck operates in the US and Canada as EMD Serono, MilliporeSigma and EMD Performance Materials. Merck Group went public in 1995.

RECENT DEVELOPMENTS
Merck Group’s biopharma business has been flat in its revenues over the last five years. However, biopharma at Merck Group has been and remains a high priority endeavor. Led by Belén Garijo, CEO Healthcare and Rehan Verjee, President EMD Serono & Global Head of Innovative Medicine Franchises, there are 25+ projects in clinical development and the company’s passion to deliver important medicines in the field of oncology, infertility and immunology is undiminished. Key products include Rebif® and Mavenclad® for MS; Erbitux® for metastatic colorectal cancer (and other tumors) and Bavencio® (avelumab), an anti-PD-L1 antibody. This product is co-marketed with Pfizer and has recently delivered promising survival data in patients with advanced bladder cancer. Merck also has an important fertility business and a business in endocrinology, anchored by Saizen® for growth hormone deficiency. An important event in 2020 was the divestiture of Allergopharma to Dermapharm. In 2018 this allergy business generated revenue of €88 million. Following the 2018 divestiture of consumer health to P&G, Merck Group has successfully repositioned its healthcare division as one focused purely on the delivery of innovative medicines.

FINANCIALS (SEPTEMBER 2020)
Enterprise Value: $50 billion
Annual Revenue: $7.5 billion

NOTES
We valued Merck KGAA Pharma as a standalone business segment. Segment data from 2019 were used to obtain pharma revenue. Then the branded pharma sector average revenue multiple was applied to obtain a value estimate of the pharma business.
Biogen

GLOBAL VALUE RANK
(September 2020)

26

225 Binney Street
Cambridge, Massachusetts 02142
United States

+1781 464 2000

www.biogen.com

NasdaqGS:BIIB

Description
Headquartered in Cambridge, Massachusetts, Biogen was founded in 1978 by a group of talented scientists and three venture capitalists. Initially focused on breakthroughs in biology, Biogen has spent the last decade focusing more on neuroscience R&D. Biogen also develops and markets a portfolio of treatments for serious diseases such as multiple sclerosis and spinal muscular atrophy, as well as biosimilars. Biogen has a robust pipeline in various stages of development, covering a variety of indications such as Alzheimer’s disease, stroke and lupus. Biogen spun off its hemophilia business to form Bioverativ in 2016. The Company is committed to, ‘developing transformational therapies to address what we believe are becoming the world’s most significant unmet medical needs.’ Biogen cares about making a difference, works fearlessly, does not give up and is ‘humbled by the opportunity to change lives.’ The Company completed its initial public offering in 1983.

Recent Developments
Led by CEO Michael Vounatsos, Biogen today reigns as the world’s #1 player in medicines for multiple sclerosis and has also built out an important franchise in drugs for Spinal Muscular Atrophy with SPINRAZA®. The company has been under shareholder pressure to find ways to improve value. It’s enterprise value today of around $48 billion is well below where it has been at times in the recent past, reflecting the lack of additional approvals from its pipeline. A key event is the upcoming potential approval for Adacanumab for Alzheimer’s Disease. This drug candidate has shown promising results in a Phase 3 study and is part of a collaboration with Eisai. Going forward, Biogen is focusing on a host of serious unmet medical needs including ALS, stroke, lupus, Parkinson’s Disease and retinal disorders. Biogen has also built an impressive biosimilars business, posting $738 in revenues in this area in 2019.

Financials (September 2020)
Enterprise Value: $48 billion
Annual Revenue: $14.4 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Yangtze River Pharma

GLOBAL VALUE RANK
(September 2020)

27

No.1. Yangtze River South Road, Gaogang District Taizhou, Jiangsu Province 22532-1 China

+86 523 86976886

www.yangzijiang.com

Private Company

DESCRIPTION
The Yangtze River Pharmaceutical Group (YRPG) was founded in 1971 and is headquartered in Taizhou, China. The Company develops, manufactures and sells a range of over 130 products for sale in the domestic market. YRPG’s product portfolio covers ten major therapeutic areas with an emphasis on anti-infectives, CNS, gastroenterology, respiratory and oncology. YRPG actively seeks international partners for drug development, in and out licensing opportunities, as well as corporate alliances with other major pharmaceutical companies. YRPG is actively involved in CSR, caring for the health of Chinese soldiers for more than a decade and investing in Public Health in Western China. The Company’s strategic foundation is to ‘develop through innovation’ and its philosophy is commitment and dedication to caring for all. In 2015 YRPG was voted the No. 1 Bio-Pharmaceutical Company in China for Brand Value.

RECENT DEVELOPMENTS
YRPG is a true pharmaceutical colossus, with the highest revenues (to our knowledge) of a Chinese pharmaceutical company. We value this business at $44 billion. Today, YRPG has more than 16,000 employees and a number of important contracts. The main campus in Taizhou with more than 20,000,000 square feet of operating space is one of the world’s largest pharmaceutical facilities and is on par with other large industry campuses such as that of Amgen and Novartis. YRPG owns 20 subsidiaries in Beijing, Shanghai, Nanjing, Guangzhou etc. and has established R&D and production bases of innovative chemical medicine, patent traditional Chinese medicines (TCMs) and biological medicine. The company is owned by founder Xu Jingren and his family and has been working for the benefit of the Chinese people from the beginning. The company has appointed Xu Haoyu, the founder’s son, as Chairman and CEO.

FINANCIALS (September 2020)
Enterprise Value: $44 billion
Annual Revenue: $11.5 billion

NOTES
YRPG disclosed $11.5bn in 2019 revenue via a Chinese corporate ranking list. We multiplied this by median revenue multiple for publicly-traded generic pharma companies to impute a value estimate.
**GLOBAL VALUE RANK**  
(September 2020)  

| 28 |

22 Rue Garnier  
Neuilly Sur Seine, Ile-de-France 92200  
France

+33 155 72 60 00

www.servier.com

Private Company

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### DETAILS

**Sector:**  
Branded Pharma

**Lead Modality:**  
Small Molecules

**Therapeutic Focus:**  
Broad

**TA of Lead Product Area:**  
Cardiometabolic

**Value Rank History (by year):**  
19: 36 | 18: 38 | 15: 40 | 12: 33

**Revenue Rank:** 38

**EBITDA Rank:** NA

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### Description

Headquartered in Suresnes, France, Servier was founded in 1954 by Jacques Servier. Servier is privately owned by a foundation. Servier has a direct presence in more than 70 countries. The Company’s proprietary medicines fit into five therapeutic areas: oncology, CNS, cardiology, immuno-inflammation and internal medicine diseases. Today, cardiometabolic drugs represent 60% of turnover. The Company has established a number of long-term alliances with strategic partners internationally, extending its reach and the breadth of its product lines. Servier considers patients, doctors and other healthcare professionals to be their allies in the battle against disease, describing them as, ‘the motivating force behind our daily drive for innovation as a provider of therapeutic progress.’

### Recent Developments

Servier has become an impressive global force in the pharmaceutical industry. Mr. Servier early on focused on globalization but generally avoided the US market due to the somewhat justified concern about litigation risk in the market. After his death in 2014 the company has continued to thrive by following the values that he set. These values include a deep respect for research, a focus on patients, high employee satisfaction and a willingness to take risks on novel scientific hypotheses. Servier has 2,900 R&D professionals in France and a 135-acre production site in Gidy, France. The company’s extraordinary investment of 25% of turnover in R&D is made possible by its independence, assured by foundation ownership. Most recently, Servier has begun to expand into the U.S. market with the acquisition of Shire’s oncology business. Servier continues to prioritize expansion of its oncology business with heavy R&D spend in this area.

### Financials (September 2020)

- Enterprise Value: $36 billion  
- Annual Revenue: $5.4 billion

### Notes

Servier discloses on its website that it did €4.65bn in sales in 2019. We multiplied this figure by the median market multiple for publicly-traded branded pharmaceutical companies to impute a value estimate.
Description
Established in 1901, in Jerusalem with the name S.L.E., Teva is today headquartered in Petah Tikva, Israel. The Company was originally a wholesale distributor for imported medications but currently leads through innovation in generic drugs and specialty brands. The company develops and manufactures a range of OTC medications, generics, APIs, and specialty medicines. Today, Teva has the world’s largest generic portfolio with more than 1,800 different medicines on the market. Teva’s innovative drug research focuses on the therapeutic areas of CNS and respiratory. In 1977 Teva took its first steps into Europe, with its initial international acquisition. In 2011 Teva acquired Cephalon in a $6.8 billion transaction, significantly building up its US branded presence. Today, Teva operates in 60 countries worldwide. People are central to Teva’s strategy, and the Company is committed to enabling as many people as possible ‘live better, healthier days.’ Teva are uncompromisingly committed to quality and the Company first went public in 1951.

Recent Developments
Teva has struggled under the weight of debt involved in its acquisition of Actavis. Today, Teva has more than $30 billion in debt obligations and other long-term liabilities. Net debt / EBITDA today is around five times. Under CEO Kåre Schultz, Teva has worked hard to reduce costs while optimizing the launch of two excellent neuroscience products (Austedo® for Huntington’s Disease and AJOVY® for Migraine). After selling off its women’s health business, Teva maintains an important presence in respiratory and oncology medicines. In oncology, for example, Teva markets BENDEKA® for CLL and NHL. It also markets HERZUMA®, a trastuzumab biosimilar and TRUXIMA®, a biosimilar of rituximab in the US market. Overall, Teva has done a nice job in improving gross margins on its products in recent quarters and is gradually working down the debt load.

Financials (September 2020)
Enterprise Value: $35 billion
Annual Revenue: $16.7 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
**Description**
CSPC was formed in 1997 in Hebei Province, China. CSPC has three major business segments involving innovative drugs, generic drugs and bulk drugs. The Company develops, manufactures and markets a broad range of therapeutic products, including antibiotics, digestives, cardiovascular treatments, antipyretics and vitamins. CSPC is the world’s largest producer of Vitamin C and also produces penicillin, caffeine and ranitidine. CSPC has more than 10,000 sales reps covering 31 provinces in China. There is a separate team of 3500 marketers who cover innovative medicines. CSPC’s goal is to operate ‘all for good medicine, all for mankind’s health.’ Today, CSPC is a leading marketer of CNS drugs in China and has increasing strength in the oncology field. Its strategic partners include Alvogen, Hikma, Lilly, Novartis, Pfizer and Verastem.

**Recent Developments**
Despite its legacy as a major industrial producer of vitamins, CSPC Pharmaceutical Group has rapidly transitioned to being one of China’s most innovative pharmaceutical companies. Today, more than half of its profits come from innovative products. And CSPC’s efforts are just getting started. The Company’s 900+ person R&D team has generated a pipeline of almost 200 product candidates, focusing on innovative treatments for stroke, CNS disease, diabetes, cancer, and infectious disease. CSPC has six independent research centers, 7 national R&D platform certifications, and excellent clinical and regulatory capabilities. CSPC has been the first to launch a number of new biologics in China and is also one of the first Chinese pharmaceutical companies to file an NDA in the US. CSPC also has made majority investments in two U.S. biotechs (AlaMab Therapeutics and NovaRock). These companies give it “big pharma” style biologics innovation and development capabilities and bring first-in-class, potential best-in-class molecules to the market. Further, CSPC Dophen Corporation is development potential best-in-class Antibody-Drug Conjugates (ADC) using in house mono site linking technology. Valuation note: CSPC is valued in our report at less than companies like Hengrui who have less revenue despite their strong innovation position. This is because a significant fraction of revenue remains associated with legacy activities in manufacturing, vitamins etc.

**Financials (September 2020)**
Enterprise Value: $35 billion
Annual Revenue: $5.3 billion

**Notes**
CSPC Pharmaceutical Group Ltd. had revenue in 2019 of $5.3bn (according to communciation with the company in Sep 2020). We multiplied this times the median multiple for branded pharma companies to impute value.
Celltrion, headquartered in Incheon, South Korea, was founded in 2002 by two researchers interested in biosimilar antibody development. Celltrion entered the market through a contract manufacturing business model and is known for the development of the world’s first antibody biosimilar Remsima®, which is currently licensed in over 80 countries. Celltrion’s second product, Herzuma®, is a biosimilar trastuzumab approved by the MFDS for treatment of early and advanced (metastatic) HER2+ breast cancer as well as advanced (metastatic) stomach cancer. Herzuma is a HER2+ breast cancer therapy designed to treat aggressive HER positive metastatic and adjuvant breast cancer. Dedicated to growing without limits and active in R&D, Celltrion describes biosimilars as affordable biologics and is focused on the ambitious goal of delivering at least one new biosimilar each year through 2030. Rensima®, Herzuma® and a related rituximab biosimilar have all been approved for sale in the U.S. by the FDA. Their strict quality control system, state-of-the-art equipment, world class technology and production facility that comply with international regulation will ensure an ever-growing worldwide footprint. Celltrion goal is to provide affordable, effective drugs that contribute to the healthier life of humankind by continually moving forward. The Company went public in 2005.

Recent Developments
Celltrion is interested in building a significant presence in the Korean pharma market and has been open to expansion in other geographies such as the United States. On June 11, 2020, Celltrion announced that it entered into an agreement with Takeda to acquire a portfolio of eighteen products, which are marketed in nine Asia-Pacific markets. The deal involved products with revenues of around $140m and a price of $278.3 million. Celltrion expects this acquisition to allow the company to mature as a comprehensive global pharmaceutical company. From the experience of biosimilar development and manufacturing with accumulated knowhow, Celltrion is concentrating its capability on the development of innovative novel biologics, such as bio-betters, ADC, and therapeutic agents for infectious diseases.

Financials (September 2020)
Enterprise Value: $33 billion
Annual Revenue: $1.2 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Zhifei Bio

GLOBAL VALUE RANK
(September 2020)

32

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www.zhifeishengwu.com

SZSE:300122

DESCRIPTION
Zhifei is headquartered in Chongqing, China and was founded in 2002. The Company engages in the research, development, manufacture and commercialization of vaccines for the China market. Zhifei operates an efficient R&D system and first-class technology platform for polysaccharide and polysaccharide conjugate vaccines and has a number of granted patents, patent applications and non-patent technologies. With more than 2,400 employees Zhifei provides vaccines to all major cities in China (more than 300) and delivers vaccines at more than 30,000 medical sites. Zhifei’s pipeline of potential new vaccines includes over a dozen candidates including those being developed via collaborative partnerships. Zhifei also distributes vaccines for Merck in China since 2011 and recently was pleased to take on the distribution of Merck’s HPV vaccine products in China. Zhifei’s mission is to supply high quality, innovative products at low prices. The Company went public in 2010.

RECENT DEVELOPMENTS
Led by Chairman Jiang Rensheng, Zhifei is the most important vaccine provider in China and owns a rich portfolio of independently developed vaccines. Approved vaccines include Meningococcal Groups A and C and Haemophilus b Conjugate Vaccine, Haemophilus Influenzae Type b Conjugate Vaccine, Group ACYW135 Meningococcal Polysaccharide Vaccine (Menwayc®), Mycobacterium Vaccae for Injection (Vaccae®) and Meningococcal Group A and C Conjugate Vaccine (MeningACon®). The company leads in promoting vaccines in China as an agent, and it has built the largest vaccine marketing network system in the industry. An important recent development involves Zhifei’s effort to combat tuberculosis in China. The Company achieved China approval for a test for mycobacterium tuberculosis in May 2020 and has a TB vaccine on file with NMPA. Other vaccines in development include a 15-valent Pneumococcal conjugate vaccine (PCV15), a Shigella vaccine and a vaccine for hand, foot and mouth vaccine in children.

FINANCIALS (SEPTEMBER 2020)
Enterprise Value: $31 billion
Annual Revenue: $1.7 billion

NOTES
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
**Description**
Seattle Genetics is where revolutionary science meets transformative cancer therapy. The company is headquartered in Bothell, Washington and was founded in 1998. Seattle Genetics uses its proprietary antibody-drug conjugate (ADC) technology to develop and commercialize novel, targeted antibody-based therapies for a variety of cancer indications. The Company’s ADC technology empowers monoclonal antibodies targeted to tumor cells by stably linking them to potent anti-cancer agents, reducing the toxic side effects of traditional chemotherapy. In effect, their platform delivers cancer-killing agents straight to tumor cells. Seattle Genetics is focused on expanding its product set through technological collaborations. The Company has built a strong corporate culture based on the values of passion for patients, integrity, teamwork, scientific excellence, innovation and a great work environment. Seattle Genetics went public in 2001.

**Recent Developments**
In a world that is awash in enthusiasm for immuno-oncology and genetically driven targeted therapies, Seattle Genetics stands out for taking a different road. Like Daiichi Sankyo, Seattle Genetics has excelled in the field of ADCs. It’s lead drug Adcetris® has the long-term potential to be a blockbuster in liquid tumors. More recently, management has pushed hard to broaden the pipeline. Examples of drugs in development include Padcev/enfortumab vedotin in bladder cancer, tucatinib in HER2+ breast cancer, and tisotumab vedotin in cervical cancer. Today, Seattle Genetics is a fully integrated oncology company – with a strong commercial presence, excellent planning capabilities and a deep R&D organization. The company has accomplished all of this organically. Seattle Genetics has carried out one smallish acquisition deal. The results of the company’s success are clearly evident. Our rankings had Seattle Genetics as the world’s #217 company value in 2003; #109 in 2015 and #33 today. We look forward to seeing what the hard-working and bright employees of this company will be able to deliver in the years ahead.

**Financials (September 2020)**
Enterprise Value: $30 billion
Annual Revenue: $1 billion

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Menarini

GLOBAL VALUE RANK
(September 2020)

34

1/3 Via Dei Sette Santi
Florence, Tuscany
50131
Italy

+ 39 55 56801

www.menarini.com

Private Company

DESCRIPTION
Farmacia Internazionale Menarini was founded in 1886 in Naples but moved in 1915 to Florence where it is headquartered today. It wasn’t until the 1990s that Menarini began rapid international expansion and today is the leading Italian pharmaceutical company, present in more than 100 countries. Menarini operates in three divisions: Menarini Ricerche, Menarini Biotech and Menarini Diagnostics. Menarini Ricerche is the division responsible for R&D and focuses on new drug development. Menarini Biotech has been investing in a range of new biological drug candidates. For over 125 years, Menarini has been investing in the development and commercial distribution of pharmaceuticals to serve patients and physicians around the world with a full portfolio of products in the cardiovascular, gastroenterology, metabolic, infectious diseases and anti-inflammatory/analgesic therapeutic areas. People are at the heart of Menarini’s core values which shape their daily practices, on a mission to ‘find a cure for every disease’ to complete their vision of health and their commitment to life.

RECENT DEVELOPMENTS
In a June 2020 press release Elcin Barker Ergun, CEO of Menarini Group, commented, “2019 was another year of solid operating performance for Menarini with continued top-line growth despite a major patent loss. In line with continued strong growth of our most important products, we have just announced a major new manufacturing site investment in Florence to significantly increase our oral blisters capacity. Looking ahead, we remain focused on our strategic priorities in primary and specialty care to serve millions of patients around the world. The acquisition of Stemline, a New York-based US biopharmaceutical company, which we have just completed is a key move in line with our strategy providing us an excellent foundation to tap into the world’s largest pharmaceutical market and greatly enhancing our innovation power.” The Stemline acquisition gives Menarini a commercial presence in the U.S. pharma market in oncology. Menarini is increasingly committed to oncology, with several new investigational drugs in development.

FINANCIALS (September 2020)
Enterprise Value: $30 billion
Annual Revenue: $4.4 billion

NOTES
In a June 2020 press release, Menarini disclosed that it has delivered €3.79 billion in 2019 revenue. We multiplied this by the median market multiple for publicly-traded branded pharmaceutical companies to impute a value estimate.
Bausch Health

**GLOBAL VALUE RANK**
(September 2020)

<table>
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<th>Rank</th>
<th>35</th>
</tr>
</thead>
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2150 St. Elzéar Boulevard West
Laval, Quebec H7L 4A8
Canada

+1 514 744 6792

www.bauschhealth.com

**NYSE:** BHC

**DETAILS**

**Sector:**
Branded Pharma

**Lead Modality:**
Small Molecules

**Therapeutic Focus:**
Broad

**TA of Lead Product Area:**
opthalmology

**Value Rank History (by year):**
19: 32 | 18: 32 | 15: 14 | 12: 0 | 03: 66

**Revenue Rank:** 29

**EBITDA Rank:** 22

**Description**

Bausch Health was created through a merger of Valeant and Biovail in 2001 and has its global headquarters in Laval, Canada. Today, Bausch Health has a presence in over 100 countries, including the United States, Canada, Europe, the Middle East, Africa, Asia Pacific and Latin America. Bausch’s 1400 products are used by up to 150 million people around the world. The company has focused on eye health (Bausch + Lomb); gastrointestinal diseases (Salix Pharmaceuticals); and dermatology (Ortho Dermatologics). Bausch’s mission is to improve people’s lives through the provision of their health care products and their vision is to be a, ‘trusted health care partner.’ The Company’s values are; quality, customer focused, innovation, efficiency and people. In July 2018 the Company changed its name to Bausch Health from Valeant, as they feel ‘the Bausch name embodies their rich history of innovation, fortitude and dedication.’

**Recent Developments**

Joe Papa has been CEO of Bausch Health since 2016 and has been skillfully turning around the debt-laden company. Total debt at year-end 2015 was $37 billion and previous management had at times pursued controversial business practices. As of June 30, 2020 total debt has been whittled down to $24.3 billion and the company is growing its core franchises despite a range of market headwinds. Bausch's B&L ophthalmic business comprised 56% of 2019 revenue and includes lenses, lasers and leading drugs. The Salix GI business comprised 23% of total revenue and is led by flagship product Xifaxan® along with Trulance® and Relistor®. Ortho Dermatologics comprised 7% of total revenue and is led by thermage® FLX and Jublia®. Key upcoming products include SiHy, a disposable contact lens, a new rifaximin soluble solid dispersion and Amiselimod®, an S1P modulator for gastroenterologic disease. Other pipeline items in eyecare include Lumify® line extensions; an Extended Depth of Focus (EDOF) Intraocular Lens; a new Ophthalmic Viscosurgical Device and enVista® Trifocal (Intraocular Lens). On the drug side, Bausch is developing XIPERE, an investigational treatment for macular edema associated with uveitis; EM-100 a treatment for allergic conjunctivitis and NOVO3 for dry eye. Bausch has indicated that intends to spin out its ophthalmic business with the name Bausch + Lomb.

**Financials (September 2020)**

Enterprise Value: $29 billion
Annual Revenue: $8.1 billion

**Notes**

We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
**Royalty Pharma**

**GLOBAL VALUE RANK**  
(September 2020)  

| 36 |

110 East 59th Street,  
Suite 3300  
New York, New York  
10022  
United States

+1 212 331 0200

www.royaltypharma.com

NasdaqGS:RPRX

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**DESCRIPTION**

Royalty Pharma was established in 1996 and is based in New York City. Royalty Pharma is the largest buyer of biopharmaceutical royalties and a leading funder of innovation across the biopharmaceutical industry. Since its founding in 1996, Royalty Pharma has been a pioneer in the royalty market, collaborating with innovators from academic institutions and not-for-profits through small and mid-cap biotechnology companies to leading global pharmaceutical companies. Because its business model is to invest in marketed and late stage biopharmaceutical products it has less than 50 employees and is principally focused on the identification of new royalties to acquire, and the enforcement of associated intellectual property rights. Skillfully led by CEO Pablo Legorreta, Royalty Pharma has built its portfolio of royalties from over 50 acquisitions since its founding beginning with acquisition of interest in Amgen’s Neulasta® from Memorial Sloan Kettering Cancer Center. Royalty Pharma has assembled a portfolio of royalties which entitles the company to payments based directly on the top-line sales of many of the industry’s leading therapies, including Imbruvica®, Januvia®, Kalydeco®, Trikafta®, Truvada®, Tysabri® and Xtandi®. Royalty Pharma funds innovation in the biopharmaceutical industry both directly and indirectly—directly when it partners with companies to co-fund late-stage clinical trials and new product launches in exchange for future royalties, and indirectly when it acquires existing royalties from the original innovators. Royalty Pharma’s significant scale, flexible business model and extensive expertise position the company to take advantage of the increasing innovation in the biopharmaceutical industry.

**RECENT DEVELOPMENTS**

Royalty Pharma is a quiet giant within the pharmaceutical industry, earning approximately $2.2 billion in EBITDA from royalties in 2019. Royalty Pharma is flexible and is willing to finance attractive pharmaceutical innovation projects. For example, in 2016 Royalty Pharma and Pfizer signed a $300 million R&D partnership for the Ibrance® trials in the adjuvant treatment of breast cancer where Royalty Pharma paid for clinical studies. Following an IPO in June 2020 this company is valued at $29 billion, indicating strong investor support.

**FINANCIALS (September 2020)**

- Enterprise Value: $29 billion
- Annual Revenue: $2.3 billion

**NOTES**

We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Description
Hansoh Pharma was founded in 1995 and is headquartered in Lianyungang, China. Initially, the company developed and marketed generic drugs. More recently, Hansoh has brought a number of NCEs to market. The company is the highest-ranked new company in our listing based on financial information released via its 2019 IPO. With an enterprise value of $26 billion relative to trailing revenue of $1.1 billion, Hansoh is richly valued, reflecting an outstanding pipeline. Today, Hansoh has 1,400 R&D professionals in two R&D centers (Lianyungang and Shanghai). The R&D pipeline is impressive with 15 candidates that are marked for launch in the next 18 months. The lead pipeline asset is Inebilizumab, an anti-CD19 antibody, for hemangioma and several autoimmune conditions. Other drug candidates include HS-10234 for Hepatitis B; EPOR for CKD anemia; HS-10241, a c-Met inhibitor for solid tumors; and HS-10342, a CDK4/6 modulator for solid tumors. Key in-market generics include olanzapine for schizophrenia; agomelatine for depression; and pemetrexed for NSCLC. On the innovative side, Hansoh markets almotinib for lung cancers with EGFR mutation (sales exceed $350 million); flumatinib for Philadelphia chromosome+ CML and morinidazole for pelvic inflammatory disease. Loxenatide is a long-acting GLP-1 for diabetes and was recently approved. Hansoh has a large sales team of 4,500 staff, covering 6,900 hospitals and other medical institutions. This sales team is responsible for much of the company’s success. In virtually every area where it competes, Hansoh has the leading market share for a drug.

Recent Developments
Hansoh’s Chairwoman, Zhong Huijuan owns approximately two-thirds of Hansoh with her daughter Sun Yuan via Sunrise Trust, giving her a net worth of more than $19 billion. Mrs. Zhong is considered to be the wealthiest self-made woman in China. She taught chemistry before founding Hansoh in 1995. Her husband, Sun Piaoyang, has a separate $16 billion fortune from Hengrui Medicine. Her family stands alongside some of the world’s wealthiest in pharma including the control group of Boehringer-Ingelheim, Xu Jingren (of YRPG), the control group of Qilu, the Hoffmann-Oeri family, the Bertarellis, the Straugmann’s and the Aleotti family (control group of Menarini).

Financials (September 2020)
Enterprise Value: $26 billion
Annual Revenue: $1.1 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Astellas

GLOBAL VALUE RANK
(September 2020)

38

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Tokyo, Kanto 103-8411
Japan

+81 3 3244 3000

www.astellas.com

TSE: 4503

DETAILS

Sector:
Branded Pharma

Lead Modality:
Small Molecules

Therapeutic Focus:
Broad

TA of Lead Product Area:
Oncology

Value Rank History (by year):
19: 35 | 18: 36 | 15: 36 | 12: 27 | 03: 25

Revenue Rank: 22
EBITDA Rank: 25

Description
Established by the merger of Yamanouchi Pharmaceutical Co. Ltd. and Fujisawa Pharmaceutical Co. Ltd. in 2005, Astellas is headquartered in Tokyo, Japan. Astellas has historically specialized in urology, transplant medicine and oncology. With sales channels in over 50 countries, Astellas focuses on contributing to the health of people globally. Key products include XTANDI®, for the treatment of prostate cancer; XOSPATA®, a FLT3 inhibitor for AML; Myrbetriq® a beta-3 receptor agonist for overactive bladder; and Prograf® to manage transplant rejection. Astellas predecessor company Yamanouchi went public in 1949.

Recent Developments
Led by Chief Executive Officer Kenji Yasuwaka, Astellas made a strategic presentation to the outside world on May 22, 2018 that outlined a thoughtful vision for a pharmaceutical company. Astellas has been aggressively executing on this vision ever since with strong support of its strategy function led by Naoki Okamura, Chief Strategic Officer and Chief Financial Officer. The vision is called a “Focus Area Approach” which is defined as combinations of three components: (1) biologies with high disease relevance, (2) versatile technologies, and (3) diseases with high unmet needs that can be tackled by the first two components. “We view this strategy as a way to build a sustainable, expandable drug discovery approach to develop new platforms, leverage expertise and create innovative products.” (Astellas Web Site). The top biology areas tracked are immune-oncology, ASIM, biology, mitochondria, genetic regulation and regenerative medicine. The modalities include antibodies, vaccines, cell therapy, small molecule and gene therapy. And the disease areas include oncology, immunology, sensory organs and muscle disease. Further, Astellas announced an “Rx+” initiative looking for new ways outside of pharma to add value for patients or new treatment solutions. Since May 2018 Astellas has acquired Potenza and Xyphos for immune-oncology; partnered with Pandion on immunology; worked with Frequency Therapeutics and Quetetha on sensory organs and acquired Audentis to implement the thinking on muscle disease, X-linked Myotubular Myopathy, and gene therapy.

Financials (September 2020)
Enterprise Value: $26 billion
Annual Revenue: $11.8 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Description
Grifols, a Barcelona-based company, was established in 1940 by Dr. José Antonio Grifols (and traces its roots back to 1909). Dr. Grifols and his two sons processed blood plasma products, developing plasmapheresis, the process of extracting plasma from blood, a technique that is still used today. By 1958 Grifols opened its first plasma fractionation plant in Barcelona. The Company has three primary divisions that develop, produce and market its products to medical professionals worldwide (bioscience, diagnostic, and hospital products). Today, Grifols operates 15 state-of-the-art manufacturing plants, has more than 22,000 employees, has subsidiaries in more than 30 countries and supplies products to over 100 countries. Grifols went public in 2006. In 2002 Grifols acquired SeraCare and its 43 plasma donation centers in the United States. In 2003 Grifols acquired Alpha Therapeutic Corporation-Mitsubishi, including its plasma fractionation plant in Los Angeles. A key move in 2011 was the acquisition of Talecris which strengthened its position in the U.S. market. In 2017 Raimon Grifols and Víctor Grifols became the company’s new joint Chief Executive Officers. Grifols went public in 2006.

Recent Developments
Grifols has continued to thrive under new leadership. In March 2019 Grifols entered into a strategic alliance with Shanghai RAAS to boost the growth of its plasma-derived products and diagnostic solutions in China. Under the agreement, Grifols took a 26.2% stake in Shanghai RAAS in exchange for a 45% share in Grifols Diagnostic Solutions (GDS). Key growth areas have included further therapeutics for AAT1 deficiency including Alpha-1 Liquid; growth of fibrin sealants / thrombins; introduction of an Alpha-1 genetic test; delivery of albumin for liver disease and growth in plasma collection. Grifols has seen particularly strong growth in its immunoglobulin franchise (IVig) for Primary Immune Deficiency Disorder and related areas. The number of patients on this therapy in the US has been rising at roughly 9 percent per annum. Grifols has also become the world leader in blood donor screening with its Procleix assay. Today, Grifols has a 25% market share in IVIG and a 67% share in Alpha-1 and is the #1 player in the world in both of these important therapeutics areas.

Financials (September 2020)
Enterprise Value: $26 billion
Annual Revenue: $6 billion

Notes
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.
**Description**

Founded in 1992, Alexion is a global biopharmaceutical company focused on serving patients and families affected by rare and devastating diseases. As a long-standing global leader in complement biology, Alexion has developed and commercialized two complement inhibitors to treat patients with paroxysmal nocturnal hemoglobinuria and AHUS (Soliris® and Ultomiris® respectively). Alexion also has two highly innovative enzyme replacement therapies for patients with life-threatening and ultra-rare metabolic disorders, hypophosphatasia and lysosomal acid lipase deficiency. In addition, the company is developing several mid-to-late-stage therapies, including a copper-binding agent for Wilson disease and an anti-neonatal Fc receptor (FcRn) antibody for rare IgG-mediated diseases. Alexion focuses its research efforts on novel molecules and targets in the complement cascade; its development efforts are focused on the core therapeutic areas of hematology, nephrology, neurology, metabolic disorders and cardiology. Headquartered in Boston, Massachusetts, Alexion serves patients in more than 50 countries. The Company is, ‘focused on serving patients and families affected by rare diseases through the innovation, development and commercialization of life-changing therapies.’ Alexion went public in 1996.

**Recent Developments**

Alexion’s value rank history tells an important story. From 2003 to 2015 Alexion went from the 189th most valuable pharma company to the 27th most valuable in the world. This remarkable ascent was achieved through the approval and successful global launch of Soliris® for PNH and aHUS. Since 2012, Alexion has grown revenue but has not risen in the value ranks. This reflects the maturation of its therapeutic categories and some M&A misfortune. Alexion Pharmaceuticals recently halted development of ALXN2040, a Factor D inhibitor acquired as part of a $930 million acquisition of Achillion in 2019 and SBC-103, a potential treatment for mucopolysaccharidosis (MPS) IIIB which it acquired via Synageva in 2015. More recently, new CEO Ludwig Hantson has persevered in broadening the pipeline. Alexion has acquired Wilson Therapeutics, Syntimmune, and Portola. These acquisitions have the potential to put the company back on a value-positive growth trajectory in the years ahead.

**Financials (September 2020)**

Enterprise Value: $25 billion  
Annual Revenue: $5.5 billion

**Notes**

We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
GLOBAL VALUE RANK
(September 2020)

41

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Bunkyo-ku
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Japan

+81 3 3817 3700

www.eisai.co.jp

TSE:4523

DESCRIPTION
Tokyo, Japan-based Eisai was established in 1941 by founder Toyoji Naito. Eisai operates a network of pharmaceutical production and marketing sites throughout North America, Europe and Asia, enabling the Company to generate a steady, reliable product supply. Today, Eisai has more than 10,000 employees across the world, has more than 40 subsidiaries, has 15 research sites, and generates more than 60% of its revenue outside of Japan. Specializing in neurology and oncology, Eisai has developed and marketed a number of major global brands within these areas, as well as additional prescription pharmaceuticals and OTC products distributed in many regions. The Company operates a number of initiatives as part of its efforts to develop innovative medications to address unmet healthcare needs worldwide, including the ‘Access to Health’ scheme that seeks to provide access to healthcare to those most in need. For example, Eisai both distributes Alzheimer’s drugs in India and operates low cost memory clinics in that country. Eisai went publicly listed in 1961.

RECENT DEVELOPMENTS
Operated by its founder’s grandson, Haruo Naito, Eisai has made tremendous progress in recent decades, both globalizing its footprint and deepening its research footprint. Eisai is a profoundly idealistic organization dedicated to human healthcare. The company’s focus for 2025 goals is on “Ricchi” which means areas where “real patient needs are still unmet, and where Eisai can become a frontrunner”. Eisai largely operates in two global business groups: oncology and neurology (neurodegenerative diseases). Well-known for introducing Aricept for Alzheimer’s disease globally, Eisai remains highly focused on treatments for dementia, working jointly, for example, with Biogen to introduce adacanumab and BAN2401 to the global market. In 2019, the Eisai Center for Genetics Guided Dementia Discovery (G2D2) was opened in Cambridge, MA. In 2010, Eisai launched the highly successful Halaven® product for cancer in the U.S. In 2015, Eisai launched Lenvima® for liver cancer. Eisai has partnered with Merck to increase the already considerable sales of Lenvima® and to take this product into new indications in concert with KEYTRUDA®. In 2017, Eisai formed the gastrointestinal spinout company, EA Pharma, with Ajinomoto.

FINANCIALS (September 2020)
Enterprise Value: $24 billion
Annual Revenue: $6.5 billion

NOTES
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Description
Founded in 2010, Moderna Therapeutics is headquartered in Cambridge, Massachusetts. Moderna has built an industry-leading platform at the forefront of messenger RNA medicines that have the potential to revolutionize disease treatment, pharmaceutical R&D and drug manufacturing. Messenger RNA, or mRNA, plays a fundamental role in human biology, transferring the instructions stored in DNA to make the proteins required in every living cell. Moderna’s approach is to use mRNA medicines to instruct a patient’s own cells to produce proteins that could prevent, treat, or cure disease. Moderna focuses on various therapeutic areas including vaccines, immuno-oncology and hepatology. Moderna is committed to creating and delivering a new generation of transformative medicines with each team member making an immediate impact through rich science and collaboration. Led by CEO Stéphane Bancel Moderna today has more than 820 employees and more than 400,000 square feet of operational space. Every voice at Moderna is heard as part of their ‘secret sauce’. Their success is attributable to their team, their technology and their drive to achieve their mission.

Recent Developments
Moderna has been an extraordinary company from its earliest days. Backed by Flagship Pioneering the Company carried out a series of exceptional private financings followed by a $600 million IPO in 2018. The valuation at the time was $7 billion and was described as “massively hyped” by Mark Terry of Biospace. Mr. Terry might have a different view today. With a valuation of more than $20 billion Moderna has more than 21 drugs in development and is a leading candidate to be the first company to introduce an efficacious COVID-19 vaccine. mRNA-1273 is an mRNA vaccine against COVID-19 encoding for a prefusion stabilized form of the Spike (S) protein. The first participant in the NIAID-led Phase 1 study of mRNA-1273 was dosed on March 16, 63 days from sequence selection to Phase 1 study dosing. The early results from this vaccine approach look promising and hold high hope to a world looking for a way to eradicate COVID-19.

Financials (September 2020)
Enterprise Value: $24 billion
Annual Revenue: $105.8 million

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Qilu Pharma

GLOBAL VALUE RANK
(September 2020)

43

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Province 250104
China

+86 531 8312 7705

www.qilu-pharma.com

Private Company

DESCRIPTION

Based in Jinan China, Qilu Pharmaceutical was founded in 1958. The Company develops, manufactures and commercializes APIs and generic drugs for a variety of therapeutic areas including oncology, cardiovascular, infections, CNS, respiratory and ophthalmological diseases. Qilu (pronounced “chee-loo”) is one of the leading pharmaceutical companies in China. their culture is embodied by the phrase, ‘caring through science and technology’ and they focus on providing high quality products by adopting advanced and validated manufacturing technology. Qilu distributes its products both domestically and internationally with an overseas network that covers five continents. The Chinese Pharma Research Institute ranked Qilu Pharmaceutical as the 3rd most innovative Chinese pharmaceutical company in 2016.

RECENT DEVELOPMENTS

Qilu is all about injectables and has a formidable position as a marketer of cytotoxics in China. Qilu Pharmaceutical products are available in over 70 countries globally. Qilu has more than 2,000 persons in R&D and is currently focused on innovation in oncology, cardiovascular disease, neurology and infectious disease. Qilu has 5 R&D centers in US and China; 9 manufacturing sites in China with nearly 6 million square meters; 13 domestic subsidiaries; 11 overseas subsidiaries and more than 23,000 employees. Qilu’s Chairwoman Yan Li is ambitiously steering an agenda of innovation for a company that has been historically focused on generics. She recently stated: “With our dedication to making a healthier world, and close collaboration with our partners globally, Qilu aspires to be among the top pharmaceutical companies in the world.”

FINANCIALS (SEPTEMBER 2020)

Enterprise Value: $24 billion
Annual Revenue: $3.6 billion

NOTES

We obtained company revenues from the corporate presentation of Qilu Pharma dated June 2020. We multiplied this times the median multiple for public branded phamas to impute a value estimate. In some ways this company looks quite similar to Hengrui. Were it listed its value could be substantially higher than we have estimated.
Description
UCB was formed in 1928, and is headquartered in Brussels, Belgium. UCB initially concentrated on industrial chemical production with only a small pharmaceutical division but has since grown into a thriving global biopharmaceutical company. In May 2004, UCB acquired the British biotechnology company Celltech, followed in March 2005 by the sale of the surface specialties to Cytec Industries. Celltech brought a strong position in biologics and UCB’s lead drug Cimzia®. By divesting all of its non-pharmaceutical activities, and acquiring Celltech for $1 billion, UCB transformed itself into a global biopharmaceutical company. In 2006, purchased 87% of the German pharmaceutical company Schwarz for $4 billion. The purchase of Schwarz enabled UCB to introduce two new drugs against CNS disorders: Neupro (rotigotine), a transdermal patch for the treatment of Parkinson’s disease and Vimpat (lacosamide), a new anticonvulsant. Financière de Tubize is a holding company that holds and manages a participating interest in UCB consisting of 35% of all shares issued. This ownership stake is largely controlled by the founding group of UCB. UCB seeks to ‘transform the lives of people living with severe disease’ and portrays themselves as ‘inspired by patients and driven by science’. The Company operates the UCB Societal Responsibility Fund to help improve access to neurological care and the quality of life for persons living with epilepsy in resource-poor countries. UCB was ranked 4th in the Global 100 list of the world’s most sustainable large corporations in 2018. UCB was listed in 1999.

Recent Developments
UCB delivered €4.9 billion in revenue in 2019. Led by CEO Jean-Christophe Tellier, UCB today has more than 7,600 employees across the globe. In 2015 UCB sold its generics subsidiary, Kremers Urban Pharmaceuticals, for more than $1.2 billion. In 2020 UCB acquired Ra Pharma for $2.5 billion. This brings zilucoplan, a peptide inhibitor of complement component 5 currently in phase 3 alongside to UCB’s rozanolixizumab, an FcRn targeting antibody also in phase 3 development. This acquisition has solidified UCB’s position as a world leading player in severe diseases of the immune system or of the central nervous system. UCB has also formed UCB Ventures giving the company a window into new insights and technologies including novel modalities and digital solutions.

Financials (September 2020)
Enterprise Value: $24 billion
Annual Revenue: $5.8 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
**Description**

Sino Biopharma was founded in 2000 and is headquartered in Hong Kong. The company applies advanced biomedical technology to research, develop, manufacture and commercialize modernized Chinese medicines and chemical medicines for the China market. At its foundation the Company's portfolio covered the therapeutic areas of hepatitis and cardio-cerebral diseases. However, with an active expansion, reflecting the market demands and the requirements of medical practitioners and patients they now also market treatments for cancer, pain, orthopedics, infection, parenteral nutrition, respiratory diseases, anorectal diseases and diabetes. Key subsidiaries include Chia Tai-Tianqing Pharmaceutical Holdings Co., Beijing Tide Pharma, Qingdao and Tongyang Pharma. The company has a number of international-level innovative R&D bases and pharmaceutical production bases in Beijing, Nanjing, Lianyungang, Qingdao, etc. covering liver diseases, tumors, diabetes, respiratory system diseases, cardio-cerebral diseases, anti-infection, digestion, and nerve diseases, and have the largest domestic R&D and production platform for targeted drugs and a pilot base for national marine drugs. Sino's management philosophy places its staff as its ‘single, most precious asset’ with their comprehensive Corporate Responsibility activities reflecting this attitude. Sino’s mission is ‘to dedicate our love and care for the health of mankind, in order to create a better future together.’ Sino was included in Forbes Asia’s ‘Fabulous 50’ in 2016, 2017 and 2018. The Company went public in 2000. In 2013, this Company was selected as a component stock of the China of the MSCI Global Standard Index and as a component stock of the Hang Seng Index in 2018.

**Recent Developments**

Sino has a professional promotion team consisting of more than 13,000 employees, and nearly 1,000 kinds of products, covering medical institutions at all levels across China. In 2019, the company had 38 products with annual sales revenue of over 100 million CNY. Especially in the field of liver diseases, a number of major products have annual sales revenue exceeding 1 billion CNY, accounting for 21.2% in the overall sales income of the liver disease market in China.

**Financials (September 2020)**

Enterprise Value: $23 billion  
Annual Revenue: $3.4 billion

**Notes**

We used the Company's enterprise value as of September 15, 2020 as our estimate of value.
Description
Changchun High & New Tech was founded in 1993 and is headquartered in Changchun, China. Changchun is the capital of Jilin province (a Northeastern area formerly known as Manchuria). Led by Ma Ji, Changchun has interests in a number of different business activities including peptides, vaccines, proprietary Chinese medicines and sales as well as the production of genetically-engineered pharmaceuticals, including recombinant human growth, and peptide drugs. The pharma business has been growing at 30% to 40% per annum in recent years, explaining the high trading multiple. With a development philosophy of, ‘innovation, focus, tolerance and harmony,’ the Company is driven to lead the evolution of the biopharmaceutical and health industry through its research and development activities. The Company was listed in 1996.

Recent Developments
Changchun is structured as a holding company overseeing a number of subsidiary companies each with its own activity. Key subsidiaries include Jinsai Pharmaceutical, Baike Biological, Anwo High-Tech and Huakang Pharma. Baike is a major vaccine manufacturer in Northeastern China. Jinsai is Asia’s largest producer of recombinant human growth hormone and has a significant business making other peptide and biologic products for fertility, autoimmune, ophthalmic and CNS needs. In the West, Jinsai is known as GenSci (see http://en.gensci-china.com/). In its 2019 annual report, Changchun notes: “At present, the international registration of products of Jinsai Pharmaceutical and Baike Biological is being carried out in an orderly manner. There are more than 400 advanced pharmaceutical projects listed in the company’s project library, nearly 50 in-depth tracking projects, and some key projects are under special demonstration and due diligence.” Key recent innovation projects include a lidocaine transdermal patch and a vaccine against CMV. Baike recently entered into an RSV vaccine production JV with Blue Lake Biological of the US.

Financials (September 2020)
Enterprise Value: $23 billion
Annual Revenue: $1.1 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
<table>
<thead>
<tr>
<th>GLOBAL VALUE RANK (September 2020)</th>
<th>47</th>
</tr>
</thead>
<tbody>
<tr>
<td>43 Kalvebod Brygge</td>
<td>Copenhagen, Capital Region of Denmark</td>
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<tr>
<td></td>
<td>1560 Denmark</td>
</tr>
<tr>
<td>+45 7020 2728</td>
<td><a href="http://www.genmab.com">www.genmab.com</a></td>
</tr>
<tr>
<td>CPSE:GMAB</td>
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</tbody>
</table>

**Description**
Genmab was founded in 1999 and is headquartered in Copenhagen, Denmark. Genmab develops antibody therapeutics for cancer indications. Genmab uses its knowledge to create novel, breakthrough antibody therapeutics. Key products include DARZALEX® (marketed by J&J) for the treatment of multiple myeloma; Kesimpta® (ofatumumab, under agreement with Novartis), for the treatment of adults with relapsing forms of multiple sclerosis and TEPEZZA® (teprotumumab, marketed by Horizon Therapeutics plc) for the treatment of thyroid eye disease. The first approved Genmab created therapy, Arzerra® (ofatumumab, marketed by Novartis) is approved for the treatment of certain chronic lymphocytic leukemia indications in Japan. Genmab's technology base consists of validated and proprietary next-generation antibody technologies - the DuoBody® platform for the generation of bispecific antibodies, the HexaBody® platform, which creates effector function enhanced antibodies, the HexEct® platform, which combines two co-dependently acting HexaBody molecules to introduce selectivity while maximizing therapeutic potency and the DuoHexaBody® platform, which enhances the potential potency of bispecific antibodies. Genmab is using these technologies to create opportunities for full or co-ownership of future products. Genmab is motivated to create drugs that make a true difference in the lives of patients and their families. Genmab has a unique and stimulating culture lead by an energetic corporate management; encouraging teamwork and focused on sustainable profitability by holding onto product rights. Genmab went public in 2000 and today is a dual-listed company.

**Recent Developments**
Key recent developments include a broad oncology platform with AbbVie (involving a payment of $750 million upfront); favorable topline results from tisotumumab vedotin in cervical cancer; and the presentation of Phase 1b data for Epcoritamab at ASCO. In addition, Genmab saw positive topline results in Phase 3 studies for daratumumab in light-chain (AL) amyloidosis and refractory multiple myeloma. These developments have been accompanied by a tripling of recurring revenue since 2017 and the growth of the pipeline from having two clinical programs in 2017 to eight today.

**Financials (September 2020)**
Enterprise Value: $22 billion
Annual Revenue: $1.5 billion

**Notes**
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.
**GLOBAL VALUE RANK**
(September 2020)

48

Shinagawa Grand
Central Tower, 2-16-4
Konan, Minato-Ku
Tokyo, Kanto 101-8241
Japan

+81 3 6717 1400

www.otsuka.com

TSE:4578

**DESCRIPTION**

Tokyo, Japan-based Otsuka Holdings was formally established in 2008 and has many subsidiaries. There are three key pharma subsidiaries: Otsuka Pharma, Taiho and Otsuka Pharmaceutical Factory. Otsuka is also involved in clinical testing and medical equipment, chemicals, warehousing, cosmetics, hotels and wine (owner of the Ridge wine brand, for example). Operating a ‘twin core’ business focussed around the areas of pharmaceuticals and nutraceuticals, Otsuka collaborates with a number of global partners to extend their product offerings and global reach. As a result of the Company’s expansion policy and strategic alliances, it markets products in over 80 countries and regions. The expansion of the company was engineered by Akihiko Otsuka who passed away in 2014 at the age of 77 and had worked for his company since the age of 22. He was the creator of a number of signature products including the wildly popular Japanese drink “Pocari Sweat” as well as the Calorie Mate® energy bar which was inspired by astronaut food. He was also heavily dedicated to eliminating tuberculosis. Mr. Otsuka helped to foster the growth of three significant but separate pharma companies and gave each company autonomy and the ability to invest in its own area. Under the capable leadership of CEO Tatsuo Higuchi, Otsuka’s mission today is to ‘provide innovative products to help everyone maintain or improve their health.’ Otsuka Holdings went public in 2010.

**RECENT DEVELOPMENTS**

Otsuka Pharma is the best known of the company’s three pharma subsidiaries. Abilify Maintena®, a long-acting aripiprazole preparation for schizophrenia; ARISTADA®, REXULTI® for depression and Jynarque® (tolvaptan) for autosomal dominant polycystic kidney disease (this product is growing rapidly). On the oncology side, Otsuka Pharma is focused on liquid tumors. Taiho, in contrast, is all about solid tumors, and is on the world’s greatest developers of cytotoxic medicines. Taiho achieved FDA approval of LONSURF (trifluridine/tipiracil) for gastric cancer in 2019. Otsuka Pharmaceutical Factory is a major provider of IV medications in Japan.

**FINANCIALS (SEPTEMBER 2020)***

Enterprise Value: $22 billion
Annual Revenue: $13.1 billion

**NOTES**

We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
# Pientzehuang Pharma

## GLOBAL VALUE RANK
(September 2020)

**49**

| Fujian Province Street
Zhangzhou, Fujian Province
China |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>+86 59 6230 2993</td>
</tr>
<tr>
<td><a href="http://www.zzpz.com">www.zzpz.com</a></td>
</tr>
<tr>
<td>SHSE:600436</td>
</tr>
</tbody>
</table>

## DETAILS

**Sector:** Generics - China  
**Lead Modality:** Small Molecules  
**Therapeutic Focus:** Broad  
**TA of Lead Product Area:** Broad  

**Value Rank History (by year):**  
19: 83 | 18: 77 | 15: 813 | 12: NA | 03: 290  
**Revenue Rank:** 190  
**EBITDA Rank:** 103

---

**Description**  
Founded in 1999 Pientzehuang Pharma is headquartered in Zhangzhou, China. In December 1999, the Zhangzhou Pharmaceutical Factory established in 1956 was restructured into Pien Tze Huang Pharmaceutical. Currently, the company has 34 holding subsidiaries, 8 joint-stock subsidiaries and 4 industry funds with more than 2,100 employees. The Company manufactures and distributes Chinese medicines for a variety of indications including pain, inflammation, hepatitis, heart disease and colds. Additionally Pientzehuang Pharma also produces and sells cosmetics, personal care products such as toothpaste, shampoo and shower gel as well as dermatological products such as sunscreen. Pientzehuang Pharma has a presence in both the domestic and international markets. In June 2003, the company was listed on the Shanghai Stock Exchange.

**Recent Developments**  
Zhangzhou Pien Tze Huang Pharmaceutical Co., Ltd. is a time-honored national high-tech enterprise. In December 1999, the Zhangzhou Pharmaceutical Factory was restructured into Pien Tze Huang Pharmaceutical. A key product driving growth is the famous [Pien Tze Huang](https://en.wikipedia.org/wiki/Pien_Tze_Huang), a traditional Chinese herbal formula first documented during the Ming Dynasty and historically used to combat inflammation. The sole manufacturer of Pien Tze Huang is the Pien Tze Huang Pharmaceutical Company Limited, China. The prescription and technology have been classified as state secrets, and the medicine has won the National Gold Award and passed the Country-of-Origin Marking certificate. It has been rated as the No.1 brand of “Healthy China” hepatobiliary drugs for three consecutive years and won the top Chinese brand award “China Spectrum Award”. With a brand value of RMB 24.903 billion, it ranked second on the “Brand Value Ranking List of China Time-honored Brands for 2018”.

**Financials (September 2020)**  
Enterprise Value: $22 billion  
Annual Revenue: $859.8 million

**Notes**  
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Kelun Group

GLOBAL VALUE RANK
(September 2020)

50

No.36 Baihua Road
West
Chengdu, Sichuan
Province 610071
China

+86 28 8299 8999

www.kelun.com

SZSE:002422

DETAILS

Sector:
Generics - China

Lead Modality:
Small Molecules

Therapeutic Focus:
Broad

TA of Lead Product Area:
Oncology

Value Rank History (by year):
19: 34 | 18: 24 | 15: 116 | 12: 79

Revenue Rank: 35
EBITDA Rank: NA

Description
Kelun Group has more than 100 subsidiaries in China and abroad. These subsidiaries include more than 100 enterprises at home and abroad, Sichuan Kelun Pharmaceutical Co., Ltd (listed on the change); Sichuan Kelun Drug Research Institute Co., Ltd; Klus Pharma Inc., Sichuan Kelun Medicine Trade Co., Ltd, etc. In 2017, Kelun ranked 155th in China's top 500 manufacturing enterprises, and comprehensive strength and ranked in the top three in China's pharmaceutical industry. Kelun Group has more than 30,000 employees, is the world's largest manufacturer of injectable and infusion products, and has sales revenue of more than $6 billion. The listed part of the group (Sichuan Kelun Pharmaceutical Co., Ltd.) went public on the Shenzhen Stock Exchange in June 2010. At the same time, Kelun immediately launched the plan of 10 billion RMB industrial investment and began to implement the development strategy of "three development driving engines and innovative growth". The first engine is through continuous industrial upgrading and product variety adjustment, to maintain Kelun's absolute leading position in the field of IV infusion products. The second engine is to build the competitive advantage of the whole antibiotics industrial chain from intermediates, APIs to formulations through the innovative development and utilization of high-quality natural resources. The third engine is to accumulate the ultimate driving force for enterprise development through the construction of research and development systems and diversified technological innovation.

Recent Developments
In addition to its impressive base in IV/infused generic products and antibiotics, Kelun Group has built a formidable pipeline of innovative small and biologic programs (antibodies, ADCs and bispecifics). This pipeline includes drugs that target the adenosine A2a receptor, arginase1, ASK1, CCR2/5, Claudin18.2 mAb, FXR, JAK, STING, TIGIT, TLR-7 and TROP2 ADC. In total, over 30 drug candidates are in the pipeline for cancer, HBV, NASH, autoimmune diseases, anti-coagulation therapy, etc. Among them, 10 drug candidates are in clinical trials today.

Financials (September 2020)
Enterprise Value: $22 billion
Annual Revenue: $6 billion

Notes
Kelun Group is larger than the similarly named listco. A 2018 presentation indicated recent group revenue of $6 billion. We multiplied this by the median revenue multiple for publicly-traded generic pharma companies to impute a value estimate.
Galderma

Details
World Trade Center, 2 Avenue Gratta-Paille
Lausanne, Vaud 1018
Switzerland
+41 21 642 78 00
www.galderma.com

Notes
Galderma reported revenues of 2.8bn CHF in its sale announcement in late 2019. We multiplied this by the median revenue multiple for branded pharma companies to impute a value estimate.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Dermatology

Founded in 1981 and operated as a wholly-owned subsidiary of Nestlé from 2014 to 2019, Galderma offers a range of medical and consumer skin health solutions through three business units: Aesthetics, Prescription and Consumer Care, with combined revenues of CHF 2.8 billion and more than 6,000 employees. Marketed in 80 countries worldwide, the Company’s portfolio covers a range of dermatological conditions including rosacea, acne, psoriasis, dermatitis, skin aging, sun protection and skin cancer. Galderma aims to use science-based solutions to enhance quality of life through the improvement in skin, hair and nail health. Galderma was carved out of Nestle in 2019 in a 10.2 billion CHF transaction led by EQT, ADIA, PSP and other investors. Led by Flemming Ornskov, formerly CEO of Shire, Galderma is today increasingly focused on treatments for serious dermatologic diseases.

Financials (September 2020)
Enterprise Value: $20 billion
Annual Revenue: $3 billion

BeiGene

Details
No.30 Science Park Road Zhong-Guan-Cun
Life Science Park Changping District
Beijing, 102206
China
+86 10 5895 8000
www.beigene.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:BGNE
Sector: Branded Pharma
Lead TA: Oncology

BeiGene was founded in 2010 and is headquartered in Beijing, China. BeiGene is a commercial-stage biotechnology company focused on discovering, developing, manufacturing, and commercializing innovative medicines to improve treatment outcomes and access for patients worldwide. Its 4,200+ employees in China, the United States, Europe, and elsewhere are committed to expediting the development of a pipeline of novel therapeutics. BeiGene markets two internally discovered oncology products: BRUKINSA® (zanubrutinib) in the United States and China, and anti-PD-1 antibody tislelizumab in China. BeiGene also markets or plans to market additional oncology products licensed from Amgen Inc., Bristol Myers Squibb, and EUSA Pharma in China. BeiGene went public in 2016 and is listed on both the HKEX and the NASDAQ.

Financials (September 2020)
Enterprise Value: $20 billion
Annual Revenue: $224.7 million
**Mylan**

**VALUE RANK:** 53

**Details**
Robert J. Coury Global Center, 1000 Mylan Boulevard, Canonsburg, Pennsylvania 15317, United States
+1 724 514 1800
www.mylan.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** NasdaqGS:MYL
**Sector:** Generics - INN
**Lead TA:** Respiratory

Founded in 1961, in West Virginia, Mylan is currently headquartered in Canonsburg, Pennsylvania. Founded by two ‘Army buddies’ who wanted to enable rural West Virginians access to medicines the Company began as a distribution company that quickly evolved into a manufacturer and marketer of generic products. Today, Mylan is a champion for ‘better health for a better world’ and making high-quality pharmaceuticals available worldwide. In the US alone, ‘1 out of every 13 prescriptions’ given is fulfilled by a Mylan product. Mylan has a broad portfolio of over 7,500 marketed products covering generics, branded pharmaceuticals and consumer healthcare products, available in over 165 countries and territories. Their strongest asset is a global workforce of 35,000. Mylan has agreed to merge with Pfizer’s Upjohn to form Viatris, a larger global legacy medicines business. Mylan went public in 1973.

**Financials (September 2020)**
Enterprise Value: $20 billion
Annual Revenue: $11.5 billion

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**Jemincare**

**VALUE RANK:** 54

**Details**
14, Zhongxing Software Park, 688 AI Sihu North Road, Nanchang, Jianxi Province, China
+81 791 88161619
www.jemincare.com

**Notes**
Jemincare reported revenue in 2019 of $35.8 billion Chinese Yuan. We valued Jemincare as this revenue estimate times the median revenue multiple for generic pharmaceutical players.

**Exch:** Private Company
**Sector:** Generics - China
**Lead TA:** Broad

Jiangxi Jemincare Group Co., Ltd. was founded in 1999. Its pharmaceutical history can be traced back to the 1950s with 12,000 employees. The Company’s headquarters is located in Nanchang, China but it also has many industrial platforms and R&D institutes in Jiangxi, Beijing, Shanghai, Jiangsu and Zhejiang. In according to innovation-driven strategies, Jemincare focuses on R&D, production and marketing of modern Chinese medicines and Western medicines. Jemincare has pharmaceutical bases, a CNAS certified national laboratory, five provincial engineering and technical centers and an ex-China innovative research and development team. The company’s 6,000+ sales representatives cover more than 1,100 top tier hospitals and 440,000 pharmacies in China. Chairman Li Yihai began his career as a middle school teacher and has driven Jemincare’s growth via M&A deals.

**Financials (September 2020)**
Enterprise Value: $19.3 billion
Annual Revenue: $5.3 billion
Established in 1961 by pharmacist Mr. Pierre Fabre, the Paris company has three main divisions; prescription drugs, health and dermo-cosmetics, and aims to deliver a global response to the therapeutic needs and welfare of patients. Pierre Fabre views health as a holistic concept covering each person’s self-image and complete wellbeing. Fabre’s R&D focuses on oncology, neuropsychiatry, ethical dermatology, consumer health and dermo-cosmetics. Controlled by a foundation set up by Pierre Fabre, the Company has an extensive global reach, with branches in more than 40 countries and product distribution in over 130 countries. Pierre Fabre’s production sites are internationally-certified, and the Company is committed to a responsible development approach, creating a balance between humanism and cutting-edge scientific innovation.

Financials (September 2020)
Enterprise Value: $18.7 billion
Annual Revenue: $2.8 billion

Fully-integrated biopharmaceutical company Immunomedics is headquartered in Morris Plains, New Jersey and was established in 1982. The Company conducts research into and develops antibody-drug conjugates for the treatment of cancer using its proprietary platform. The Company's focus is on therapeutics in the form of antibodies and conjugated antibodies as well as investigational products. A critical achievement was the recent FDA approval of TRODELVY®, an ADC for metastatic TNBC. The efficacy data for this product has been quite impressive. Immunomedics is undertaking diverse registration oriented & signal seeking investigator-initiated trials with TRODELVY in other cancer types. In September 2020 Immunomedics entered into an agreement to be sold to Gilead for $21 billion.

Financials (September 2020)
Enterprise Value: $18.6 billion
Annual Revenue: $20.3 million
Incyte

VALUE RANK: 57

Details
1801 Augustine Cut-Off
Wilmington, Delaware 19803
United States
+1 302 498 6700
www.incyte.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:INCY
Sector: Branded Pharma
Lead TA: Oncology

Founded in Palo Alto, California in 1991, Incyte is headquartered in Wilmington, Delaware. Incyte conducts drug discovery and development in the field of oncology, delivering novel, proprietary compounds. Key products include Jakafi®, a first-in-class JAK1/JAK2 inhibitor for the treatment of steroid-refractory acute GVHD and polycythemia vera; Monjuvi®, a humanized Fc-modified cytolytic CD19 targeting monoclonal antibody for large B-cell lymphoma; Pemazyre®, a kinase inhibitor locally advanced or metastatic cholangiocarcinoma with a fibroblast growth factor receptor 2 (FGFR2) fusion; and Iclusig® in the EU which targets native BCR-ABL and certain isoforms that carry resistance mutations. In order to extend its product pipeline, geographical reach and technological base, Incyte forms strategic alliances. Incyte went public in 1993.

Financials (September 2020)
Enterprise Value: $18.5 billion
Annual Revenue: $2.3 billion

Horizon Therapeutics

VALUE RANK: 58

Details
Connaught House, 1st Floor, 1 Burlington Road
Dublin, Co. Dublin 4
Ireland
+353 1 772 2100
www.horizonpharma.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:HZNP
Sector: Branded Pharma
Lead TA: Rare Disease

Founded in 2008 as a small startup in Ireland, Horizon is focused on developing and commercializing medicines that address critical needs for people impacted by rare and rheumatic diseases. Horizon has two high-growth drivers, TEPEZZA® for Thyroid Eye Disease and KRYSTEXXA® for uncontrolled gout. These two products have over $4B in combined peak U.S. annual net sales potential. The core values that have made Horizon an international leader in medicine are integrity and trust, composure, passion for patients and taking ownership. These values inform the company’s strong sense of social responsibility. Led by CEO Tim Walbert, Horizon has climbed far in our value ranks in recent years on the back of significant commercial progress, excellent execution and an important approval of TEPEZZA®. Horizon became a publicly traded company in 2014.

Financials (September 2020)
Enterprise Value: $17.9 billion
Annual Revenue: $1.5 billion
**Yunnan Baiyao**

**VALUE RANK: 59**

**Details**
222 Er' huan Xi Road  
Kunming, Yunnan Province 650500  
China  
+86 871 1663 24159  
www.yunnanbaiyao.com.cn

**Notes**
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: SZSE:000538  
Sector: Generics - China  
Lead TA: Broad

Yunnan Baiyao was established in 1902 and develops and manufactures over 300 products for various therapeutics and personal care products, including traditional Chinese medicines, wound healing powder, natural skincare, body care, essential oils, and feminine hygiene products. Its core product range includes the Yunnan Bai Yao series and the Natural Vegetable series. The company was founded by Mr. Qu Huan Zhang in June 1971 and has since grown to become one of China’s most important pharmaceutical companies. Headquartered in the Kunming, Yunnan province in China, Yunnan Baiyao Group is listed on the Shenzhen Stock Exchange.

**Financials (September 2020)**
- Enterprise Value: $17.6 billion
- Annual Revenue: $4.4 billion

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**Kangtai Bio**

**VALUE RANK: 60**

**Details**
No. 6, Kefa Road Nanshan District  
Shenzhen,  
China  
+86 755 2698 8688  
www.biokangtai.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: SZSE:300601  
Sector: Branded Pharma  
Lead TA: Vaccines

Shenzhen Kangtai Biological Products Co., Ltd. was founded in 1992 and is based in Shenzhen, China. Known as Kangtai Bio, it develops, produces, and sells various human vaccines in China. Its products include a Hepatitis B vaccine, Haemophilus influenza type b conjugate vaccine and vaccines for measles and rubella. Kangtai Bio has undertaken a number of national, provincial and municipal key scientific research projects and technology development tasks, and has core technologies such as polyvalent vaccines, genetic engineering vaccines and other new technologies. Under the capable leadership of Chairman Du Weimin, Kangtai’s products reach more than 3,130 provinces, municipalities and autonomous regions. The company’s key principles are “Do not relocate, don’t get lucky, don’t delay, do things honestly, and be honest”.

**Financials (September 2020)**
- Enterprise Value: $17.3 billion
- Annual Revenue: $283.9 million
Octapharma, a family business, was created in 1983 by Wolfgang Marguerreon from the idea that people with hemophilia deserved access to better products. Today it is headquartered in Lachen, Switzerland. The Company is named after the factor deficient in patients with hemophilia, “Octa” being the Greek word for eight. In 1985 Octapharma launched the world’s first virus-inactivated factor VIII product, which became the gold standard in the production of plasma-derived products. Octapharma now has production plants in five countries, across two continents and plasma donation centers in the U.S. and Europe, benefiting patients in over 100 countries. The Company strives to drive forward R&D by advancing exiting products and exploring alternative therapeutic uses for plasma and recombinant technology. Octapharma is dedicated to always going further, to empower more patients advance in their life adventure.

Financials (September 2020)
Enterprise Value: $17.1 billion
Annual Revenue: $2.5 billion

Notes
Octapharma’s disclosed revenue for 2019 was €2.2bn. We multiplied this times the median multiple for publicly-traded branded pharmas to impute value.

Exch: Ticker: Private Company
Sector: Branded Pharma
Lead TA: Blood Products

Fosun Pharma

Established in 1994, Fosun Pharma, headquartered in Shanghai, China, researches, manufactures and commercializes pharmaceutical products in China, India, Europe and the US. Focus also offers devices, diagnostics and healthcare services in China. Fosun’s Pharma R&D and product portfolio spans the therapeutic areas of cardiovascular, metabolic, GI, anti-infective, CNS and oncology. Fosun is an active licensee and has also acquired Alma Lasers (2013), Erye Pharma (2014), Ambrx (2015), Breas (2017) and Gland Pharma (2017). Fosun is majority-owned by Fosun International and in turn owns a majority stake in Henlius, a listed company focused on biologics development and manufacture. Their values are: care for life, continuous innovation, pursuit of excellence and sustainable partnership with win-win cooperation. The Company was listed on the Shanghai Stock Exchange in 1998.

Financials (September 2020)
Enterprise Value: $16.7 billion
Annual Revenue: $4 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value. We subtracted the value of Fosun’s stake in Henlius.

Exch: Ticker: SHSE:600196
Sector: Branded Pharma
Lead TA: Broad
Ferring

Founded in 1950, Ferring is based in Switzerland and employs approximately 6,500 people across operating subsidiaries in nearly 60 countries. Ferring products are available in more than 100 countries. Originally based in Sweden, the Company was established to develop and commercialize pharmaceutical products built on pituitary-produced peptide hormones. Ferring is a leader in reproductive medicine and women’s health, as well as within specialty areas such as gastroenterology, endocrinology, orthopedics, and urology. The Company has numerous manufacturing facilities in South America, the US, Asia, and Europe. It distributes its products across 110 countries and operates nine development facilities. It recently entered into an innovative commercialization deal with Blackstone for a novel gene therapy for early bladder cancer. Ferring is a private limited company.

**Financials (September 2020)**

Enterprise Value: $16.7 billion  
Annual Revenue: $2.5 billion

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Sun Pharma

Headquartered in Mumbai, India, Sun Pharma was founded in 1983. From a humble launch of just five psychiatry products, the company today serves over 150 global markets with a product portfolio of over 2,000 products. Sun Pharma has expertise in developing generics, APIs, novel drug delivery systems, and new chemical entities, manufacturing its vast array of products in a number of dosage forms. Sun’s products span infectious disease, cardiology, dermatology, and oncology. Sun is the #1 pharma company in India and is ranked #9 in the US generics market. Key acquisitions have included Taro Pharma (2010), Dusa (2012), Ranbaxy (2014) and Insite Vision (2015). An important deal was Sun’s move to acquire tildrakizumab for psoriasis from Merck in 2004. Led by Managing Director Dilip Shanghvi, Sun’s mission is to reach people globally, touching lives by providing valued medicines. Sun Pharma went public in 1994.

**Financials (September 2020)**

Enterprise Value: $16.4 billion  
Annual Revenue: $4.2 billion
**Abbott EPD**

**VALUE RANK: 65**

**Details**
100 Abbott Park Road  
Abbott Park, Illinois 60064  
United States  
+1 224 667 6100  
www.abbott.com

**Notes**
We valued Abbott’s pharma business as a standalone business segment. Revenue for 2019 was obtained from ABT’s 2019 10K filing and was then multiplied by the median generic multiple to impute a value estimate.

**Exch:Ticker:** NYSE:ABT  
**Sector:** Generics - Branded  
**Lead TA:** Broad

Abbott was founded in Chicago, Illinois, in 1888, when Wallace Abbott, a practicing physician, produced ‘alkaloidal medicine granules’ in the back of his store. Today, Abbott is a major life sciences company focused on devices and diagnostics after spinning off AbbVie in 2013. Left behind, however, was a large emerging market branded generics pharmaceutical business called the Established Pharmaceuticals Division (EPD) which has more than $4 billion in sales. This steady growth business exemplifies Abbott’s approach to business. Abbott EPD is the second largest marketer of brands in India and has a major presence in Latin America, the Middle East and Asia. Key brands include Creon®, Brufen®, Biaxin®, Influvac®, and Duphaston®.

**Financials (September 2020)**
- Enterprise Value: $16.1 billion
- Annual Revenue: $4.4 billion

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**Chiesi**

**VALUE RANK: 66**

**Details**
26 A Via Palermo  
Parma, Emilia-Romagna 43122  
Italy  
+39 0521 2791  
www.chiesigroup.com

**Notes**
Chiesi disclosed revenue for 2019 was €1.992bn. We multiplied this times the median multiple for publicly-traded branded pharma to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Respiratory

Founded in Italy in 1935 by chemist Giacomo Chiesi, the Company’s international exports were halted in 1944 due to devastation from the war and today it is headquartered in Parma, Italy. After the war, Chiesi resumed activities and launched their first penicillin-based ointment, opening a new factory in 1955. Since then Chiesi has built upon their strong research-focused heritage concentrating on the core therapeutic areas of respiratory, neonatology and rare diseases. Today Chiesi exports products to over 70 countries, with a direct presence in more than 25 countries. Chiesi aims to preserve a high quality, innovative team characterized by a self-confident and collaborative spirit. Organized as a B Corporation, Chiesi’s goal is to remain socially and environmentally responsible while upholding its commitment to patients and the improvement of the quality of human life.

**Financials (September 2020)**
- Enterprise Value: $15.5 billion
- Annual Revenue: $2.3 billion
BioNTech

**VALUE RANK: 67**

**Details**
An der Goldrube 12  
Mainz, Rhineland-Palatinate 55131  
Germany  
+49 6131 9084 0  
www.biontech.de

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** NasdaqGS:BNTX  
**Sector:** Biotechnology  
**Lead TA:** Oncology

Biopharmaceutical New Technologies (BioNTech) is a next-generation immunotherapy company pioneering novel therapies for cancer and infectious disease. BioNTech has received significant attention in 2020 for its work on BNT162, an mRNA-based vaccine program against SARS-CoV-2, which has advanced into Phase 2/3 studies. BioNTech is collaborating with Pfizer in bringing this program to the market. BioNTech’s portfolio of oncology product candidates includes individualized and off-the-shelf mRNA-based therapies, innovative chimeric antigen receptor T cells, bi-specific checkpoint immunomodulators, targeted cancer antibodies and small molecules. BioNTech has established a broad set of relationships with multiple global pharmaceutical collaborators.

**Financials (September 2020)**
Enterprise Value: $15.4 billion  
Annual Revenue: $141.8 million

Ono

**VALUE RANK: 68**

**Details**
8-2 Kyutaromachi 1-chome, Chuo-Ku  
Osaka,  541-8564  
Japan  
+81 6 6263 5670  
www.ono.co.jp

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** TSE:4528  
**Sector:** Branded Pharma  
**Lead TA:** Oncology

Ono began life as an apothecary business named Fushimiya Ichibe in 1717. The company was founded by Ichbei Ono and is headquartered in Osaka, Japan. The wholesale business was restructured in 1934, which saw the Company begin to move away from its roots and develop innovative pharmaceuticals of its own. In 1947 the business became known as Ono Pharmaceutical, the name it holds today. The Company’s portfolio includes primarily prescription products for oncology, cardiovascular and metabolic disease. Ono is well known as the party that originated Opdivo®, a checkpoint inhibitor antibody, then licensed the ex-Asia rights to BMS in 2011. The two companies are jointly running more than 30 Opdivo® combination trials globally. In addition, they have licensing and co-promotion initiatives to continue to develop and deliver their drugs internationally and are actively contemplating international expansion. Ono is dedicated to man’s fight against pain. The Company went public on the Tokyo Stock Exchange in 1963.

**Financials (September 2020)**
Enterprise Value: $14.7 billion  
Annual Revenue: $2.7 billion
BioMarin

VALUE RANK: 69

Details
770 Lindaro Street
San Rafael, California 94901
United States
+1 415 506 6700
www.biomarin.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:BMRN
Sector: Branded Pharma
Lead TA: Rare Disease

BioMarin is headquartered in San Rafael, California and was established in 1997 to leverage its proprietary enzyme technology. BioMarin seeks to, ‘provide meaningful advances to patients who live with serious and life-threatening rare genetic diseases.’ BioMarin has developed a strong portfolio and robust supporting pipeline of products that are manufactured at its facilities both in the US and Europe. Key products include PALYNZIQ® for PKU, Brineura® for Batten disease, Vimizim® for MPS IVA and Naglazyme for MPS VI. A key pipeline candidate is Valrox, a gene therapy for Hemophilia A. BioMarin products are marketed in over 75 countries BioMarin has appeared on highly regarded international lists as one of the most innovative companies in the world. BioMarin went public in 1999.

Financials (September 2020)
Enterprise Value: $13.8 billion
Annual Revenue: $1.8 billion

Alnylam

VALUE RANK: 70

Details
300 Third Street, Third Floor
Cambridge, Massachusetts 02142
United States
+1 6175518200
www.alnylam.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:ALNY
Sector: Branded Pharma
Lead TA: Hematology

Founded in 2002, and based in Massachusetts, Alnylam is a biotech whose name is taken from the star at the center of the constellation Orion’s belt, meaning, ‘string of pearls’ in Arabic. Key RNAi drugs include patisiran for ATTR amyloidosis, givosiran for acute hepatic porphyria and lumisiran for hyperoxaluria. Alnylam also discovered inclisiran for cholesterol management which today is marketed by Novartis. Under the leadership of John Maraganore, Alnylam is advancing a deep pipeline of innovative RNAi-based medicines in four therapeutic areas: genetic medicines, cardio-metabolic diseases, infectious diseases, CNS and ocular diseases. Alnylam is dedicated to providing support for affected individuals, families, and caregivers, and has a team dedicated to patient advocacy. Alnylam went public in 2004.

Financials (September 2020)
Enterprise Value: $13.5 billion
Annual Revenue: $345.1 million
Elanco Animal Health develops, makes, and markets products for companion and food animals. Companion animal products include parasiticides that protect pets from worms, fleas, and ticks; therapeutics for pain, osteoarthritis, ear infections, cardiovascular, and skin conditions. Food animal products are for ruminant and swine production and include vaccines, nutritional enzymes and antibiotics. It sells its products to third-party distributors; veterinarians; and food animal producers, including beef and dairy farmers, as well as pork, poultry, and aquaculture operations in approximately 90 countries. A key move in 2020 was the $7 billion acquisition of Bayer Animal Health. Elanco Animal Health Incorporated was founded in 1954 and is headquartered in Greenfield, Indiana. Elanco went public in 2018 through a carve-out from Eli Lilly.

Financials (September 2020)
Enterprise Value: $13.4 billion
Annual Revenue: $2.8 billion

Shionogi was founded in 1878 as a pharmaceutical wholesaler and is headquartered in Osaka, Japan. The Company successfully launched its first novel pharmaceutical in 1909, which began its shift into becoming a research-based pharmaceutical company. Shionogi’s policy is to ‘supply the best possible medicine to protect the health and wellbeing of the patients we serve.’ Over 90% of the Company’s net sales come from its ethical pharmaceutical business in both domestic and international markets with the focus of its portfolio being prescription drugs, OTC drugs and diagnostic reagents. Shionogi has an important collaboration with ViiV on HIV drugs, was the inventor of Crestor® for hyperlipidemia and Xofluza®, for influenza. Shionogi’s focus areas remain infectious diseases, neurology-pain and metabolism, and has recently begun to expand into cell therapies and digital therapeutics, as a part of what the Company calls frontier areas. Shionogi went public in 1949.

Financials (September 2020)
Enterprise Value: $13.3 billion
Annual Revenue: $3 billion
Mundipharma is a private branded pharmaceutical company headquartered in the United Kingdom. Founded almost 70 years ago, Mundipharma markets a growing global portfolio of medicines in specialist therapy areas including Analgesia, Anti-fungals, Biosimilars, Diabetes, Oncology, Ophthalmology, Pain, Respiratory, and Consumer Health. This business was formed by the Sackler family and also encompasses a number of related businesses including Purdue Pharma which is based in Stamford, Connecticut. Purdue is best known for providing pain products. Due to opiate restrictions and associated litigation, the revenues of the combined enterprise has declined in recent years. The Sackler family is under significant pressure from various litigants and there has been discussion that Mundipharma could be sold as part of an effort to settle the various lawsuits facing the family. Purdue filed for Chapter 11 bankruptcy in September 2019.

Financials (September 2020)
Enterprise Value: $13.2 billion
Annual Revenue: $2 billion

Hualan was founded in 1992 and is headquartered in Xinxiang, China. The Company’s commercial activities span the research, development, production, and commercialization of plasma products, vaccines, recombinant proteins and other biologics. The Company has successfully launched a number of vaccines, including those for H1N1, Hepatitis B and a WHO-PQ vaccine for influenza. Hulan has entered into a number of collaborative research partnerships for the discovery of innovative biologics and in 2010 formed a strategic alliance with the Chinese Academy of Sciences. The Company’s R&D facility has been designated a National High-tech Center. The Company has subsidiaries throughout China and a supply network that services the major cities and districts as well as exporting products to countries including the Ukraine and India. The Company went public in 2004.

Financials (September 2020)
Enterprise Value: $13.1 billion
Annual Revenue: $2 billion
NC Pharma / EMS

**VALUE RANK: 75**

**Details**
Km 8 Rod. Journalist Francisco Aguirre Proença, Chacara Assay Hortolândia, São Paulo 13186-901 Brazil +55 19 3887 9800 https://www.gruponc.net.br

**Notes**
Revenue for 2019 is disclosed in a company presentation to be 10,000 BRL. We added €35mm to this due to the Galenika purchase. Revenue was multiplied by the median branded pharma multiple to impute value.

**Exch:** Private Company  
**Ticker:**  
**Sector:** Branded Pharma  
**Lead TA:** Broad

EMS / NC Pharma was founded in 1964 by Emiliano Sanchez, with headquarters in Hortolândia, Brazil. Boasting state-of-the-art manufacturing and packaging facilities allow EMS to offer one of the most extensive pharmaceutical portfolios in Brazil. EMS manufactures generics, prescription products, OTC, hospital products and branded pharmaceuticals for a broad range of specialties, including anti-parasitics, antibiotics, analgesics and topical steroids. NC Pharma is a holding company that owns EMS and also controls Legrand, Germed Pharma, Nova Quimica, Novamed, CPM, ofta, Brace Pharma (US investment vehicle for innovation), u.sk, Galenika (recent European acquisition), multiab and Snellog. With a presence in over 50 countries worldwide, NC enjoys a significant market share within the generics sector in Brazil and also exports many products to Europe. Led by Carlos Sanchez, NCP entities have 12% of the Brazil market, over 7000 employees, 370+ products and more than 90 patents.

**Financials (September 2020)**
Enterprise Value: $12.8 billion  
Annual Revenue: $1.9 billion

Fresenius Kabi Segment

**VALUE RANK: 76**

**Details**
1 Else-Kröner-Straße  
Bad Homburg, Hessen 61352 Germany +49 61 72 686 0 www.fresenius-kabi.com

**Notes**
Fresenius reported IV drugs sales for 2019 in its most recent annual report. We applied the generic sector multiple to value this business segment.

**Exch:** Private Company  
**Ticker:** DB:FRE  
**Sector:** Generics - INN  
**Lead TA:** Hospital

Fresenius Kabi is based in Bad Homburg, Germany and was established in 1999, when the Fresenius Group combined with the Pharmacia & Upjohn clinical nutrition business, known as Kabi. Built on a long history dating back to the establishment of the Hirsch Pharmacy in 1462, the company experienced considerable evolution after the Fresenius family took over it in the 18th century. Kabi has an extensive product portfolio that includes generic IV drugs, infusion therapies, biosimilars, clinical nutrition products and medical devices, covering a range of therapeutic areas such as oncology, pediatrics, and fluid management. Fresenius Kabi employs over 40,000 people worldwide. In 2019 the company reported sales of more than €6.9 billion. Fresenius Kabi AG is a wholly-owned subsidiary of the Fresenius SE & Co. KGaA health care group.

**Financials (September 2020)**
Enterprise Value: $12.5 billion  
Annual Revenue: $3.4 billion
**Walvax**

**VALUE RANK: 77**

**Details**
Building 9A, Floor 19, Dingyi Tiancheng Residential Quarter, No. 99 Keyuan Road  
High New Tech Development Zone  
Kunming, Yunnan Province 650106  
China  
+86 871 6831 2659  
www.walvax.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** SZSE:300142  
**Sector:** Generics - Biosimilars  
**Lead TA:** Vaccines

Established in 2001, Walvax is headquartered in Kunming, China. The Company engages in R&D, production and sales of bio-medicine products for both the domestic and international markets. Walvax has, through adopting a matrix method to its R&D resources, developed a Haemophilus influenza Type B conjugate vaccine (Hib) and Group A, C meningococcal polysaccharide conjugate vaccine and a number of other vaccine products. The Company’s corporate philosophy includes a commitment to strengthen its international cooperation and communication activities and it actively seeks international partners and co-operation projects, as well as incorporating foreign technologies into its development and manufacturing processes. The Company also offers contract production opportunities and engages in the import of foreign products as well as the export of their own. The Company’s goal is to support people living healthily. Walvax went public in 2010.

**Financials (September 2020)**
Enterprise Value: $12.5 billion  
Annual Revenue: $169 million

**Samumed**

**VALUE RANK: 78**

**Details**
9360 Towne Centre Drive  
San Diego, California 92121  
United States  
+1 858 926 2900  
samumed.com

**Notes**
The valuation shown is that for the company’s last reported private financing round in 2018.

**Exch:Ticker:** Private Company  
**Sector:** Biotechnology  
**Lead TA:** Bone & Osteo

Founded in San Diego, California in 2008, Samumed adopted a fresh operating philosophy from the beginning — one based on the goal of building a broad technology platform aimed at modulating regenerative pathways to improve patient health. Samumed is developing a first-in-class, small-molecule therapeutics platform based on pioneering science of the Wnt signaling pathway. Wnt is an essential and ubiquitous biological mechanism regulating the growth and health of all organs and tissues. Wnt plays a profound role in many facets of health, from embryonic development through old age. Malfunctions of the Wnt pathway constitute the root cause of many serious diseases and cancers. Samumed’s drugs in clinical development include lorecivivint for osteoarthritis (in Phase 3), SM08502 for numerous cancers, and SM07883 for Alzheimer’s disease and other neurological disorders.

**Financials (September 2020)**
Enterprise Value: $12.4 billion  
Annual Revenue: NA
Kyowa Kirin

VALUE RANK: 79

Details
Otemachi Financial City Grand Cube, 1-9-2
Otemachi, Chiyoda-ku
Tokyo, Kanto 100-0004
Japan
+81 3 5205 7200
www.kyowa-kirin.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: TSE:4151
Sector: Branded Pharma
Lead TA: Hematology

With headquarters in Tokyo, Kyowa Kirin resulted from the merger in 2008 of Kirin Pharma and Kyowa Hakko. Kirin Pharma was an expansion of the Japan Brewery Company. In 1976 the company developed malt diastase as a commercial digestive aid and by 1981 had established its own R&D facility, later working with Amgen to introduce recombinant biologics, EPO and G-CSF, to Japan. Kyowa Hakko undertook Japan’s first mass production of acetone butanol from syrup in 1948 and introduced Streptomycin to Japan in 1951. Today, Kyowa Kirin’s R&D process has great strength in discovery and development and is aided by the Potelligent® antibody technology. The current R&D pipeline is impressive. Kyowa Kirin has introduced highly innovative drugs in nephrology, oncology, immunology and neurology with an impressive three FDA drug approvals in recent years.

Financials (September 2020)
Enterprise Value: $12.2 billion
Annual Revenue: $2.8 billion

Recordati

VALUE RANK: 80

Details
1 Via M. Civitali
Milan, Lombardy 20148
Italy
+39 02487871
www.recordati.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: BIT:REC
Sector: Branded Pharma
Lead TA: Cardiometabolic

Founded in Italy in 1926, by Giovanni Recordati, the Company has been headquartered in Milan since 1953. Recordati is dedicated to offering a broad range of innovative proprietary and licensed pharmaceuticals, focusing on rare disease, gastroenterology and respiratory. One of Recordati’s main philosophies is that each person with a rare disease has the right to the best possible treatment and they are committed to delivering this. Their constant growth is in part due to their internationalization policy, through focused acquisitions and license agreements which has seen their distribution network grow to over 100 countries, with direct operations in over 17 countries. Recordati is interested in continuing its growth throughout Central and Eastern Europe as well as in the Middle East and North Africa. Recordati recently acquired Signifor® and Osilodrostat from Novartis for $390 million. The Company has been listed since 1984 and sold a majority stake to CVC in June 2018.

Financials (September 2020)
Enterprise Value: $12.2 billion
Annual Revenue: $1.6 billion
Shanghai Pharmaceuticals Holding Co. Ltd. ("SPH") is a diversified pharmaceutical company based in China. In 2019, SPH reported revenues of US$26.5bn. Founded in 1994, SPH has a leading position in both manufacturing and distribution. We value SHP's manufacturing business as a standalone segment. SHP owns rights to 16 innovative drugs in total. SHP is focusing on innovative drug development and in 2020 signed an agreement to commercialize ImmVira’s intratumoral oncolytic virus therapy. SHP has also recently entered into a partnership to make biosimilars with Biocad of Russia and has also done deals with Oncternal and Mapi Pharma. The company has dual listings on the stock exchanges in Shanghai and Hong Kong.

**Financials (September 2020)**

Enterprise Value: $12.1 billion  
Annual Revenue: $3.3 billion

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Tianjin Pharmaceuticals’ roots date back to the 1930s. Formed in 1979, when it was known as Tianjin Medicine Company, The state-owned company discovers, makes and markets pharmaceuticals in China while maintaining a large API presence. Tianjin operates through five divisions: medical devices, biological medicine, modern Chinese medicine, chemical agents and API. Tianjin innovation platform comprises the Tianjin Institute of Pharmaceutical Research, two national-level enterprise technical centers and eighteen city-level enterprise technical centers. The company has achieved more than 1200 patents. Tianjin owns shares in more than 160 companies, including four listed subsidiary companies: Tianjin Zhongxin, Tianjin Lisheng, Tianjin Tianyao and Meda Tech. Tianjin also owns a stake in US biotech Seneca Biopharma.

**Financials (September 2020)**

Enterprise Value: $12 billion  
Annual Revenue: $3.3 billion
R-Pharm, based in Moscow, Russia, and founded in 2001, is one of the fastest-growing global pharmaceutical companies in the country. Originating as a supplier of pharmaceutical products for hospitals and secondary care facilities, the Company has built upon its network and is now involved in R&D, manufacturing, marketing, sales, and distribution of an extensive portfolio of over 70 products targeted at a variety of therapeutic areas. R-Pharm has a global presence, with branches and internationally-recognized facilities throughout many regions including a manufacturing facility in Germany and a commercial oncology business in the U.S. Effectively led by Chairman Alexey Ripik and CEO Vasily Ignatiev, R-Pharm has an impressive pipeline of novel biologics and biosimilars. R-Pharm is committed to continuous improvement and reliable product performance, as well as innovation in product development. Mitsui purchased 10% of R-Pharm’s shares in 2017.

Financials (September 2020)
Enterprise Value: $11.9 billion
Annual Revenue: $1.8 billion

Argentine-based Grupo Insud was born in 1977 with the inception of Chemo by Silvia Gold and Hugo Sigman, in Barcelona, Spain and was officially founded under the name Grupo Insud in 2010. The Group’s activities have grown beyond pharma and now encompass agroforestry and culture, as well as the nature, design and intellectual capital sectors. Grupo Insud has a presence in over 40 countries across Europe, Africa, America and Asia. The Group produces APIs and generics, branded medicines and biosimilars. Insud is committed to the R&D and production of innovative, high-quality medicines, particularly in the field of women’s health. Grupo Insud focuses on a broad spectrum of therapeutic areas including women’s health, oncology, cardiology, CNS and OTC products. The Company name ‘INSUD’ is an acronym for innovation, sustainability and development.

Financials (September 2020)
Enterprise Value: $11.7 billion
Annual Revenue: $1.7 billion
Adimab

**VALUE RANK: 85**

**Details**
7 Lucent Drive  
Lebanon, New Hampshire 03766  
United States  
+1 603 643 7110  
www.adimab.com

**Notes**
We estimate Adimab’s sustainable EBITDA from its 315 existing programs to be $500mm. Our valuation is obtained by multiplying this by the median EBITDA multiple for royalty companies.

**Exch:Ticker:** Private Company  
**Sector:** Royalty Company  
**Lead TA:** Broad

Founded in 2007, Adimab is headquartered in Lebanon, New Hampshire and develops antibodies for third parties. Since its inception, Adimab launched their yeast-based antibody discovery and optimization platform and have licensed it to a number of companies as well as undertaking strategic partnerships. Adimab is widely acknowledged to be the fastest developer of high quality, fully human monoclonal and bispecific antibodies in the industry and reports over 70 partnerships involving more than 300 individual programs. In 2019, Adimab and its partners added 55 new therapeutic programs. New alliances for 2019 include collaborations with Amagma Therapeutics, Black Belt Therapeutics, BYOMass Inc., Galderma, iOmx Therapeutics, Nextpoint Therapeutics, TRex Bio, and VelosBio. In addition, Adimab expanded its collaborations with Acceleron, Alector, Biotheus, Boehringer Ingelheim, Celgene, Innoven, Novartis, Regeneron, Scholar Rock, Takeda Pharmaceuticals, and others.

**Financials (September 2020)**
Enterprise Value: $11.4 billion  
Annual Revenue: NA

LEO Pharma

**VALUE RANK: 86**

**Details**
55 Industrieparken  
Ballerup, Hovedstaden 2750  
Denmark  
+45 4494 5888  
www.leo-pharma.com

**Notes**
LEO Pharma disclosed revenue of 10,805mm DKK in 2019. We multiplied this times the median multiple for publicly-traded branded pharmas to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Dermatology

Founded in 1908, LEO Pharma is headquartered in Denmark and owned by a foundation. LEO develops, manufactures and commercializes drugs in over 100 countries for patients who have dermatologic and thrombotic indications. A world leader in dermatology, LEO Pharma has built a portfolio of products in therapeutic areas including psoriasis, acne and eczema, as well as conditions that require supportive treatments, such as thrombosis, kidney disease and cancer. Additionally, LEO Pharma has established a range of products in the areas of cardiovascular, antibiotics, coagulation, osteoporosis and renal care. LEO Pharma’s research and development is driven by the ambition to discover ‘functional cures enabling people with skin conditions to live free of symptoms.’ LEO’s approach to open innovation is pathbreaking and impressive.

**Financials (September 2020)**
Enterprise Value: $11.4 billion  
Annual Revenue: $1.7 billion
SK Biopharma

VALUE RANK: 87

Details
221, Pangyoyeok-ro Bundang-gu, Seongnam-si, Gyeonggi-do
Seoul, 13494
South Korea
+82 31 8093 0114
www.skbp.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: KOSE:A326030
Sector: Branded Pharma
Lead TA: Neurology

SK Biopharmaceuticals commenced research and development of new drugs in 1993. Since then, the company has focused on the development of treatments for central nervous system (CNS) disorders. SK Biopharma has become the first Korean company to independently develop an investigational anti-epileptic drug through an FDA approval (cenobamate). SK also developed solriamfetol which has been approved by both FDA and EMA. Currently, SK Biopharmaceuticals is conducting basic research for the development of innovative new drugs at the Life Science Research Institute in Pangyo Techno Valley in Gyeonggi Province. Further, SK Life Science, Inc. in Paramus, New Jersey, USA, is pursuing global clinical development and marketing. SK Biopharma went public in 2020 and is 75% owned by SK Corp, a Korean conglomerate.

Financials (September 2020)
Enterprise Value: $11 billion
Annual Revenue: $5.2 million

Grüenenthal

VALUE RANK: 88

Details
6 Zieglerstraße
Aachen, North Rhine-Westphalia 52078
Germany
+49 241 5690
www.grunenthal.com

Notes
Grüenenthal reported €1.4 billion in revenue in 2019. We multiplied this times the median multiple for publicly-traded branded pharma to impute value.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Pain

Founded in 1946, the Grüenenthal Group has its headquarters in Aachen, Germany with production facilities across the world. It remains an independent, family-owned company. Significantly, Grüenenthal invented and patented Thalidomide in 1954. The Company introduced penicillin to the German market in 1947 to significant financial success. Further launches in the succeeding years, including the pain medication Tramadol, have enabled Grüenenthal to expand, with a presence throughout Europe, the US and Latin America. Grüenenthal targets therapeutic areas connected with pain management, including inflammation, movement disorders, perioperative care, neurology, cancer supportive care and CNS. The Company is focused on discovering 'new ways to treat pain better and more effectively, with fewer side-effects than current therapies.'

Financials (September 2020)
Enterprise Value: $10.9 billion
Annual Revenue: $1.6 billion
Roemmers

**VALUE RANK: 89**

**Details**
2350 Fray Justo Sarmiento
Olivos, Buenos Aires B1636AKJ
Argentina
+5411 4346 9839
www.roemmers.com.ar

**Notes**
Multiple industry sources indicate that Roemmer's revenue in 2019 exceeded $3bn. We multiplied this times the median multiple for publicly-traded generic pharmas to impute value.

**Exch:** Private Company
**Ticker:**
**Sector:** Generics - Branded
**Lead TA:** Broad

Incorporated in 1921, and headquartered in Olivos, Argentina, Laboratorios Roemmers was founded by Alberto Roemmers. In 1961, the Company started to expand the distribution of its products internationally into Latin America and today they export products globally to Europe and the Middle East. Roemmers offers a wide variety of products, from solid medicines, antibiotics, injectables, and liquids. The Company develops products indicated for a multitude of therapeutic areas from gastroenterology and dermatology to neurology. Roemmers is known for setting major trends in medical treatments in the Argentinian market, as well as for launching many antibiotics that are now marketed worldwide. Roemmers seeks to renew hope and improve quality of life through the quality of its products.

**Financials (September 2020)**
Enterprise Value: $10.8 billion
Annual Revenue: $3 billion

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**Innovent Biologics**

**VALUE RANK: 90**

**Details**
168 Dongping Street Suzhou Industrial Park
Suzhou, Jiangsu Province 215123
China
+86 512 6956 6088
www.innoventbio.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** SEHK:1801
**Ticker:**
**Sector:** Branded Pharma
**Lead TA:** Oncology

Since its inception, Innovent has developed a fully-integrated multi-functional platform which includes R&D, CMC (Chemistry, Manufacturing, and Controls), clinical development and commercialization capabilities. Leveraging the platform, the company has built a robust pipeline of 23 valuable assets in the fields of cancer, metabolic, autoimmune diseases and other major therapeutic areas, with 19 in clinical development, 5 in Phase 3 or pivotal clinical trials, 2 under NDA reviews with priority review status by the NMPA, while 2 products, TYVYT® (sintilimab injection) and BYVASDA® (bevacizumab injection), officially approved for marketing in China. TYVYT® has been the only PD-1 inhibitor included in the NRDL since 2019. Innovent has built an international team experienced in cutting-edge biological drug development and commercialization, including many overseas experts. Innovent went public on the Hong Kong exchange in 2018.

**Financials (September 2020)**
Enterprise Value: $10.5 billion
Annual Revenue: $238.6 million
### Vifor Pharma

**Value Rank:** 91

**Details**

Rechenstrasse 37  
St. Gallen, St. Gallen CH-9014  
Switzerland  
+41 58 851 8000  
www.viforpharma.com

**Notes**

We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** SWX: VIFN  
** Sector:** Branded Pharma  
**Lead TA:** Renal

Based in Glattbrugg, Switzerland, Vifor Pharma Group was formerly known as the Galencia Group and was founded in 1927. The Group consists of Vifor Pharma, OM Pharma, Vifor Fresenius Medical Care Renal Pharma (a joint venture with Fresenius Medical Care) and Relypsa. Today, Vifor is a global leader in renal medicine. Its portfolio contains a number of iron deficiency and OTC products as well as a phosphate binder. Research into further treatments for the management of iron deficiency and immunology is undertaken at facilities within Switzerland. Performance in 2020 has been quite strong. In September 2020, Vifor divested its OM Pharma subsidiary for over $500mm. Vifor has developed a network of affiliates and partners all over the world, supporting the Company's international reach and contributing to the company’s mission, ‘to help patients around the world with severe and chronic diseases to lead better, healthier lives.’ Vifor Pharma went public in 2017.

**Financials (September 2020)**

Enterprise Value: $10.2 billion  
Annual Revenue: $2 billion

### Bracco

**Value Rank:** 92

**Details**

50-1 Via Egidio Folli  
Milan, 20134  
Italy  
+39 02 21771  
corporate.bracco.com

**Notes**

Bracco reported over €1.3 billion in revenue in 2019. We multiplied this times the median multiple for publicly-traded branded pharmas to impute value.

**Exch:** Private Company  
** Sector:** Branded Pharma  
**Lead TA:** Oncology

Founded in 1927 by Elio Bracco, in Milan, Bracco has developed, manufactured and commercialized diagnostic imaging agents for almost 100 years. The Company operates through three distinct divisions: Bracco Imaging Group, AMT Acist Medical Systems and Health Services. Bracco Imaging has a presence in over 90 countries through subsidiaries, joint ventures and license and distribution partnerships. Its three research and development facilities in Italy, the US and Switzerland are engaged in enhancing the company’s established portfolio that includes an MRI contrast agent; the first and only agent approved for cardiac PET myocardial perfusion imaging. Under the capable leadership of Diana Bracco, the Bracco Group is committed to ensuring respect, balance, quality and transparent business management, believing they are essential to the company’s growth.

**Financials (September 2020)**

Enterprise Value: $10.1 billion  
Annual Revenue: $1.5 billion
Established in 1984, in Hyderabad, India, Dr. Reddy’s Laboratories was founded ‘to bring new molecules into the country at a price the common man can afford.’ The Company’s portfolio focuses on generic formulations and contains over 200 products that are marketed to in excess of 80 countries. The portfolio contains products for the therapeutic areas of gastroenterology, cardiovascular disease, pain management, oncology, anti-infective, pediatrics and dermatology. With a significant manufacturing base in India, partnered with facilities across the globe, the company is able to operate a fully integrated system from the manufacture of APIs through the finished formulation to final distribution and marketing. The Company’s purpose is to accelerate access to affordable and innovative medicines because ‘Good health can’t wait.’ The Company went public in 1986.

**Financials (September 2020)**

Enterprise Value: $10.1 billion  
Annual Revenue: $2.3 billion

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Based on the core platform technology of protein engineering, Junshi Biosciences stands at the frontier of R&D of macromolecular drugs. With the capability of innovative drug discovery, advanced biotechnological R&D, large-scale production capacity on the full industry chain and rapidly expanding drug candidate portfolio of tremendous market potential, Junshi Biosciences has a leading edge in the PRC in the emerging field of immuno-oncology and for the treatment of autoimmune and metabolic diseases. Junshi Biosciences is the first PRC company to obtain NDA approval from the NMPA for an anti-PD-1 monoclonal antibody, and also the first PRC company to receive IND approvals from the NMPA for anti-PCSK9 monoclonal antibody and anti-BLyS monoclonal antibody.

**Financials (September 2020)**

Enterprise Value: $10 billion  
Annual Revenue: $147.3 million
Ipsen

**VALUE RANK:** 95

**Details**
65 Quai Georges Gorse
Boulogne-Billancourt, Hauts-de-Seine 92100
France
+33 1 58 33 50 00
www.ipsen.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** ENXTPA:IPN
**Sector:** Branded Pharma
**Lead TA:** Oncology

**Financials (September 2020)**
Enterprise Value: $10 billion
Annual Revenue: $3 billion

Roivant Sciences

**VALUE RANK:** 96

**Details**
Viaduktstrasse 8
4051 Basel
Switzerland
+1-212-847-6204
roivant.com

**Notes**
The last publically reported value for Roivant in Nov 2018 was $7bn. Our analysis of Dainippon’s accounting of its acquisition of around 10% of Roivant indicates that the company was valued in early 2020 at around $10 billion.

**Exch:** Private Company
**Sector:** Biotechnology
**Lead TA:** Broad

**Financials (September 2020)**
Enterprise Value: $10 billion
Annual Revenue: NA
Sarepta Therapeutics

VALUE RANK: 97

Details
215 First Street, Suite 415
Cambridge, Massachusetts 02142
United States
+1 617 274 4000
www.sarepta.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:SRPT
Sector: Branded Pharma
Lead TA: Neurology

Headquartered in Cambridge, Massachusetts and founded in 1980, Sarepta researches and develops genetic medicines for people living with rare diseases, with a particular focus on the neuromuscular area. Key approved products include EXONDYS 51® and VYONDYS 53® for Duchenne muscular dystrophy (DMD). Commercial results have been strong. Sarepta has built an impressive position in DMD and in gene therapies for limb-girdle muscular dystrophies (LGMDs), mucopolysaccharidosis type IIIA, Charcot-Marie-Tooth (CMT), and other CNS-related disorders, with more than 40 programs in various stages of development. The Company’s programs and research focus span several therapeutic modalities, including RNA, gene therapy and gene editing. Of particular interest is RP-9001, a micro-dystrophin gene therapy for Duchenne’s Muscular Dystrophy. This program has been licensed to Roche outside the U.S. Sarepta went public in 1997.

Financials (September 2020)
Enterprise Value: $9.9 billion
Annual Revenue: $450.1 million

Harbin Pharma

VALUE RANK: 98

Details
No. 431 Youyi Road, Daoli District
Harbin, Heilongjiang Province 150018
China
+86 451 5196 1111
www.hayao.com

Notes
Harbin is a large Chinese pharma player for whom revenue data are undisclosed. Our best estimate of revenue is based on an quite old revenue disclosure of 18bn RMB. Our value estimate is obtained by multiplying this by the median publically traded generic pharma multiple.

Exch:Ticker: Private Company
Sector: Generics - China
Lead TA: Broad

Founded in 1991 and based in Harbin, China, Harbin Pharmaceutical Group Company (HPGC) is a state-controlled joint venture composed of domestic pharmaceutical companies and commercial distribution companies. HPGC General Factory, HPGC Sanjing, HPGC Sixth Factory, HPGC Chinese Medicine, HPGC Bioengineering and HPGC Vaccine, and commercial circulation companies like HPGC Medicine, HPGC Sales and HPGC Marketing. HPGC has two listed companies, HPGC Holding and HPGC Sanjing. HPGC owns 45.06% equity stake in HPGC Holding, and HPGC Holding owns 74.82% equity stake in HPGC Sanjing. HPGC has more than 20,000 employees and total assets of 18.5 billion RMB. Harbin has one of the nicer offices in the pharmaceutical industry. The Company undertakes strategic collaborations with key domestic and international universities and research institutes.

Financials (September 2020)
Enterprise Value: $9.7 billion
Annual Revenue: $2.7 billion
CureVac

VALUE RANK: 99

Details
15 Paul-Ehrlich-Straße
Tubingen, Baden-Württemberg 72076
Germany
+49 7071 98830
www.curevac.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGM:CVAC
Sector: Biotechnology
Lead TA: Oncology

CureVac was founded in 2000 by Ingmar Hoerr, Steve Pascolo and Florian von der Mülbe, and is headquartered in Tubingen, Germany. The Company is focused on developing messenger RNA (mRNA) therapeutics. One of the co-founders Dr. Hoerr discovered, during his Doctoral research, that RNA could be administered directly into tissue as a therapeutic vaccine or agent, once appropriate modifications had been implemented. This discovery led to the creation of CureVac. Backed by Dietmar Hopp, the company develops products for the therapeutic areas of oncology, vaccines and molecular therapies. CureVac is working to develop a COVID-19 vaccine called CVnCoV which has triggered antibody and T-cell responses at doses as low as 2 micrograms.

Financials (September 2020)
Enterprise Value: $9.6 billion
Annual Revenue: $19 million

Ceva Santé Animale

VALUE RANK: 100

Details
10 Avenue de la Ballastière
Libourne, 33500
France
+33 5 57 55 40 40
www.ceva.com

Notes
Ceva reported €1.2 billion in revenue in early 2020. We multiplied this times the median multiple for publicly-traded brande pharmas to impute value.

Exch:Ticker: Private Company
Sector: Animal Health
Lead TA: Animal Health

Ceva Santé Animale was launched in 1999, after four management-led buy-outs and it is headquartered in Libourne, France. The Company researches, develops, produces and markets vaccines and pharmaceutical products for companion animals, cattle, poultry, sheep, goats and swine. Ceva’s products cover a broad range of therapeutic areas including veterinary cardiology, dermatology, reproduction, antibiotics, anti-infectives and vaccines. Driven by innovation, Ceva’s vision of ‘Together, beyond animal health’ reflects the understanding that the majority of emerging human infectious diseases have origins in the animal kingdom and the necessity of treating it illness in animals and birds before it reaches humans. Working across more than 110 countries and with bases in 45, Ceva is truly a global company. The Company is guided by the values of customer passion, entrepreneurial spirit, solidarity and innovation.

Financials (September 2020)
Enterprise Value: $9.3 billion
Annual Revenue: $1.4 billion
Neurocrine

VALUE RANK: 101

Details
12780 El Camino Real
San Diego, California 92130
United States
+1 858 617 7600
www.neurocrine.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:NBIX
Sector: Branded Pharma
Lead TA: Neurology

Neurocrine Biosciences was founded in 1992 and is headquartered in San Diego, California. The Company specializes in developing treatments for neurological, psychiatric and endocrine related diseases and disorders. Neurocrine markets INGREZZA® (valbenazine) for tardive dyskinesia and Ogentys® (opicapone) for Parkinson’s disease. Neurocrine has three strategic alliances with leading pharmaceutical companies including AbbVie which markets Orilissa® (elagolix) for endometriosis and uterine fibroids. Neurocrine has a significant R&D pipeline which spans treatments for both neurological and psychiatric disease. The Company’s vision is to relieve patient suffering and enhance lives by delivering hope through passion, integrity, collaboration, innovation and tenacity.

Financials (September 2020)
Enterprise Value: $9.3 billion
Annual Revenue: $1 billion

Gan & Lee Pharma

VALUE RANK: 102

Details
No. 8 Jingsheng North 3rd Street Golden Bridge Science Industrial Base Zhongguancun Science Park Tongzhou District
Beijing, 101102
China
+86 10 5696 5000
www.ganlee.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SHSE:603087
Sector: Generics - Biosimilars
Lead TA: Diabetes Care

Gan & Lee successfully developed the first Chinese domestic biosynthetic human insulin. At present, the company has four recombinant insulin analogs including long-acting glargine (Basalin®), fast-acting lispro (Prandilin®), mixed protamine zinc recombinant lispro injection (25R) (Prandilin®25) and aspart, as well as prefilled pen and insulin pen. In the future, Gan & Lee strives to achieve comprehensive coverage in the field of diabetes diagnosis and treatment. Gan & Lee’s goal is to become a world-class pharmaceutical company, developing new chemical entities to treat various forms of cardiovascular disease, metabolic diseases, cancer and other therapeutics.

Financials (September 2020)
Enterprise Value: $9.3 billion
Annual Revenue: $445 million
Founded in 2008, argenx is based in Breda, the Netherlands and engages in the development of differentiated antibody-based therapies used in the treatment of cancer and autoimmune diseases. One of the unique elements of argenx is that they have combined ‘the diversity of the llama immune system with antibody engineering’ to advance their clinical pipeline. argenx is evaluating its lead candidate, efgartigimod, in multiple serious autoimmune indications and cusatuzumab in hematological malignancies in collaboration with Janssen, along with advancing earlier stage assets within its therapeutic franchises. Efgartigimod is a blocker of the IgG binding site of the FcRn protein. The effect is to reduce circulating autoantibodies which explains its observed clinical benefit in reducing symptoms of myasthenia gravis, CIDP, ITP and pemphigus vulgaris.

**Financials (September 2020)**

- Enterprise Value: $8.8 billion
- Annual Revenue: $70.2 million

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Headquartered in Wuhan, China, Humanwell was founded in 1993 by a group of passionate college graduates, with the core values of integrity, equality, and humanity at the forefront of the Company’s development into a fully integrated healthcare solution provider. Humanwell boasts a broad portfolio, with a range including: anesthetics, herbal, CNS and OTC medicines, anti-infection drugs, amongst others. Long-term collaborations with national and international organizations have not only enabled the Company to expand its portfolio, but have also contributed to Humanwell’s significant R&D activities that include a pipeline of over 100 product candidates. Key acquisitions have included Epic Pharma (2016) and RiteDose (2017) and Ansell (2017). The Company has been listed since 1997.

**Financials (September 2020)**

- Enterprise Value: $8.8 billion
- Annual Revenue: $2.9 billion
Sobi

VALUE RANK: 105

Details
23A Tomtebodavägen
Solna, Stockholm 112 76
Sweden
+46 86 97 20 00
www.sobi.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: OM:SOBI
Sector: Branded Pharma
Lead TA: Rare Disease

Sobi is headquartered in Stockholm, Sweden and was formed in 2010, when Biovitrum acquired Swedish Orphan International Holding AB. The Company is dedicated to the research, manufacture and commercialization services of innovative therapies for a range of rare diseases, specifically hemophilia, inflammation, genetic and metabolic diseases. Sobi’s world-class capabilities in protein biochemistry and biologics manufacturing development enables them to market their portfolio across Europe, the Middle East, North Africa and Russia. Key products include Elocta® / Alprolix® (hemophilia), Doptelet® (hematology) and Gamifant® / Synagis® / Kineret® (immunology). Sobi has 1400 employees. Sobi went public via Biovitrum in 2006.

Financials (September 2020)
Enterprise Value: $8.7 billion
Annual Revenue: $1.6 billion

CR Pharma Rx Segment

VALUE RANK: 106

Details
China Resources Building, Room 4104-05, 41 Floor, No. 26 Harbour Road
Wanchai, Hong Kong
+852 259 38991
www.crpharm.com

Notes
We value the pharma sub of CR Pharma as the sum of the EV’s of three listed subsidiaries (Sanjiu, Double-Crane and Dong-E-E-Jiao).

Exch:Ticker: SEHK:3320
Sector: Generics - China
Lead TA: Broad

Originally founded in 1938 as Liow & Company, China Resources Pharmaceutical Group was formally incorporated in Hong Kong in 2007, where it maintains its current headquarters. The Group is a holding company that oversees pharmaceutical industry distribution, retail, manufacture and marketing, almost entirely focused on Traditional Chinese Medicines. CR Pharma is a holding company for China Resources Sanjiu Medical & Pharmaceutical Co., Ltd., China Resources Double-Crane Pharmaceutical co., Ltd., Shandong Dong-E-E-Jiao Pharmaceutical Co., Ltd., and China Resources Zizhu Pharmaceutical Co., Ltd. CR Pharma’s products cover a vast array of therapeutic areas including cardiology, gastroenterology, large-volume IV infusions, anti-infectives, women’s health, coughs and colds, and dermatology. The Company’s stated mission to, ‘be the guardian of human health and improve quality of life.’

Financials (September 2020)
Enterprise Value: $8.6 billion
Annual Revenue: $4.3 billion
**Hetero Drugs**

**VALUE RANK: 107**

**Details**
7-2-A2 Hetero Corporate Industrial Estates
Hyderabad, Andhra Pradesh 500 018
India
+91 40 2370 4923
www.heterodrugs.com

**Notes**
Hetero reports 170507 Lahks of 2019 revenue. We multiplied this by the median revenue multiple for generic companies to impute value.

Exch:Ticker: Private Company
Sector: Generics - INN
Lead TA: Broad

Hetero is headquartered in Telangana, India and was founded in 1993. The Company focuses on APIs, formulations, biosimilars, and branded generics produced in their state-of-the-art worldwide manufacturing facilities. The Company also offers custom manufacturing services to both national and international partners. Hetero’s portfolio consists of over 200 products and covers major therapeutic categories such as HIV/AIDS, oncology, cardiovascular, neurology and hepatitis. The Company has established a number of productive alliances and long-term partnerships with leading global pharma organizations and has developed its own international presence with offices and subsidiaries in North America, South America, Europe, Africa, Asia, the Middle East and Australia. Hetero, ‘focuses on making affordable medicines accessible to patients worldwide.’

**Financials (September 2020)**
Enterprise Value: $8.6 billion
Annual Revenue: $2.3 billion

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**Merz**

**VALUE RANK: 108**

**Details**
100 Eckenheimer Landstraße
Frankfurt am Main, Hesse 60318
Germany
+49 69 15 030
www.merz.com

**Notes**
Merz reported revenue for the FY ended in 2019 of €1.093bn. This figure was multiplied by the median branded pharma multiple to impute value.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Dermatology

Headquartered in Frankfurt, Germany, and established in 1908, privately owned Merz began as a pharmaceutical production plant. Today the Company researches, develops and commercializes innovative products in the areas of aesthetic medicine and neurotoxins. Key brands in the portfolio include Belotero®, Radiesse®, Cellfina®, and Ultherapy®. The Company has expanded from a single production plant to having affiliates across Europe, the Americas and Asia. Merz also offers treatments for liver disease, Alzheimer’s disease and Parkinson’s disease. Merz’s key objective is to help patients live better, feel better and look better. The Company has over 3000 employees, operates three research and development facilities in Germany and the US and additionally leverages an international research network that includes world-renowned experts, university research institutes and ambitious startups.

**Financials (September 2020)**
Enterprise Value: $8.5 billion
Annual Revenue: $1.2 billion
Hikma

 VALUE RANK: **109**

**Details**
1 New Burlington Place  
London, Greater London W1S 2HR  
United Kingdom  
+44 20 73992760  
www.hikma.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** LSE: HIK  
**Sector:** Generics - INN  
**Lead TA:** Broad

Founded in 1978 in Amman, Jordan, Hikma is now headquartered in London. The Company develops, manufactures and commercializes generic and in-licensed pharmaceutical products, conducting their operations through three divisions: brands, injectables and generics. Across these divisions, Hikma markets over 700 products for various therapeutic areas, including cardiovascular, oncology, pain management, CNS, anti-infectives, diabetes and respiratory. The Company has 29 manufacturing plants in over 11 countries and they have operations in over 50 countries. Hikma’s performance has been outstanding at a time when other companies in the generic sector have been in shambles. The Company values are integrity, drive for quality and excellence, respect and transparency. They have strong brand recognition in the MENA region and have excellent knowledge of local registration processes and local health authorities through their long-standing relationships with global licensing partners.

**Financials (September 2020)**
- Enterprise Value: $8.4 billion
- Annual Revenue: $2.2 billion

Kangmei Pharma

 VALUE RANK: **110**

**Details**
East of Jieshen Road, Liusha  
Puning, Guangdong Province 515300  
China  
+86 66 3291 7777  
www.kangmei.com.cn

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** SHSE: 600518  
**Sector:** Generics - China  
**Lead TA:** Broad

Founded by Xingtian Ma in 1997 and based in Guangdong, China, Kangmei Pharma develops and manufactures nationally-approved traditional Chinese medicine products. In addition, the Company owns nationwide logistics distribution centers in more than 20 provinces and builds online networks and databases across hospitals, pharmacies, wellness clinics, community health centers, and hospitals. Kangmei Pharma also manages pharmacy departments in more than 200 government-owned hospitals as well as manufacturing natural herbs, chemical drugs, supplements, and health foods. In September 2020, Kangmei was restructured after an accounting fraud and has been taken over by the Guangdong province government. Its assets are being transferred to Yilin Pharma. The stock traded “limit up” on this news in September. Kangmei was listed in 2001.

**Financials (September 2020)**
- Enterprise Value: $8.4 billion
- Annual Revenue: $825.2 million
Jazz Pharma

Headquartered in Dublin, Ireland, Jazz has been making a difference in patients’ lives, one patient at a time since its creation in 2003. The name Jazz Pharmaceutical was inspired by the talented collaboration of Jazz musicians contributing to the common goal of improving lives. Jazz develops and commercializes products with a focus on the areas of sleep, hematology and oncology. Since its foundation, the Company has acquired a number of other pharmaceutical companies to complement its business strategy as well as the rights to specific products of interest. Key products include Xyrem® for narcolepsy; Defitelio® for veno-occlusive disease following bone marrow transplant and Erwinaze® for ALL. The Company declares as part of its core values that ‘For many patients, there is no alternative. For us, no alternative is unacceptable.’

Financials (September 2020)
Enterprise Value: $8.4 billion
Annual Revenue: $2.2 billion

Huahai Pharma

Huahai Pharma is a publicly listed generic pharmaceutical company based in Linhai, China. Founded in 1989, Huahai manufactures a broad range of APIs and finished generic formulations for commercialization in China and international markets. Huahai Pharma’s generic products covers a range of therapeutic areas including cardiovascular and mental health. The Company is the largest supplier of pril products globally. Today, Huahai Pharma has over 6,000 employees, 30+ subsidiaries and numerous industry partnerships. Led by Baohua Chen, Huahai Pharma’s mission is to, ‘Cherish life and commit ourselves to improving people’s health.’ The Company went public in 2003.

Financials (September 2020)
Enterprise Value: $8.4 billion
Annual Revenue: $855 million
Cipla

Cipla was founded in 1935 and its headquarters are located in Mumbai, India. The generic pharmaceutical has a portfolio of over 1,500 products, covering therapeutic areas such as cardiovascular, children’s health, dermatology and cosmetology, diabetes, HIV/AIDS, hepatitis, malaria, oncology, ophthalmology, osteoporosis and urology. Cipla has a presence in more than 80 countries, with a manufacturing base of over 43 facilities producing APIs and finished formulations and an international footprint that includes Australia, Europe, the U.S. and South Africa. Cipla has taken important steps to move into innovative brands, recently entering into an option agreement to acquire Avenue Therapeutics. Cipla aims to be a purpose-inspired, responsibility-centered, innovation-driven, excellence-focused, integrity and trust-anchored company. An example of Cipla’s sincere interest in impacting society came from its offering triple anti-retroviral therapy for HIV at less than a dollar a day in Africa in 2001. Cipla went public in 1979.

Financials (September 2020)
Enterprise Value: $8.3 billion
Annual Revenue: $2.3 billion

Serum Institute of India

The Serum Institute of India was founded in 1966 by Dr. Cyprus Poonawalla, and is based in Pune, India. The Serum Institute is the world’s largest vaccine manufacturer; its vaccines are accredited by the World Health Organization and are used in over 170 countries. When he created his company, Dr. Poonawalla’s goal was to manufacture life-saving immunobiological treatments at affordable prices and as a result, he enabled India to become self-sufficient in the production of various vaccines, including the diphtheria, tetanus and pertussis (DPT) group of vaccines. The Serum Institute is currently researching and developing an aerosolized measles vaccine which would be easier to administer than the traditional injectable vaccine. The Company is also working to continue to reduce the prices of newer vaccines to ensure that the world’s under-privileged children are protected from birth onwards.

Financials (September 2020)
Enterprise Value: $8.3 billion
Annual Revenue: $819.2 million
Baxter Pharma

VALUE RANK: 115

Details
One Baxter Parkway
Deerfield, Illinois 60015
United States
+1 224 948 1812
www.baxter.com

Notes
We value Baxter pharma as a standalone business segment within Baxter. We multiplied the median revenue multiple for generic pharma companies times our estimate of Baxter’s revenue from hospital pharma products ($2.3bn) to impute value.

Exch:Ticker: NYSE:BAX
Sector: Generics - INN
Lead TA: Hospital

Baxter International was founded in 1931 and is headquartered in Deerfield, Illinois. The Company is located in over 100 countries, with its products and therapies available in almost every hospital globally. Focusing on two global businesses: hospital and renal products, the overriding mission to, ‘save and sustain lives.’ We estimate that approximately 20% of Baxter’s revenue comes from the sale of hospital pharmaceutical products, making Baxter one of the world’s largest players in sterile injectables. With more than 80 years of experience in marketing injectables, 71 approved injectible products, 28 manufacturing locations, and deep formulation expertise, Baxter is indeed a world leader in hospital pharmaceutical products. Baxter calls on hospital pharmacies around the world and markets a number of highly complex products such as Myxredlin® (RTU insulin premix), premixed Eptifibatide and liposomal doxorubicin. Baxter went public in 1978.

Financials (September 2020)
Enterprise Value: $8.2 billion
Annual Revenue: $2.2 billion

RAAS Corp

VALUE RANK: 116

Details
No. 2009 Wangyuan Road, Fengxian District
Shanghai, 201401
China
+86 21 221 30 888
www.raas-corp.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:002252
Sector: Branded Pharma
Lead TA: Blood Products

Founded in 1988, Shanghai RAAS is headquartered in Shanghai, China. The Company engages in the research, development, manufacture, and distribution of blood products in China and internationally, and in 2014 became the largest blood products company in China and Asia. The Company’s portfolio includes 11 main blood product lines, including human albumin, prothrombin complex, and immunoglobin. Beyond its domestic market, its products are registered in almost 20 other countries. It entered an innovative partnership with Grifols in 2020. Shanghai RAAS has established a number of partnerships with university departments and other businesses. Shanghai RAAS went public in 2008.

Financials (September 2020)
Enterprise Value: $8.2 billion
Annual Revenue: $367.6 million
CanSino Biologics

VALUE RANK: 117

Details
401-420, Biomedical Park 4th Floor 185
South Avenue TEDA West District
Tianjin, Tianjin Province
China
+86 22 5821 3600
www.cansinotech.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SEHK:6185
Sector: Biotechnology
Lead TA: Vaccines

Founded in 2009, CanSino BIO researches, produces and commercializes innovative vaccines for China and global public health security. It possesses four integrated platform technologies including adenovirus-based vectors, conjugation, protein design and recombination and formulation. It has established a robust pipeline of 16 vaccines preventing 13 diseases, including a globally innovative Ebola virus vaccine approved in 2017 as well as the investigational Recombinant Novel Coronavirus Vaccine (Adenovirus Type 5 Vector) for which it has received substantial publicity in 2020. In addition to preparing to supply Coronavirus vaccine for China, CanSino is actively preparing to register its vaccine in a number of other affected countries.

Financials (September 2020)
Enterprise Value: $8.2 billion
Annual Revenue: $2.5 million

Alfasigma

VALUE RANK: 118

Details
5 Via Ragazzi del ’99
Bologna, 40133
Italy
+39 516 48 95 11
www.alfasigma.com

Notes
AlfaSigma reported €1053mm in pharma revenue in 2019. We multiplied this by the median revenue multiple for branded pharmas to impute a value estimate.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Gastroenterology

Headquartered in Bologna, Italy, Alfasigma was created in 2015, as a result of a merger between two significant Italian pharmaceutical groups Alfa Wassermann and Sigma-Tau. By combining forces these major Italian players in the pharmaceutical industry, the Company has solidified its presence in the international market, building upon their successful pasts with the vision of a fruitful future through further international expansion. The Company is a leader in the Italian prescription and OTC market, specializing in gastroenterology, vascular, cardiometabolic, orthopedics and rheumatology indications. Key products include rifaximin, sulodexide and carnitine. Alfasigma signifies passion for the future, science, technology, international competition, work, care and wellbeing of people as well as commitment to sustain and support culture.

Financials (September 2020)
Enterprise Value: $8.2 billion
Annual Revenue: $1.2 billion
Mitsubishi Tanabe

**VALUE RANK:** 119

**Details**
3-2-10 Dosho-machi, Chuo-Ku
Osaka, 541-8505
Japan
+81 6 6205 5085
www.mt-pharma.co.jp

**Notes**
MTPC is a subsidiary of Mitsubishi Chemical. We valued MTPC as a standalone business. We multiplied 2019 segment revenue times the median multiple for public Japan pharma to impute value.

Exch: Ticker: Private Company
Sector: Branded Pharma
Lead TA: Immunology

Headquartered in Osaka, Japan, Mitsubishi Tanabe Pharma Corporation (MTPC) was created in 2007 as the result of a merger of a number of companies including Tanabe Seiyaku, a company that traces its history back to 1678. MTPC is focused on ethical drug R&D and marketing. Its extensive portfolio covers immunology, endocrinology, neurology as well as vaccines and OTC products. MTPC is known as the originator of Gilenya® (fingolimod) for multiple sclerosis. MTPC acquired Neuroderm for $1.1 billion in 2017 and was itself acquired by parent Mitsubishi Chemical in late 2019. The company has launched Radicava® for ALS globally to significant acclaim. MTPC recently advanced its rare disease initiatives, such as successful launch of inebilizmab (anti-CD19 Mab) for neuromyelitis optica spectrum disorder and P-3 initiation of MT-7117 for erythropoietic protoporphyria and X-linked protoporphyria. MTPC is dedicated to contributing to healthier lives for people around the world through their pharmaceutical products.

**Financials (September 2020)**
Enterprise Value: $8 billion
Annual Revenue: $3.8 billion

Lundbeck

**VALUE RANK:** 120

**Details**
9 Ottiliavej
Valby, 2500
Denmark
+45 36301311
www.lundbeck.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: CPSE:LUN
Sector: Branded Pharma
Lead TA: Neurology

Founded in 1915 in Copenhagen, Denmark, H. Lundbeck A/S began as a trading company with disparate products including biscuits and aluminum foil. By the 1930s pharmaceutical products dominated the Company’s catalog. As of 1940, the Company had established its first chemical research facility and in the years that followed, Lundbeck developed anti-depressants and antibiotics, as well as a range of drugs for indications such as schizophrenia. Today, Lundbeck’s products are marketed in approximately 100 countries. Lundbeck focuses on therapeutics for psychiatric and neurological indications such as Alzheimer’s disease, Parkinson’s and schizophrenia through a portfolio of almost 30 products. ‘Progress in Mind’ is Lundbeck’s promise to address the global burden of CNS disorders by increasing opportunities for better treatment, awareness and acceptance. Majority owned by a foundation, Lundbeck went public in 1999.

**Financials (September 2020)**
Enterprise Value: $7.8 billion
Annual Revenue: $2.6 billion

Financials (September 2020)
Enterprise Value: $7.5 billion
Annual Revenue: $463.7 million

Endo was founded in 1997, and is headquartered in Dublin, Ireland. Endo can trace its roots back to 1920 to a family-run pharmaceutical company originally called Intravenous Products of America, Inc. The current company structure was established in 1997 following a management buyout. Endo develops, manufactures, commercializes and distributes generic and specialty-branded pharmaceuticals. Key subsidiaries include Endo Pharma (specialty brands), Par (generics), Endo Aesthetics and Paladin Labs (Canada and emerging markets). Key branded products include Xiaflex® for Dupuytrens contracture, Percocet® for pain and Supprelin LA® (endocrinology). A key development was the Jul 2020 approval of Qwo® for cellulite treatment. The Par division has great strength in the sterile injectables segment. ENDO’s share price has been under some pressure from opioid litigants. The Company went public in 2013.

Financials (September 2020)
Enterprise Value: $7.3 billion
Annual Revenue: $3 billion
Biocon

Headquartered in Bangalore, India, Biocon was founded in 1978 as an enzyme-manufacturing company. In 1979, Biocon was the first Indian company to produce and export enzymes to Europe and the US and today they have eight subsidiaries and its products are available in over 120 countries worldwide. Led by Kirin Mazumdar-Shaw, Biocon has four divisions: 1. biologics and novel molecules, 2. branded formulations, 3. small molecules (APIs and generic formulations) and 4. research services. Biocon is focused on delivering affordable innovation in therapeutic areas such as autoimmune disease, diabetes and oncology. By having unwavering focus over the years on innovation and difficult to make, niche products Biocon has been creating tangible differentiators for sustainable growth. In 2004, Biocon became India’s first publically-listed biologics company.

Financials (September 2020)
Enterprise Value: $7.3 billion
Annual Revenue: $871 million

Torrent Pharmaceuticals

Torrent Pharmaceuticals was founded in 1959 and is headquartered in Gujarat, India. Torrent Pharma researches, develops, manufactures and commercializes generic pharmaceutical products for both the domestic and international markets. The Company’s portfolio includes treatments in the therapeutic areas of cardiovascular, CNS, gastroenterology, anti-infectives, gynecology, nephrology, oncology and diabetics. R&D is a cornerstone of the Company’s success and they are dedicated to safety, efficacy and quality in their endeavors to develop options for unmet medical needs, along with their world-class manufacturing facilities, extensive domestic network. With a presence in over 40 countries it gives them a global competitive edge.

Financials (September 2020)
Enterprise Value: $7.3 billion
Annual Revenue: $1 billion
**Apotex**

**VALUE RANK: 125**

**Details**
150 Signet Drive  
Toronto, Ontario M9L 1T9  
Canada  
+1 800 268 4623  
www.apotex.com

**Notes**
D&B indicates that Apotex revenue is 2.65bn CAD. We multiplied this by the median generic industry revenue multiple to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Generics - INN  
**Lead TA:** Broad

Founded in 1974, Apotex is a Toronto-based Canadian company committed to providing innovative, affordable and high-quality generic medicines for millions of patients worldwide. The Company's portfolio includes over 300 generic preparations in more than 4,000 dosage forms. Exporting to over 115 countries and territories, with operations in over 45 countries, the Company has increased its global reach through affiliations, distributors and joint partnerships. The Company's R&D pipeline targets generics, biosimilars, and novel pharmaceuticals. Recognizing their position as a global citizen Apotex is committed to fulfilling its obligation to support local communities, and achieves this through collaborations with charitable organizations around the globe. The company is dealing with the untimely death of its founder, Barry Sherman and is rumored to be mulling a sale transaction.

**Financials (September 2020)**

Enterprise Value: $7.3 billion  
Annual Revenue: $2 billion

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**STADA**

**VALUE RANK: 126**

**Details**
2-18 Stadastrasse  
Bad Vilbel, Hesse 61118  
Germany  
+49 61016030  
www.stada.de

**Notes**
Despite being acquired by Bain and Cinven Stada is still technically listed. Hence we use its enterprise value as of Sep 15, 2020 as our value estimate.

**Exch:Ticker:** Private Company  
**Sector:** Generics - INN  
**Lead TA:** Broad

STADA was founded in 1895 and is headquartered in Bad Vilbel, Germany. The Company produces both generic and branded OTC products, focusing on different therapeutic areas. Capably led by Peter Goldschmidt, STADA is the largest independent producer of generics in Germany, with an ever-growing international market orientation. STADA has representation in over 30 countries, with approximately 50 sales companies across the globe. The Company's products enjoy significant market share in their native Germany, and two of STADA's leading branded products and are among the highest selling in their product category (Grippostad® and Ladival®). The Company believes that good health should be affordable for all. STADA went public in 1970 and today is controlled by Bain Capital and Cinven.

**Financials (September 2020)**

Enterprise Value: $7.2 billion  
Annual Revenue: $3.1 billion
Ascendis Pharma

VALUE RANK: **127**

**Details**
5 Tuborg Boulevard  
Hellerup, 2900  
Denmark  
+45 70 22 22 44  
www.ascendispharma.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker: NasdaqGS:ASND  
**Sector:** Biotechnology  
**Lead TA:** Endocrinology

Headquartered in Denmark, Ascendis Pharma A/S was founded in 2006. The Company applies its in-house proprietary controlled-release prodrug platform to develop a diversified pipeline of drug candidates. Ascendis actively pursues strategic collaboration opportunities in order to further product discovery and development. Its pipeline product is a once-weekly formulation of human growth hormone prodrug that is in late Phase 3 clinical development. Ascendis has a global reach, with offices and facilities throughout North America and Europe. Ascendis’ mission is to develop best-in-class treatments for rare conditions with unmet medical needs and the Company first floated its shares in 2015.

**Financials (September 2020)**

- **Enterprise Value:** $7.1 billion  
- **Annual Revenue:** $9.4 million

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Santen

VALUE RANK: **128**

**Details**
Grandfront Osaka Tower A, 4 Odin-cho, Kita-ku  
Osaka, 530-8552  
Japan  
+81 6 6321 7000  
www.santen.co.jp

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker: TSE:4536  
**Sector:** Branded Pharma  
**Lead TA:** Ophthalmology

Headquartered in Osaka, Japan, Santen was established in 1890 by Kenkichi Taguchi. Nine years after its foundation, the Company launched its landmark eye drops, a product that supported much of Santen’s activities in the early years and continues to sell to this day. Santen specializes in developing and commercializing prescription ophthalmic pharmaceuticals to its domestic market, as well as to international markets. Key pipeline items include drug candidates for uveitis, myopia and glaucoma. Under the capable leadership of Akira Kurokawa and Shigeo Taniuchi, Santen seeks partnerships to enrich its product pipeline. Santen recently acquired Eyevance in order to expand its presence in the U.S. Santen’s mission is to use its expertise and research into ophthalmology to contribute towards the wellbeing of patients, their loved ones, and society. The Company has been public since 1963.

**Financials (September 2020)**

- **Enterprise Value:** $7.1 billion  
- **Annual Revenue:** $2.2 billion
Angelini

**VALUE RANK:** 129

**Details**
70 Viale Amelia
Rome, 00181
Italy
+39 6 780531
www.angelini.it

**Notes**
Angelini reported €902 million in revenue in 2019. We multiplied this times the median multiple for publicly-traded branded pharmas to impute value.

**Exch:** Private Company  
**Ticker:**  
**Sector:** Branded Pharma  
**Lead TA:** Pain

Angelini was founded by Francesco Angelini in 1919 in Ancona, Italy as a small laboratory, and is headquartered in Rome. In the 1940s the Company’s main product was a tonic for anemia. Current research focuses on CNS diseases, pain, inflammation and rare diseases, with a particular commitment to treatments for the pediatric population. Angelini products are marketed in about 70 countries. The Company operates directly in 15 countries employing more than 2,700 people, and commercializes its products in more than 50 countries through alliances. In addition to ethical pharma, Angelini is active in OTC and consumer products. Angelini’s internationalization strategy involves targeted acquisitions and expansion within countries where there is high potential. Their mission is to take care of everyone, every day by providing constant and tangible wellbeing.

**Financials (September 2020)**

Enterprise Value: $7 billion  
Annual Revenue: $1 billion

Schwabe

**VALUE RANK:** 130

**Details**
4 Willmar-Schwabe-Straße
Karlsruhe, Baden-Württemberg 76227
Germany
+49 7 21 40 05 101
www.schwabepharma.com

**Notes**
Schwabe reported €900 million in revenue in 2019. We multiplied this times the median multiple for publicly-traded branded pharmas to impute value.

**Exch:** Private Company  
**Ticker:**  
**Sector:** Branded Pharma  
**Lead TA:** Neurology

Schwabe Group was founded in 1866 and is based in Karlsruhe, Germany. Schwabe develops, manufactures, and markets plant-based medicines and healthcare products worldwide, with a focus on neurological and cardiovascular therapeutics, as well as respiratory and urological indications. Schwabe’s products treat a range of diseases and afflictions, including mental function loss due to organic brain syndrome, acute bronchitis, mild transient depressive conditions, restlessness, and mental and physical symptoms from stress and overwork. In addition to its R&D capabilities, Schwabe controls the manufacturing of its goods from harvesting to final production of the plants used in its products. The Company has established plantations in Europe, Asia, Africa and North America to avoid depleting the wild populations of the medicinal plants used in its products.

**Financials (September 2020)**

Enterprise Value: $7 billion  
Annual Revenue: $1 billion
Aurobindo was founded in 1986 and is headquartered in Hyderabad, India. The Company began operations through the manufacture of semi-synthetic penicillin in 1988. Their portfolio expanded to offer generic products in therapeutic areas including neurosciences, cardiovascular, anti-retrovirals, anti-diabetics, gastroenterology and cephalosporins. Aurobindo has manufacturing facilities in a number of countries, produces APIs and finished formulations, and the Company exports to over 120 countries. Aurobindo’s R&D is focused on the research of organic synthesis, dosage form development, pharmacology, bio-equivalence studies and drug delivery systems. This reflects the Company’s commitment to developing innovative technologies, as well as expanding its knowledge base. Aurobindo is a leader in injectables development and manufacture. The company has recently branched into branded oncology product marketing in the US. Aurobindo has been listed since 1995.

Financials (September 2020)
Enterprise Value: $6.9 billion
Annual Revenue: $3.1 billion

Betta Pharma is headquartered in Beijing, China and was founded in 2003. The Company concentrates its business on the R&D of innovative drugs and proprietary intellectual property rights, as well as the development and commercialization of treatments for cancer, cardiovascular diseases, and diabetes. The Company was granted approval by China FDA in 2011 for its innovative Icotinib Hydrochloride Tablets. In 2013, the product attracted further plaudits with The Lancet Oncology publishing the Phase III clinical study results. Betta has a deep and innovative pipeline of cancer drugs in development. Betta’s development philosophy: ‘Innovate to benefit the people’ is born out through their collaborative partnerships with international companies. The Company has 11 sales offices around China, and holds 17 issued patents with a further 106 under application.

Financials (September 2020)
Enterprise Value: $6.8 billion
Annual Revenue: $246.8 million
Intas Pharma

**VALUE RANK: 133**

Details
Corporate House, Near Sola Bridge, S. G. Highway, Thaltej Ahmedabad, Gujarat 380054 India +91 79 6652 3100 www.intaspharma.com

Notes
Intas had $1.83 billion in revenue in FY 2019 according to ICRA (credit rating agency). We multiplied this times the median multiple for publicly generic pharmas to impute value.

Exch: Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

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Intas is headquartered in Ahmedabad, India, and was founded in 1985. The Company researches, develops, makes and commercializes a range of generic products to fulfil their mission statement of ‘Contributing towards better healthcare through innovation.’ Intas focuses on CNS, nephrology, gastroenterology, urology, orthopaedics and cardiology-diabetics. Intas operates through exclusive and dedicated sales depots with over 4,000 established stockist relationships in India. Intas also operates a number of international branch offices and subsidiaries spanning the US, Canada, Europe, Central and Latin America, Africa, Asia-Pacific as well as the CIS and MENA regions. Intas has strong portfolios in animal health and biosimilars. The company acquired Actavis UK and 40% of revenue is from the EU. The company is more than 80% owned by the Chudgar family.

**Financials (September 2020)**
Enterprise Value: $6.6 billion
Annual Revenue: $1.8 billion

Exelisxis

**VALUE RANK: 134**

Details
210 East Grand Avenue South San Francisco, California 94080 United States +1 650 837 7000 www.exelixis.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: NasdaqGS:EXEL
Sector: Branded Pharma
Lead TA: Oncology

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Exelisxis was formed in 1994 in Cambridge, Massachusetts and initially the company focused on the model system platform of genetics and genomics. In 1997, Exelisxis moved its headquarters to South San Francisco, California and after entering into a collaborative alliance with GlaxoSmithKline in 2002 began to specialize in the research, development and commercialization of novel therapeutics in oncology. Exelisxis’ flagship molecule, cabozantinib, is the origin of two commercial products, CABOMETYX® and COMETRIQ®, marketed by Exelisxis in the United States. Exelisxis’ third product, COTELLIC®, a formulation of cobimetinib, is marketed under a collaboration with Genentech, a member of the Roche Group. Exelisxis has an ‘Inspired by Science, Compelled by Data’ approach to their research and development and consequently has assembled a small molecule chemical compound library containing over four million discrete drug leads. Exelisxis went public in 2000.

**Financials (September 2020)**
Enterprise Value: $6.6 billion
Annual Revenue: $998.4 million
Aché Laboratórios

VALUE RANK: 135

Details
Rodovia Presidente Dutra, Km 222.2, Porto da Igreja
Guarulhos, São Paulo 07034-904
Brazil
+55 11 2608 6076
www.ache.com.br

Notes
Aché reported $1bn in revenue in 2018. We multiplied this by the median revenue multiple for branded pharmas to impute a value estimate.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Broad

Aché Laboratórios Farmacêuticos S.A was founded in 1966 and is headquartered in Guarulhos, Brazil. The Company offers a portfolio of prescription, non-prescription, and generic drugs, and licenses products with market differentials and technological innovation to its primary markets of Mexico, Colombia, Ecuador, Peru and Venezuela. Aché maintains a history of innovation, boasting a broad portfolio of over 320 generic products in more than 800 dosage forms. The Company’s offerings are spread over 25 specialty areas and 142 therapeutic classes. Aché has won a number of innovation and business awards and was elected the champion of the pharmaceutical sector in the Empresas Mais Award over the course of several years. The Company is open to partnership and licensing opportunities to expand its international reach or to extend its own offerings within the domestic market.

Financials (September 2020)
Enterprise Value: $6.6 billion
Annual Revenue: $1 billion

Unilab

VALUE RANK: 136

Details
66 United Street
Mandaluyong City, Metro Manila 1554
Philippines
+63 2 864 5221
www.unilab.com.ph

Notes
Unilab disclosed $1bn in revenue in 2017. We multiplied this figure by the median revenue multiple for branded pharmas to impute value.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

Based in Mandaluyong City, the Phillipines, Unilab was founded in 1945 by Mr. J.Y. Campos and Mr. M.K. Tan as a small drug store in Manila. Since then, the Company has grown to have a significant market share both in the Philippines and in the wider Asia Pacific region. Unilab develops, manufactures, and markets a wide range of prescription and consumer health products covering most major therapeutic areas. The Company is the largest pharmaceutical manufacturer in the Philippines, operating facilities across South East Asia. As part of their mission to enrich the lives of members of local communities, Unilab has dedicated resources to supporting a variety of projects aimed at fostering a healthy community. These include projects to expand mental healthcare and care for the elderly.

Financials (September 2020)
Enterprise Value: $6.6 billion
Annual Revenue: $1 billion
Dainippon Sumitomo Pharma (DSP) was founded in 1897 and operates dual headquarters in Osaka and Tokyo, Japan. In addition to selling and manufacturing pharmaceuticals, DSP markets food ingredients and additives, veterinary medicines, and diagnostics in Japan, China, North America, and other regions. DSP’s impressive growth in the last 10 years has been supported by successful launch of Latuda®, atypical antipsychotic for schizophrenia, and concomitant expansion in the US through the purchase of Sepracor (renamed Sunovion after the integration). A key move was the 2019 acquisition of Roivant’s majority interest in five companies including Myovant, Urovant, Enzyvant, Altavant and Spirovant in a $3 billion deal. Sumitomo aims to contribute to the betterment of healthcare worldwide. DSP went public in 1949.

**Financials (September 2020)**

Enterprise Value: $6.6 billion  
Annual Revenue: $4.6 billion

Founded in 1917, Orion is headquartered in Espoo, Finland. The Company develops, manufactures and commercializes human and veterinary pharmaceuticals, APIs and diagnostic tests. Orion markets its products in over 100 countries. The core therapy areas that Orion’s pharmaceutical research and development focuses on CNS, oncology and inhalable pulmonary drugs. Orion also undertakes veterinary product development while simultaneously developing new generic medicinal substances through collaborative partnerships. Orion’s mission is to offer products and services that promote the health and wellbeing of its customers. The Company has been listed since 1995.

**Financials (September 2020)**

Enterprise Value: $6.5 billion  
Annual Revenue: $1.2 billion
Lupin

VALUE RANK: 139

Details
B/4 Laxmi Towers, Bandra Kurla Complex, Bandra (East)
Mumbai, Maharashtra 400 051
India
+91 22 6640 2222
www.lupin.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: BSE:500257
Sector: Generics - INN
Lead TA: Broad

Lupin was founded in 1968 by Dr. Desh Bandhu Gupta and is headquartered in Mumbai, India. The Company manufactures and sells a wide variety of branded and complex generic formulations, APIs, ADDS and biotechnology products that it distributes to domestic and international markets. Capably led by Vinita Gupta, the Company’s operates in major markets in over 100 countries, including the US, Australia, Europe, India, Japan, the Philippines and South Africa. Lupin also has an international footprint with facilities in India, Japan and Mexico; manufacturing in therapeutic areas including cardiovascular, anti-TB, asthma, diabetes, anti-infectives, gastroenterology, CNS and gynecology. The Company founded Lupin Human Welfare & Research Foundation in 1988 to provide rural India with the benefits of economic progress and of scientific and social development. Lupin went public in 2006.

Financials (September 2020)
Enterprise Value: $6.4 billion
Annual Revenue: $1.9 billion

Huadong Medicine

VALUE RANK: 140

Details
No. 866 Moganshan Road
Hangzhou, Zhejiang Province 310001
China
+86 571 8990 3388
www.eastchinapharm.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:000963
Sector: Generics - China
Lead TA: Broad

Huadong Medicine was founded in 1992 and is headquartered in Zhenjiang province, China. The Company’s goal is to undertake the production and commercialization of antibiotics, proprietary Chinese medicine, chemical synthetic medicine and genetically engineered drug products. Huadong Medicine’s mission is to ‘always take public health as own duty, committed to providing high-quality products and services to meet customer needs and improve their quality of life goals.’ To this end, the Company has developed a portfolio of generic products that includes APIs, TCM products, including treatments for Hepatitis B indications, endocrine drugs, antineoplastic agents and gastrointestinal agents. Led by Chairman Liang Lu, Huadong is a Chinese medicine leader with particular strength in transplant and renal medicine. Today, Huadong is looking to the future and has built out a world-class unit for R&D on innovative medicines.

Financials (September 2020)
Enterprise Value: $6.4 billion
Annual Revenue: $4.7 billion
Mirati Therapeutics was founded in 2010 and is based in San Diego, California. The Company is focused on developing targeted product candidates that address the genetic, epigenetic and immunological promoters of cancer. Mirati is developing novel inhibitors of KRAS mutations including MRTX849, a potent and selective inhibitor of KRAS G12C. Mirati is also developing sitravatinib, designed to selectively target a spectrum of tyrosine kinases implicated in both tumor growth and the suppression of immune responses to tumors. The company’s focus is to transfer their profound knowledge of the molecular drivers of cancer into improved outcomes for patients. Mirati Therapeutics went public in 2013.

**Financials (September 2020)**
Enterprise Value: $6.4 billion  
Annual Revenue: $1.7 million

Zydus was founded in 1952 and is headquartered in Ahmedabad, India. The current structure of the Company evolved after a restructuring in 1995 and is known as Cadila Healthcare. Operated by Pankaj Patel and his son Sharvil, Zydus operates as a fully-integrated provider of APIs, generic, wellness and animal healthcare products. Therapeutic areas include cardiovascular, GI, women’s healthcare, respiratory, dermatology, pain and anti-infectives. The Company’s innovation work is generated across 19 sites that manage NCEs, biologics and vaccines. Key accomplishments include the development of saroglitazar for dyslipidemia, the first NCE developed in India and approved in India; the introduction of Vaxiflu, India’s first tetravalent flu vaccine and a global development program for desidustat for anemia. Outside of India, the group operates subsidiaries in the US, Europe, Latin America and South Africa with a direct presence in over 25 markets.

**Financials (September 2020)**
Enterprise Value: $6.3 billion  
Annual Revenue: $1.9 billion
Kedrion

Kedrion was founded in 2001 and is headquartered in Lucca, Italy. The Company develops, produces, and distributes plasma-based protein therapies to treat hemophilia and various immunodeficiencies, as well as shock, severe burns, sepsis and complex surgery. Kedrion has partnered with Italy’s National Health System to develop a leading model for plasma procurement and has established its Biological Safety Center as a service to remove pathogens from biological and biotechnological preparations. Kedrion also offers contract manufacturing and other services, from planning and logistics to validation and testing. The Company currently operates collection centers in the US, Germany, Hungary, and has extended its global reach into 100 other countries. Kedrion’s therapeutic areas include hematology, immunology, neurology, immunology, and infectious diseases. The Company seeks to help patients living with debilitating illnesses.

Financials (September 2020)
Enterprise Value: $6.3 billion
Annual Revenue: $953.6 million

King-Friend Bio

Nanjing King-Friend Biochemical Pharmaceutical (NKF) was founded in 2000, prior to this it was known as the Nanjing Second Biochemical Pharmaceutical Company. The Company produces and sells heparin sodium and low molecular weight heparin products to pharmaceutical companies in China, Europe and the US. NKF’s vision is to be a ‘First in Class Global Biochemical Pharmaceutical Enterprise’ with a progressive culture that is open minded, self-motivated, continually improving and realizes excellence. In 2013 the Company was awarded the title of ‘Jiangsu Provincial Enterprise Technology Center’. NKF fosters excellence by providing quality products and enabling a win-win relationship with stakeholders through an open and positive enterprise culture. The company went public in 2017.

Financials (September 2020)
Enterprise Value: $6.2 billion
Annual Revenue: $380.6 million
Shin Poong

Headquartered in Seoul, Korea, Shin Poong was founded in 1962. The Company is focused on the research, development and manufacture of APIs and pharmaceuticals focusing on cardiology, neurology, musculoskeletal and infectious disease. Shin Poong has seven manufacturing sites. Shin Poong’s lead product is Pyramax®, an antimalarial drug, developed through a partnership. Additionally, the Company’s research has resulted in a number of APIs brought to market along with innovative products including anti-hypertensive drugs. Shin Poong’s pipeline includes SP-8203, an NCE for stroke (Phase 2), SP-8008, an anti-platelet drug (preclinical), SP-8232, a GRK-5 inhibitor for heart failure (preclinical) and SP-8356 for stroke (preclinical). The Company aims to contribute towards promoting global human health and has established a number of international subsidiaries in countries such as China and Vietnam. Shin Poong’s IPO was in 1990.

Financials (September 2020)
Enterprise Value: $6.2 billion
Annual Revenue: $164 million

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: KOS:019170
Sector: Generics - Branded
Lead TA: Broad

Ionis

Ionis, founded in 1989 and based in Carlsbad, California, engages in the discovery and development of RNA-targeted drug therapies using a novel drug discovery platform. Key accomplishments include achieving approval of SPINRAZA® for spinal muscular atrophy, achieving enrollment of a Phase 3 study of tominersen in patients with Huntington’s disease and achieving approval of inotersen for ATTR. In total, Ionis is developing more than 40 novel medicines designed to potentially treat a broad range of diseases, including neurological, cardio-renal, metabolic, infectious, and pulmonary diseases. Ionis is committed to patients and scientific discovery and this is reflected in the Company’s focus on innovation. Ionis spun out commercial assets for rare cardiometabolic disorders to Akcea Therapeutics and subsequently moved to reacquire the piece of Akcea it did not own in 2020. The result today is that Ionis both an R&D and a commercial company. Ionis went public in 1991.

Financials (September 2020)
Enterprise Value: $6.1 billion
Annual Revenue: $940.4 million

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:IONS
Sector: Biotechnology
Lead TA: Rare Disease
Emergent BioSolutions

From its establishment in 1998, Gaithersburg, Maryland-based Emergent has stayed true to its mission of protecting and enhancing life. Emergent seeks to protect the lives of both civilian and military populations from intentional, accidental and natural public health threats. The Company produces vaccines and therapeutics targeted towards biological threats, emerging infectious diseases and chemical threats. Emergent also offers a comprehensive contract manufacturing services. Today, Emergent has more than 1,800 employees, 10 marketed products, 19 global locations, over 15 pipeline products and more than $1bn in revenue. Key recent developments have included the acquisition of Narcan® for the management of opioid overdose and a manufacturing contract with AstraZeneca for COVID-19 vaccine. Emergent went public in 2006.

Financials (September 2020)
Enterprise Value: $6 billion
Annual Revenue: $1.2 billion

Green Valley Pharma

Shanghai Green Valley Pharmaceuticals is an innovative Chinese pharma that develops novel carbohydrate drug treatments in the area of chronic and complex diseases with a holistic view of treatment. Green Valley was founded in 1997 and is headquartered in Zhangjiang Science City in Shanghai. It is focused on advancing research programs in CNS, cancer, cardiometabolism and autoimmune disease. It has 1,500 employees in China and operates a subsidiary in the United States. Notably, Green Valley achieved the first approval of an innovative drug for Alzheimer’s Disease (GV-971) in China in 2019. This product works by modulating neuroinflammation and exhibited excellent results in a large scale Phase 3 clinical study. The company upholds the sacred mission of “developing medicines that fulfill the biggest unmet medical needs for human health”.

Financials (September 2020)
Enterprise Value: $5.9 billion
Annual Revenue: $900 million
Guangzhou Pharma

VALUE RANK: 149

Established in 1996, Guangzhou Pharmaceutical Holdings Group (GPHL) is state-owned and headquartered in Guangzhou, China. The Company manufactures and markets patented Chinese medicine, imports and exports Western and Chinese pharmaceuticals and medical equipment and also conducts R&D in natural and biological medicine. The company owns the world’s oldest pharmaceutical factory. A key subsidiary is the listed pharma Guangzhou Baiyunshan. The Company provides pharmaceutical logistics, distribution and healthcare services and has an established, extensive portfolio of products commercially distributed to domestic markets. GPHL has a comprehensive social responsibility approach that includes cooperative ventures such as a project with JD.com to reclaim expired medicine through door-to-door pickup across ten cities within China and the subsequent professional disposal by GPHL.

Financials (September 2020)
Enterprise Value: $5.9 billion
Annual Revenue: $8.7 billion

MyoKardia

VALUE RANK: 150

Based in San Francisco, California, and established in 2012, MyoKardia was launched by Third Rock Ventures. The four founders, professors in cardiovascular disease, genetics, and medicine, sought to create a world-class biotech company and market leader specializing in precision cardiovascular medicine. The Company is a pioneer in the development and commercialization of precision medicines for the treatment of rare and underserved cardiovascular diseases. MyoKardia has developed key collaborations with industry leaders to further develop its main product pipeline. Myokardia's lead drug candidate is mavacamten, which has positive Phase 3 study data for its impact on obstructive hypertrophic cardiomyopathy. MyoKardia went public in 2015.

Financials (September 2020)
Enterprise Value: $5.9 billion
Annual Revenue: NA
Momenta

VALUE RANK: 151

Details
301 Binney Street
Cambridge, Massachusetts 02142
United States
+1 617 491 9700
www.momentapharma.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:MNTA
Sector: Branded Pharma
Lead TA: Broad

Based in Cambridge, Massachusetts, Momenta was founded in 2001 to harness the technology on the sequencing of complex sugar molecules developed at the Massachusetts Institute of Technology (MIT). The Company analyses, characterizes and designs complex pharmaceutical products to develop generic equivalents, biosimilars, as well as investing in the research and development of novel therapeutics to treat autoimmune indications. Momenta currently has two products on the market, with several other novel drug and biosimilar candidates in the pipeline. The Company collaborates with other organizations to develop, license, manufacture and market complex generics, biosimilars and novel drugs. Momenta has been public since 2004 and entered into a contract to be acquired by Johnson & Johnson for $6.5 billion in August 2020.

Financials (September 2020)
Enterprise Value: $5.8 billion
Annual Revenue: $30 million

Kanghong Pharma

VALUE RANK: 152

Details
No.36 Shuxi Road, Jinniu District
Chengdu, Sichuan Province 610036
China
+86 28 8750 9966
www.cnkh.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:002773
Sector: Branded Pharma
Lead TA: ophthalmology

Headquartered in Chengdu, China, and founded in 1996, the Company dedicates its commercial activities to the research, development, manufacture and commercialization of proprietary Chinese medicines, chemical medicines and biological products. The lead focus area is ophthalmics but the portfolio also includes CNS and GI drugs. Kanghong has rapidly become the most important domestic Chinese player in ophthalmology drugs. Roughly one third of sales come from Conbercept, an anti-VEGF treatment for macular degeneration. This product was introduced in China in 2014 and is now in Phase 3 trials in the U.S. Focusing on innovation, Kanghong holds more than 300 issued patents and is building out an impressive pipeline in both small molecule drugs and biologics.

Financials (September 2020)
Enterprise Value: $5.8 billion
Annual Revenue: $443.3 million
**Acceleron**

**VALUE RANK: 153**

**Details**

128 Sidney Street  
Cambridge, Massachusetts 02139  
United States  
+1 617 649 9200  
www.acceleronpharma.com

**Notes**

We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** NasdaqGM:XLRN  
**Sector:** Biotechnology  
**Lead TA:** Rare Disease

Founded in 2003 under the name of Phoenix Pharma, Acceleron is currently headquartered in Cambridge, Massachusetts. The Company is dedicated to treating serious hematologic, neuromuscular, and pulmonary diseases. By focusing on the power of the TGF-beta protein superfamily, responsible for cellular growth and repair, Acceleron delivers treatments to patients who have limited treatment options. Key developments include the approval of luspatercept for beta thalassemia and MDS (co-marketed with BMS) and the generation of promising Phase 2 data from sotatercept for PAH. Through partnerships Acceleron optimizes the value of its therapeutics, ensuring an inclusive, respectful and team-based work environment, fueled by integrity, passion, courage, commitment and motivation to achieve core values.

**Financials (September 2020)**

Enterprise Value: $5.7 billion  
Annual Revenue: $87.6 million

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**Novavax**

**VALUE RANK: 154**

**Details**

20 Firstfield Road  
Gaithersburg, Maryland 20878  
United States  
+1 240 268 2000  
www.novavax.com

**Notes**

We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** NasdaqGS:NVAX  
**Sector:** Biotechnology  
**Lead TA:** Vaccines

Established in 1987, Novavax is headquartered in Gaithersburg, Maryland. Under the leadership of Stan Erck, Novavax is dedicated to developing novel products for the prevention of a broad range of infectious diseases. Novavax’s vaccine candidates are genetically-engineered, three-dimensional nanostructures that incorporate recombinant proteins critical to disease pathogenesis and its pipeline targets respiratory syncytial virus, seasonal influenza and Ebola virus, among other viral diseases. Novavax has a number of preclinical programs for indications including Zika virus, as well as a combination respiratory vaccine candidate. Novavax has recently delivered promising Phase 1 data for a vaccine candidate for COVID-19. The Company seeks to, ‘Produce vaccine candidates to efficiently and effectively respond to both known and emerging disease threats.’ Novavax went public in 1995.

**Financials (September 2020)**

Enterprise Value: $5.7 billion  
Annual Revenue: $50.2 million
Aspen Pharmacare

VALUE RANK: 155

Details
Aspen Place, 9 Rydall Vale Park, Douglas Saunders Drive, La Lucia Ridge Durban, KwaZulu-Natal 4019 South Africa +27 31 580 8600 www.aspenpharma.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: JSE:APN
Sector: Generics - Branded
Lead TA: Broad

Aspen is headquartered in Durban, South Africa, and can trace its roots back to 1850, when Berry Grey Lennon opened a chemist and druggist in Port Elizabeth. Lennon Ltd. was formed in 1898, which led to the creation of Aspen almost 100 years later. Aspen is the leading supplier of generic medicines to both the public and private sectors in South Africa. The Company manufactures and supplies specialty, branded and generic pharmaceuticals to domestic and international markets, focusing on anesthetics, antithrombotics, and oncology products. Aspen has an excellent business in specialty injectables, particularly in surgical care. Aspen has 60 business operations sites in 50 countries, which allows the Company to supply pharmaceuticals to more than 150 countries. Aspen sold its Japan business in 2020.

Financials (September 2020)
Enterprise Value: $5.7 billion
Annual Revenue: $2.2 billion

Italfarmaco

VALUE RANK: 156

Details
330 Via le Fulvio Testi Milan, Lombardy 20126 Italy +39 02 64431 www.italfarmaco.com

Notes
Italfarmaco disclosed €726mm in revenue in 2019. We multiplied this figure by the median revenue multiple for branded pharmas to impute value.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Cardiometabolic

Italfarmaco is a family-owned pharmaceutical company based in Milan, Italy. Found in 1938, the company has industrial plants in Italy and Brazil and manufactures its products in a number of different dosage forms. Italfarmaco has a presence across Europe, North and South America, and Africa, and sells its products through public and hospital channels. The Company manufactures products for diseases in cardiology, immuno-oncology, gynecology, dermatology, orthopedic, and neurology. Recent R&D efforts have built an impressive pipeline which includes givinostat, for Duchenne and Becker muscular dystrophies. Italfarmaco’s R&D team is particularly strong in the area of HDAC modulation. Dedicated to developing and producing high-quality, effective therapeutics to prolong and improve the quality of life, Italfarmaco also aims to contribute to the technological, economic and cultural advancement of the countries in which it operates.

Financials (September 2020)
Enterprise Value: $5.7 billion
Annual Revenue: $856.6 million
Zambon

VALUE RANK: **157**

Details
10 Via Lillo del Duca
Bresso, Milan 20091
Italy
+39 02 665241
www.zambongroup.com

Notes
Zambon disclosed revenues in 2018 of €723mm. We multiplied this by the median multiple for branded pharmas to impute a value estimate.

Exch: Ticker: Private Company
Sector: Branded Pharma
Lead TA: Respiratory

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Maruho

VALUE RANK: **158**

Details
1-5-22 Nakatsu
Osaka, 531-0071
Japan
+81 6 6371 8876
www.maruho.co.jp

Notes
Maruho disclosed $847mm in revenue for 2019. We multiplied this by the median multiple for branded pharma companies to impute value.

Exch: Ticker: Private Company
Sector: Branded Pharma
Lead TA: Dermatology

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Zambon was founded in 1906 by Gaetano Zambon and Silvio Faria in Vicenza, Italy. The privately-held branded pharmaceutical company is now headquartered in Bresso, Italy. Zambon has a strong international reputation in the therapeutic areas of respiratory, CNS, respiratory and rare disease. It also has a legacy portfolio in women’s health, GI and pain management. The Company believes that research is an opportunity that appears only to those who know how to grasp it. In 2018 group turnover was €723 million of which approximately 50% arose from the European markets. Zambon has a clear global presence, with employees in over 19 countries, across Europe, Asia, and America, distribution in over 80 countries on four continents, and production at four plants across three continents. Capably led by Elena Zambon, the Company aims to make patients’ lives better by improving cures and care.

Financials (September 2020)
Enterprise Value: $5.6 billion
Annual Revenue: $853.1 million

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In 1915, Eikuma Koba founded Maruho Shoten in Osaka, Japan. By 2002, Maruho committed to focus on dermatology, offering prescription drugs, medical devices, OTC products and heat treatment products. Maruho is a growth success story in a challenging market. Revenues in 1987 were less than $150mm. By 2007, revenues hit $450mm and today are $847 million. Maruho has the largest market share of dermatologics in Japan. Key in-licensed drugs include Cosentyx® (Novartis) for psoriasis; Nemolizumab, Differin® and Epiduo® (Galderma); Oxarol® (Chugai) and peficitinib / Protopic® (Astellas). Maruho increasingly has global reach, operating facilities in Japan, the US, the UK, and Germany. A key recent move was to transfer ownership of Cutanea (a US sub) to Biofrontera (a German dermatology company in which Maruho owns a 30% stake).

Financials (September 2020)
Enterprise Value: $5.6 billion
Annual Revenue: $847 million
ACADIA Pharma

**VALUE RANK: 159**

**Details**
3611 Valley Centre Drive, Suite 300
San Diego, California 92130
United States
+1 858 558 2871
www.acadia-pharm.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** NasdaqGS:ACAD
**Sector:** Branded Pharma
**Lead TA:** Neurology

ACADIA was originally named Receptor Technologies and founded in 1993 by Dr. Mark Brann. ACADIA Pharmaceuticals was renamed in 1997 and remains based in San Diego, California. The publicly traded branded pharmaceutical company is focused on improving the lives of patients with CNS disorders. Their primary product, Pimavanserin, treats the hallucinations and delusions associated with Parkinson's disease psychosis. ACADIA have also generated powerful data supporting the application of pimavanserin for dementia-related psychosis, schizophrenia and depression. Capably led by Steve Davis, rooted in science, driven by excellent CNS research, ACADIA transforms novel discoveries into important and impactful drugs and drug candidates. The formation of partnerships and research alliances is a critical aspect of the Company's strategy for growth. Key deals include a license of trofenitide for Rett’s Syndrome and the acquisition of CerSci Therapeutics. ACADIA Pharmaceuticals went public in 2014.

**Financials (September 2020)**
Enterprise Value: $5.5 billion
Annual Revenue: $393 million

Zai Lab

**VALUE RANK: 160**

**Details**
4560 Jinke Road, Jinchuang Plaza, Building 1, 4th Floor, Zhangjiang Hi-tech Park
Pudong, Shanghai 201210
China
+86 21 6163 2588
www.zailaboratory.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** Nasdaq:ZLAB
**Sector:** Branded Pharma
**Lead TA:** Oncology

Zai Lab was founded in 2014 and is headquartered in Shanghai, China. Zai Lab brings transformative medicines for cancer, infectious and autoimmune diseases to patients in China and around the world. To quickly target the fast-growing China market and address unmet medical needs, Zai Lab’s team has secured partnerships with leading global biopharma companies. Zai Lab has also built an in-house team with strong drug discovery and translational research capabilities, aiming to establish a global pipeline of proprietary drug candidates against targets in our focus areas. Zai has achieved China launches of Zejula® and Optune® for cancer and has a full pipeline that includes ripretinib, odronextamab, repotrectinib, margetuximab, tebotelimab, and retifanlimab for cancer. The Company’s vision is to use their ‘China-based competencies to impact human health worldwide.’ Zai Lab went public in 2017.

**Financials (September 2020)**
Enterprise Value: $5.5 billion
Annual Revenue: $28.7 million
Youcare Pharmaceutical Group is a Beijing-based private pharmaceutical company. Founded in 2001, Youcare is engaged in the research, development, manufacturing, distribution and sales of branded generic pharmaceutical products in China and other countries. Key therapeutic areas for Youcare include antibiotics, GI, diabetes, ophthalmics, hepatitis, antivirals, stroke, immunology and cancer. Youcare has over 6,000 employees. Youcare recently acquired 650,000 square feet of manufacturing capability in Corona, California and plans to introduce and manufacture products for the U.S. market. “HEHE” culture is the soul of Youcare. “HEHE” are the Chinese characters for cooperation and harmony.

Financials (September 2020)

- Enterprise Value: $5.4 billion
- Annual Revenue: $1.5 billion

Salubris Pharmaceuticals was established in 1998 and is based in Shenzhen, China. The Company develops, manufactures, and markets small molecule and biologic therapies, generic pharmaceutical products and medical devices in therapeutic areas including cardiology, cephalosporin antibiotics and bone resorption inhibitors. Led by CEO Kevin Ye, the company is growing rapidly. Salubris’ flagship product is allisartan for hypertension. This product was fully developed in China. Salubris supports human health by providing high-quality pharmaceutical products. Its subsidiary, GeneKey Biotech, has a robust portfolio of biosimilar and novel large molecule therapeutics in development in China. SalubrisBio is a US innovation subsidiary. Salubris values integrity, innovation, professionalism, rigorous quality control, and high efficiency. Salubris went public in 2009.

Financials (September 2020)

- Enterprise Value: $5.4 billion
- Annual Revenue: $516.7 million
**Nippon Shinyaku**

**VALUE RANK:** 163

**Details**
14 Nishinosho-Monguchi-cho, Kissshoin
Minami-ku, Kyoto 601-8550
Japan
+81 7 5321 1111
www.nippon-shinyaku.co.jp

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** TSE:4516  
**Sector:** Branded Pharma  
**Lead TA:** Hematology

Established in 1911 and headquartered in Kyoto, Japan, Nippon Shinyaku is grounded in Japanese tradition. Nippon Shinyaku is distinctive for its blended approach. Its diverse portfolio of products includes drugs for pain, inflammation, and allergies as well as functional foods. Key accomplishments have included achieving rapid growth despite a presence in the difficult Japanese market, inventing Uptrabi® (selexipag) for PAH (marketed by Actelion, now J&J) and receiving FDA approval for Viltepso® (viltolarsen), an exon skipper for Duchenne’s Muscular Dystrophy. In addition to selling high-quality products, Nippon Shinyaku strives to conduct patient-oriented business practices and extend social responsibility. Their model revolves around core principles of transparency with society and government, and employee growth and efficiency. The Company went public in 1949.

**Financials (September 2020)**
Enterprise Value: $5.2 billion  
Annual Revenue: $1 billion

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**Grupo Ferrer**

**VALUE RANK:** 164

**Details**
549 Avinguda Diagonal
Barcelona, Catalonia 08029
Spain
+34 93 600 37 00
www.ferrer.com

**Notes**
An Aug 2020 article indicated that Ferrer’s 2019 revenue was €670 million. We multiplied this by the median revenue multiple of branded pharmas to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Cardiometabolic

Grupo Ferrer is a privately-held pharmaceutical company headquartered in Barcelona, Spain, and founded in 1959 by athlete, economist, and entrepreneur Carlos Ferrer Salat. Since 2000, Ferrer’s subsidiaries and joint ventures have extended their reach internationally, and the Company markets its products in over 90 countries worldwide. The Company manufactures pharmaceuticals for cardiology, CNS, dermatology, and gastroenterology, as well as diagnostics services to healthcare professionals for the prevention, and diagnosis of serious diseases. Led by CEO Mario Rovirosa Escosura Ferrer also offers advanced vaccines and generics. Ferrer’s mission is to ‘advance the wellbeing of society.’

**Financials (September 2020)**
Enterprise Value: $5.2 billion  
Annual Revenue: $790.6 million
Yifan Pharma

VALUE RANK: **165**

**Details**
No.50 Qinshan Jincheng Street, Lin'an District
Hangzhou, Zhejiang Province 311300
China
+86 571 63759205
www.yifanyy.com

**Notes**
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker: SZSE:002019
**Sector:** Generics - Biosimilars
**Lead TA:** Broad

Yifan was founded in 1994 as is based in Hangzhou, China. This pharmaceutical company engages in the manufacture and sales of Chinese medicines and pharmaceuticals for both the domestic and the international markets. Yifan’s products cover a range of therapeutic areas including women’s health, pediatrics, dermatology, orthopedics, infusion solutions and nutrition. The Company also offers API’s including: feed additives, animal health products, fine chemicals, biodegradable resin, skin and haircare ingredients, functional food additives and PVB films. Yifan additionally has two R&D centers to support its growing focus on innovation, and specializes in the production of molecular biologics. The Company is the largest supplier and producer of vitamin B5 in the world, with nearly 40% of the global market share. Yifan is dedicated to ‘creating value for society, opportunities for employees and value for shareholders.’ Yifan Pharmaceutical was listed in 2004.

**Financials (September 2020)**
Enterprise Value: $5.1 billion
Annual Revenue: $775.6 million

CRISPR Therapeutics

VALUE RANK: **166**

**Details**
14 Baarerstrasse
Zug, CH-6300
Switzerland
+41 415613277
www.crisprtx.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker: NasdaqGM:CRSP
**Sector:** Biotechnology
**Lead TA:** Rare Disease

CRISPR Therapeutics, headquartered in Zug, Switzerland, was founded as Inception Genomics in 2013. CRISPR develops gene-based medicine using its proprietary gene-editing platform and has a rich pipeline of disease-modifying therapies. Its lead product candidate is CTX001, a Phase 1 drug candidate for the treatment of beta thalassemia and sickle cell disease. Data to date obtained with partner Vertex Pharma have been highly encouraging. CRISPR is also applying its gene editing approach to clinical stage CAR-T therapies focused on targets such as CD19 and BCMA. The company is working on in vivo approaches to diseases such as glycogen storage disease and myotonic dystrophy. CRISPR is focused on building a great company dedicated to 'science, innovation, collaboration and entrepreneurship.'

**Financials (September 2020)**
Enterprise Value: $5.1 billion
Annual Revenue: $289.1 million
PeptiDream

PeptiDream was founded in 2006 and is based in Kawasaki, Japan. The Company develops its products based on its Peptide Discovery Platform System (PDPS), a peptide generation and selection platform that shortens the time to drug discovery, effectively lowering drug prices. PeptiDream has a strategic alliance agreement for non-exclusive licensing of the PDPS technology to various global pharmaceutical companies. As of June 30, 2020 PeptiDream had 77 programs in development as either peptides or small molecules and another 37 peptide drug conjugates in development. Key partners include Amgen, Asahi Kasei, Bayer, J&J, Kyorin, Merck, Novartis, Roche, Sanofi, Santen and Shionogi. The Company strives to introduce revolutionary new drugs to the world, particularly in areas of high unmet clinical need, through its drug discovery platform, in order to improve the quality of life for patients worldwide. PeptiDream went public in 2013.

Financials (September 2020)
Enterprise Value: $5.1 billion
Annual Revenue: NA

Livzon

Livzon was founded in 1985 and is headquartered in Guangdong, China. The Company develops, manufactures and commercializes pharmaceutical products, predominantly for the domestic market, with a portfolio of around 280 products, covering therapeutic areas including gastrointestinal, cardio-cerebral-vascular, antibiotic and gonadotropic hormones. A key blockbuster product is Ilaprazole, a PPI for dyspepsia. Focusing on vaccines and antibody medication, the Company operates nine production plants across China. Livzon also operates three plantations for TCM and has 5,700 employees. Livzon has developed a marketing presence across Asia and has established collaborative relationships with more than 30 domestic and international research institutes. The Company went public in 2000 and is 43% owned by Joincare Pharma.

Financials (September 2020)
Enterprise Value: $5 billion
Annual Revenue: $1.3 billion
ALTEOGEN

VALUE RANK: 169

Details
62, Yuseong-daero 1628beon-gil Yuseong-gu Daejoon, 34054
South Korea
+82 4 2384 8780
www.alteogen.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: KOSDAQ:A196170
Sector: Generics - Biosimilars
Lead TA: Endocrinology

Founded in 2008, Alteogen Inc. is a Korea-based biopharmaceutical company that focuses on the development and commercialization of novel biologics such as Antibody-Drug Conjugates (ADCs), biobetters, and biosimilars. Alteogen’s portfolio includes clinical-stage long-acting therapeutic proteins and next-generation ADCs, developed by its proprietary NexP®-fusion and NexMab® platform technology, respectively. The company also markets a Hybrozyme™ Technology to Enable Subcutaneous Administration of Biologic Products (not dissimilar to Halozyme’s technology). It also develops Herceptin® SC and Eylea® biosimilars.

Financials (September 2020)
Enterprise Value: $5 billion
Annual Revenue: $36.1 million

Tasly Pharma

VALUE RANK: 170

Details
Tasly Modern TCM Building, No.2 Pu Jihe East Road, Beichen District
Tianjin, 300410
China
+86 22 2673 6999
www.tasly.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SHSE:600535
Sector: Generics - China
Lead TA: Broad

Tasly was founded in 1994 and is headquartered in Tianjin, China. Tasly’s mission is to ‘seek harmonization between human and nature, to improve humankind’s life quality.’ The Company consists of six core industries: bio-pharmaceutical, health products, herbs, medical, health management and children’s education. Tasly has been actively working towards realizing TCM globalization since its formation, and has successfully created a distribution network to over 40 countries. The Company leverages direct sales capabilities and agents as well as forming partnerships to achieve this and has subsidiaries in countries across Africa, Asia, Europe and America. Tasly has entered into collaborations with a number of scientific research institutes and universities including Harvard University in the US, Aston University in the UK, and Baker Medical Research Institute in Australia. Tasly went public in 2002.

Financials (September 2020)
Enterprise Value: $5 billion
Annual Revenue: $2.5 billion
Alkem

VALUE RANK: 171

Details
Devashish Building, Alkem House, Senapati Bapat Road, Lower Parel
Mumbai, Maharashtra 400 013
India
+91 22 3982 9999
www.alkemlabs.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: BSE:539523
Sector: Generics - INN
Lead TA: Broad

Headquartered in Mumbai, India, Alkem was founded in 1973 by brothers Samprada and Basudeo Singh. Alkem develops, manufactures and markets generic pharmaceutical and nutraceutical products globally. Alkem’s portfolio contains more than seven hundred products for therapeutic areas including anti-infectives, gastroenterology, CNS, cardiology, dermatology, diabetes, oncology and gynecology. The Company has a presence in over 50 markets, with India and the US being its primary focus. The company has exhibited excellent revenue and profit growth even in the face of the COVID-19 pandemic in 2020. Alkem has a team of more than 500 scientists focused on R&D, 21 manufacturing facilities and three of the top 50 pharma brands in India. They view expanding their horizons as key to delivering on their promise of ‘lifecare beyond boundaries.’ The Company has world-class manufacturing facilities which give them a competitive advantage in the formulations market. Alkem went public in 2015.

Financials (September 2020)
Enterprise Value: $4.8 billion
Annual Revenue: $1.1 billion

Kalbe

VALUE RANK: 172

Details
Gedung KALBE, 4 Jl. Let. Jend Suprapto Kav
Jakarta, Jawa Barat 10510
Indonesia
+62 21 4287 3888
www.kalbe.co.id

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: IDX:KLBF
Sector: Generics - Branded
Lead TA: Broad

Founded in 1966, Jakarta, Indonesia-based PT Kalbe started out in an Indonesian garage and is the result of a journey of passion. Currently consisting of four divisions: consumer health, prescription drugs, nutritionals, and, distribution and logistics, the Company is guided by the principles of innovation, strong branding and excellent management. Kalbe has grown into one of the largest healthcare providers in Indonesia. The Company has started to explore the global market, working with international partners to expand R&D into various areas of research, including oncology and stem cell medicine. Kalbe's mission is to improve health for a better life. The founders left behind a legacy of corporate values based upon trust, mindfulness, innovation, interconnectedness and the necessity to always strive to be the best. Kalbe has been publicly listed since 1991.

Financials (September 2020)
Enterprise Value: $4.8 billion
Annual Revenue: $1.5 billion
Dechra Pharma was incorporated in 1997 and is based in Northwich, UK. Originally established in 1819 as Arnolds & Son, Dechra Pharma began business as a manufacturer of prosthetic limbs, before turning to veterinary medicine during the Crimean war. The Company specializes in veterinary pharmaceuticals and related products for veterinarians worldwide. It offers various dermatology, ophthalmic, anesthesia, and analgesia, for horses; antimicrobial treatment products for swine and poultry; and specialist pet dietary products. The Company also manufactures products for third party customers and distributes them through a mixture of its own direct sales, wholesalers, and national distributor channels.

**Financials (September 2020)**

- Enterprise Value: $4.7 billion
- Annual Revenue: $637.7 million

Mallinckrodt was founded in 1867 in St. Louis, Missouri, however today it is headquartered in Surrey, England. The business was founded by the three Mallinckrodt brothers on a family plot of land, and initially produced drugs for local pharmacy businesses. The Company expanded over time and, in 1924, developed the first radiographic agent for gallbladder and bile duct imaging. Mallinckrodt now develops, manufactures and distributes specialist pharmaceuticals. Its portfolio includes APIs, branded, and generic pharmaceuticals for pain management and the treatment of related conditions, addiction treatment products, and radiopharmaceuticals and contrast media used in diagnostic imaging. The Company aims to ‘turn complexity into solutions for patients.’ Originally publicly listed in 1954, in 2013 the Company was spun off from its then-owner to become an independent public company.

**Financials (September 2020)**

- Enterprise Value: $4.5 billion
- Annual Revenue: $2.3 billion
Chi-Med

**VALUE RANK: 175**

**Details**
22nd Floor Hutchison House, 10 Harcourt Road, Central, Hong Kong
+852 2121 8200
www.chi-med.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** AIM: HCM
**Sector:** Biotechnology
**Lead TA:** Oncology

Hutchinson China MediTech (Chi-Med) was founded in 2000 and is based in Hong Kong. Chi-Med operates through two platforms: Innovation and Commercialization. The Innovation segment concentrates on pharma R&D in the therapeutic areas of oncology and autoimmune diseases for the global market. Chi-Med’s Commercialization Platform is engaged in the manufacture and distribution of drugs and consumer health products in China. Key innovation pipeline items include savolitinib, a cMET inhibitor for NSCLC (registration pending in China, partnered elsewhere with AstraZeneca); surufatinib (triple TKI for cancer, registration pending in China) and Fruquintinib (VEGFR1,2,3 inhibitor for cancer, approved in China, partnered in China with Lilly). The company is majority owned by CK Hutchison Holdings. Chi-Med went public in 2016, it is a triple-listed company (AIM, Nasdaq, Hong Kong).

**Financials (September 2020)**
Enterprise Value: $4.5 billion
Annual Revenue: $209.4 million

Laboratoires Théa

**VALUE RANK: 176**

**Details**
12 Street Louis-Blériot, Clemont-Ferrand, 63000 France
+33 4 73 98 14 36
https://www.laboratoires-thea.com/

**Notes**
The Théa Group reported 2019 revenue of €599 million. We multiplied this by the median revenue multiple of branded phamas to impute value.

**Exch:** Private Company
**Sector:** Branded Pharma
**Lead TA:** ophthalmology

Laboratoires Théa is a privately held ophthalmic pharmaceutical company headquartered in France. Founded in 1994, the company is a family business built on the heritage of over 150 years of the Chibret Family in ophthalmology. Currently, Théa unites more than 1,000 staff worldwide, with its products available in nearly 70 countries. Théa’s ambition is to meet the full needs of all ophthalmologists by covering the major therapeutic classes from allergy to glaucoma, across dry-eye, antibiotherapy, anti-inflammatories, etc. Théa’s strategy is based on research that is reflected in the innovative molecules, new delivery systems and new pharmaceutical product forms that it was first to market. Examples include the launch of ABAK®, the first ever preservative-free multi-dose eye drop system; one of the first dry eye gels; the first anti-herpetic gel specifically designed for the eye and the first 3-day ophthalmic antibiotic treatment. Théa’s appropriately chosen motto is “let’s open our eyes”.

**Financials (September 2020)**
Enterprise Value: $4.5 billion
Annual Revenue: $678.5 million
Iovance

Iovance Biotherapeutics was founded in 2007, as Lion Biotechnologies and is based in San Carlos, California. Iovance develops and commercializes products that use a patient’s own immune system to eliminate cancer cells. Specifically, Iovance use adoptive T-cell therapy, originally developed by Dr. Steven Rosenberg at the National Cancer Institute. The Company is fully dedicated to combatting solid tumors, with a mission to make TIL (tumor infiltrating lymphocytes) technology the therapeutic leader. Its lead product candidate, lifileucel, is an autologous, ready-to-infuse cell therapy, that has demonstrated distinctive efficacy in the treatment of metastatic melanoma. Iovance is preparing to file for FDA approval of lifileucel in PD1 failures in metastatic melanoma where they have demonstrated an ORR over 30%. They are now pursuing a number of additional indications in oncology. Iovance went public in 2010.

Financials (September 2020)
Enterprise Value: $4.5 billion
Annual Revenue: NA

Details
999 Skyway Road, Suite 150
San Carlos, California 94070
United States
+1 650 260 7120
www.iovance.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Exch:Ticker: NasdaqGM:IOVA
Sector: Biotechnology
Lead TA: Oncology

Samsung Bioepis

Established in 2012, Samsung Bioepis is a biopharmaceutical company committed to realizing healthcare that is accessible to everyone. Through innovations in product development and high quality, Samsung Bioepis aims to become the world’s leading biopharmaceutical company and is performing well. Samsung Bioepis is developing a broad pipeline of biosimilar candidates that cover areas including immunology, oncology, ophthalmology and hematology. The company currently has four biosimilars approved and marketed across Europe, which include the anti-TNF trio of BENEPALI™ (etanercept), FLIXABI™ (infliximab) and IMRALDI™ (adalimumab), as well as an oncologic biosimilar, ONTRUZANT® (trastuzumab). In the United States, the company has one biosimilar – RENFLEXIS® (infliximab-abda) – approved and marketed. Samsung Bioepis is a joint venture between Samsung BioLogics and Biogen.

Financials (September 2020)
Enterprise Value: $4.4 billion
Annual Revenue: $850 million

Details
300, Songdo bio-daero
Incheon, 21987
South Korea
+82-32-455-6114
samsungbioepis.com

Notes
We valued Bioepis using the company’s last publicly disclosed valuation (2018). Were this business floated it would likely fetch a much higher valuation given its very strong progress since 2018.
Exch:Ticker: Private Company
Sector: Generics - Biosimilars
Lead TA: Immunology
Wolwo Pharma

VALUE RANK: 179

Details
No. 636 Zhiyuan Road, Wukang
Deqing, Zhejiang Province 313200
China
+86 57 2883 1088
www.wolwobiotech.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: SZSE:300357
Sector: Branded Pharma
Lead TA: Allergy

Wolwo was founded in 2002 and is based in Deqing, China, conducting research and development, manufacture, and sales of Chinese medicines and biopharmaceutical products. The Company’s portfolio includes a variety of products that address allergic conditions, and Wolwo specializes in the diagnosis and treatment of allergic diseases. The Company has independently developed products with access to national high-tech industrialization projects, provincial key high-tech product plans and other projects. Wolwo’s desensitization drug product development helps patients with allergies by offering a safe and effective method of sublingual desensitization while also filling the gap of desensitization drug and allergen skin-prick diagnostic reagents within the domestic market. With an extensive sales and distribution network within China, the Company seeks to extend its sales internationally. The Company went public on the Stock Exchange in 2014.

Financials (September 2020)
Enterprise Value: $4.4 billion
Annual Revenue: $88.3 million

Dongbao Pharma

VALUE RANK: 180

Details
Dongbao New Village
Tonghua, Jilin Province 134123
China
+86 43 5508 8025
www.thdb.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: SHSE:600867
Sector: Generics - Biosimilars
Lead TA: Endocrinology

Dongbao Pharma is headquartered in Tonghua City, China, and was founded in 1985. The Company has over 20 subsidiaries and specializes as a manufacturer of recombinant biopharmaceuticals. In 1998, the Company developed a recombinant human insulin, making China the third country in the world capable of producing recombinant human insulin. The product entered the commercial market in 2003 and Dongbao Pharma complimented the product with a support system of co-sponsored education projects to increase the awareness and understanding of diabetes throughout rural China. The Company currently develops and markets a portfolio that includes diabetic medications as its main focus, but also immune regulators, prescription medications and herbal therapies.

Financials (September 2020)
Enterprise Value: $4.4 billion
Annual Revenue: $398.8 million
Buchang Pharmaceuticals was founded in 1993 by Mr Zhao Buchang and Mr. Zhao Tao, his eldest son. The company is headquartered in Heze, China and is involved in the development, manufacture and commercialization of traditional Chinese medicines. Buchang has a broad product range encompassing diabetes, respiratory, women’s health and urology, with a specific focus on cardiovascular disease. Buchang’s lead product is based upon research that started in the 1960s, is grounded in the theory of ‘Brain-heart communication,’ and is related to the traditional Chinese treatment of cardio-cerebrovascular disease. Buchang has a strong presence throughout China, with over 5,000 in-house sales representatives and more than 6,600 external distributors. Buchang went public in 2016.

**Financials (September 2020)**
- Enterprise Value: $4.4 billion
- Annual Revenue: $2.1 billion

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Privately-held Mega Pharma is headquartered in Caneloes, Uruguay, on the Mega Pharma Campus. The campus is also home to its manufacturing facility, Mega Labs as well as R&D and logistics facilities. The Company develops, manufactures and distributes predominantly generic pharmaceutical products for therapeutic areas including anti-infectives, cardio-metabolism, dermatology, gastroenterology, gynecology, hematology, oncology, ophthalmology and urology. Mega Pharma has collaborative partnerships with various that have allowed the Company to market its portfolio in 20 Latin American countries. The Company seeks to provide ‘innovative therapeutic solutions for human healthcare’ built upon the four pillar values of adaptability, innovation, commitment and people.

**Financials (September 2020)**
- Enterprise Value: $4.3 billion
- Annual Revenue: $1.2 billion
Chengdu Kanghua Biological Products Co Ltd is a China-based company principally involved in the research and development, manufacturing and sales of vaccine products. The Company’s main products are Rabies Vaccine (human diploid cell) for Human Use, Freeze-dried and Group ACYW135 Meningococcal Polysaccharide Vaccine. Its pipeline includes a seasonal influenza vaccine without preservatives has completed phase III clinical trials, and a human H5N1 Influenza Vaccine. The Company distributes its products in domestic market and to overseas markets. Based in the Chengdu Economic and Technological Development Zone, Kanghua’s facilities encompass more than 320,000 square feet of research and manufacturing space.

**Financials (September 2020)**

Enterprise Value: $4.3 billion  
Annual Revenue: $104.5 million

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Yiling Pharmaceutical was founded in 1992 and is headquartered in Shijiazhuang, China. The Company’s portfolio includes traditional Chinese medicine, pharmacology, pharmacokinetics, pathology, and biochemistry. The Company holds national patents for a number of new drugs for indications including cardiology and cerebral blood disease, influenza and respiratory disease, oncology and diabetes. Yiling has formed a number of strategic research partnerships with national and international institutions. The Company went public in 2011.

**Financials (September 2020)**

Enterprise Value: $4.3 billion  
Annual Revenue: $1 billion
**NCPC**

**VALUE RANK: 185**

**Details**
No.388 Heping East Road, Chang'an District
Shijiazhuang, Hebei Province 050015
China
+86 311 8599 3999
www.ncpc.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker: SHSE:600812  
**Sector:** Generics - China  
**Lead TA:** Broad

The **history** of the North China Pharmaceutical Group dates back to 1953, the Company is headquartered in Shijiazhuang, China. North China Pharma owns more than 40 subsidiary companies, covering R&D, manufacturing and sales of generic pharmaceutic products. They manufacture more than 700 high quality products, including penicillin, cephalosporin, and other antibiotics, biotechnology drugs, new preparations, and bioavailable veterinary drugs, as well as vitamins and nutraceutical supplements. The Company’s mission is to strive for improved human health and quality of production. North China Pharma’s world-class production facilities are internationally-certified, and the Company has successfully developed and launched a number of key therapeutics, earning North China Pharma a number of prestigious national awards. The Company went publicly listed in 1994.

**Financials (September 2020)**
Enterprise Value: $4.3 billion  
Annual Revenue: $1.5 billion

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**Abdi Ibrahim**

**VALUE RANK: 186**

**Details**
Reşitpaşa Mahalles, No.4 Eski Büyükdere Caddesi
Maslak-Sariyer, Istanbul 34467
Turkey
+90 212 366 84 00
www.abdiibrahim.com.tr

**Notes**
Abdi Ibrahim disclosed in revenue in 2019 of $639mm in a 2020 brochure. We multiplied this by the median branded revenue multiple to impute value.

**Exch:**Ticker: Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Broad

Abdi Ibrahim was founded in 1912 and is based in Istanbul, Turkey. The Company offers one of the most extensive range of therapeutics in the industry, covering microbiology, endocrinology, dermatology, neurology and many more specialties, as well as nutritional products. With over 350 products and 180 brands, Abdi Ibrahim serves markets across much of the world, including Asia, the Middle East, Africa and Europe, with a presence in over 50 countries worldwide. Abdi Ibrahim has developed a number of partnerships with leading international pharmaceutical companies in order to extend its reach and portfolio. The Company takes its responsibility towards the health of its users very seriously and aims to, ‘heal the future and the lives we touch.’ Abdi Ibrahim has won several international business social responsibility and communications awards.

**Financials (September 2020)**
Enterprise Value: $4.2 billion  
Annual Revenue: $639 million
Jinyu Bio-Tech

VALUE RANK: 187

Established in 1993 and based in Inner Mongolia, China, Jinyu Bio-Tech is the only national engineering laboratory for veterinary vaccine production. The Company plans, develops and constructs disease suspension culture of hand, foot and mouth disease and brucellosis vaccine production. Focused on their mission of devotion to health and a better life, Jinyu continues to enhance its core competitiveness through constant management, technology and product innovation. The Company aims to, 'protect animal safety, [to] ensure human health.' Jinyu went public in 1999.

Financials (September 2020)
Enterprise Value: $4.2 billion
Annual Revenue: $175.5 million

Details
No.58 Ordos West Street
Hohhot, Inner Mongolia Province 10030
China
+86 471 1653 9434
www.jinyu.com.cn

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SHSE:600201
Sector: Animal Health
Lead TA: Animal Health

CHEPLAPHARM

VALUE RANK: 188

CHEPLAPHARM is a family-owned pharmaceutical company, headquartered in Germany. CHEPLAPHARM offer branded products on a global level with more than 400 marketing authorizations in more than one hundred countries worldwide. By focusing on an internationally oriented buy-and-build-strategy, CHEPLAPHARM generates annually increasing growth rates. During the past 25 years the owner family has completed more than 80 acquisitions with well-known pharma companies in more than 120 countries worldwide. Most recently, CHEPLAPHARM reports that it acquired eight brands covering four APIs in October 2019. A second portfolio of 17 brands covering eleven molecules was bought May 2020. In August, Cheplapharm bought another four brands from LEO for €300mm. Since its foundation, CHEPLAPHARM managed to annually achieve a double-digit sales growth.

Financials (September 2020)
Enterprise Value: $4.2 billion
Annual Revenue: $1.1 billion

Details
Ziegelhof 24
Griefswald, Mecklenburg-Western Pomerania 17489
Germany
+49 3834-3914-0
www.cheplapharm.com

Notes
CHEPLAPHARM’S reports revenue of €650mm in FY2020. We added $390mm to account for the revenue from the 2020 Takeda and LEO deals. We multiplied revenue by the median market multiple for generic companies to impute value.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad
Ultragenyx

**VALUE RANK:** 189

**Details**
60 Leveroni Court
Novato, California 94949
United States
+1 415 483 8800
www.ultragenyx.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** NasdaqGS: RARE  
**Sector:** Branded Pharma  
**Lead TA:** Rare Disease

Based in Novato, California, Ultragenyx has been focused on bringing to market novel products for the treatment of rare and ultra-rare diseases since its foundation in 2010. Concentrating on serious, debilitating genetic diseases, the Company has a diverse portfolio of biological product candidates. The Company’s management team boasts considerable expertise in rare disease product development and commercialization, allowing Ultragenyx to optimize its timescales for bringing new products to market. Key products include Crysvita® for X-Linked Hypophosphatemia and Mepsevi® for MPS7. Ultragenyx has made significant investments in gene therapy technology and manufacturing. The Company actively seeks collaborative and licensing opportunities to develop and build on its portfolio. The Company went public in 2014.

**Financials (September 2020)**
Enterprise Value: $4.2 billion  
Annual Revenue: $159.4 million

Allogene

**VALUE RANK:** 190

**Details**
210 East Grand Avenue
San Francisco, CA 94080
United States
+1-650-457-2700
www.allogene.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** ALLO  
**Sector:** Biotechnology  
**Lead TA:** Oncology

Allogene Therapeutics, with headquarters in South San Francisco, is a clinical-stage biotechnology company pioneering the development of allogeneic chimeric antigen receptor T cell therapies for cancer. Led by a management team with significant experience in cell therapy, Allogene is developing a pipeline of “off-the-shelf” CAR T cell therapy candidates with the goal of delivering readily available cell therapy on-demand, more reliably, and at greater scale to more patients. Recent data from ALLO-501’s ALPHA trial support the Company’s approach to AlloCAR T therapy. Allogene intends to leverage ALLO-501 to optimize trial design and dose selection as it prepares for a potentially pivotal Phase 2 trial of ALLO-501A in 2021. Allogene also continues to progress its robust anti-BCMA strategy centered around ALLO-715 for the treatment of multiple myeloma.

**Financials (September 2020)**
Enterprise Value: $4.1 billion  
Annual Revenue: NA
Meiji Pharma Business

VALUE RANK: 191

Details
4-26 Kyobashi 2-chome, Chuo-ku
Tokyo, 104-8002
Japan
+81 3 3273 4001
www.meiji-seika-pharma.co.jp

Notes
We valued Meiji’s pharma business as a standalone segment. Revenue was obtained from Meiji’s annual report in 2019 (204bn JPY) and was multiplied by the median Japan pharma multiple to impute a value estimate.

Exch:Ticker: TSE: 2269
Sector: Branded Pharma
Lead TA: Anti-Infectives

Orifarm

VALUE RANK: 192

Details
Energivej 15
Odense, 5260
Denmark
+45 63 95 27 00
www.orifarm.com

Notes
Orifarm disclosed €1bn in revenue in 2020. We multiplied this by the median multiple for generic pharma companies to impute a value estimate.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

Headquartered in Tokyo, Japan, Meiji Seika Pharma was founded in 1916 and is the pharmaceutical division of Meiji Holdings which also produces dairy and nutritional products. Led by President Daikichiro Kobayashi, Meiji Seika has become a Japanese leader in infectious disease (18% market share). In CNS, Meiji markets Reflex® and Depromel® for depression and OCD. Meiji also markets vaccines and allergy drugs. Meiji Pharma is actively exploring new fields for development such as generic anticancer drugs and biosimilars with partner organizations. Meiji Seika Pharma will also look to increase overseas sales by focusing on emerging markets (recently acquire Medreich in India to grow its presence in generics). Meiji Holdings went public in 2009.

Financials (September 2020)
Enterprise Value: $4.1 billion
Annual Revenue: $1.9 billion

Orifarm Group is the largest parallel importer of pharmaceuticals in Europe and the largest supplier of pharmaceuticals in Denmark. The Group comprises a number of companies engaged in the import, production, re-packaging, distribution, registration, and sales of pharmaceuticals. The Group is engaged in parallel importing of pharmaceuticals in Europe. The company’s revenues are roughly 50% parallel import-based and 50 own product based. During 2019, Orifarm Group acquired the London-based company Pilatus, which added new business areas like comparator sourcing and unlicensed medicines. Then, in April 2020, Orifarm purchased a portfolio of over-the-counter (OTC) and prescription pharmaceutical products sold in Europe from Takeda a price of up to €615 million. Through this deal Orifarm acquired the rights for approximately 110 pharmaceuticals as well as 2 production sites.

Financials (September 2020)
Enterprise Value: $4 billion
Annual Revenue: $1.1 billion
Pharmstandard

**VALUE RANK: 193**

**Details**
58 Likhachevsky Drive
Dolgoprudny, Moscow 141701
Russia
+7 495 970 0030
www.pharmstd.com

**Notes**
EMIS reports 2019 revenue of $1.18bn for Pharmstandard. We multiplied this by the generic sector median revenue multiple to imply value.

**Exch:Ticker:** Private Company
**Sector:** Generics - Branded
**Lead TA:** Broad

Pharmstandard was established in 2003 and is headquartered in Moscow, Russia. This business was formed in 2003 when five Russian factories were purchased from ICN Pharma by Viktor Kharitonin and Roman Abramovich. The Company engages in the development, manufacture and sale of drugs in therapeutic areas that include cancer, cardiovascular, infectious disease, diabetes, GI, metabolic disorders and neurology. Pharmstandard is committed to the development and manufacture of advanced, high-quality, affordable medicines that meet healthcare requirements and patients’ expectations. It operates in the highly competitive tender markets in Russia. Pharmastandard’s portfolio contains in excess of 330 products, with over 140 being listed as essential preparations. The Group has five state-of-the-art manufacturing facilities across the Russian Federation with capacity of 1.7bn packs a year. The company also invests through its own venture arm. In 2017, the Group was privatized by Mr. Kharitonin via Augment Investments.

**Financials (September 2020)**
Enterprise Value: $4 billion
Annual Revenue: $1.1 billion

Grupo Bagó

**VALUE RANK: 194**

**Details**
248 Bernardo de Irigoyen
Buenos Aires, Capital Federal C1072AAF
Argentina
+54 11 4344 2000
www.bago.com

**Notes**
Bago disclosed $1.1bn in revenue. We multiplied this by the median multiple for generic pharma companies to impute a value estimate.

**Exch:Ticker:** Private Company
**Sector:** Generics - Branded
**Lead TA:** Broad

Laboratorios Bago was founded in 1934 and is based in Buenos Aires, Argentina. In 1940, the Company established the first sterile research facility in Argentina and in 1945, Bago became the first Argentine Company to manufacture penicillin-based products. The Company’s track record rests on three pillars: innovation, excellence, and quality. Bago manufactures over 480 products out of plants across Asia, Central America, and South America and exports to over 50 countries worldwide. The Company actively seeks strategic partnerships and licensing agreements to support its portfolio and international marketing reach. The Company prides itself on its commitment to, ‘ethics devoted to healthcare.’

**Financials (September 2020)**
Enterprise Value: $4 billion
Annual Revenue: $1.1 billion
Apeloa Pharma

**VALUE RANK: 195**

**Details**
Zhenjiang Road 399 Hengdian Dongyang, 322118 China +86 579 8655 7494 www.apeloa.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker: SZSE:000739
**Sector:** Generics - China
**Lead TA:** Cardiometabolic

Apeloa Pharmaceutical Co. Ltd. is a publicly-traded Chinese generic pharmaceutical company. Apeloa is a member of Hengdian Group, a large Chinese conglomerate. Apeloa Pharma has three subsidiaries: (1) Zhejiang Apeloa Tospo-Jiayuan Pharmaceutical Co., Ltd., (2) Zhejiang Apeloa Kangyu Pharmaceutical Co., Ltd. and (3) Zhejiang Hengdian Apeloa Import & Export Co., Ltd. Apeloa Pharmaceutical has been engaging in R&D, manufacturing and sales of pharmaceuticals and chemicals for more than twenty years. The products manufactured include API, intermediates and finished dosage generics. There are seven manufacturing sites for both intermediates and APIs and three formulation sites. Among them, many have passed the audit of USFDA, CFDA, PMDA and EMA. Apeloa has built a long-term and close collaboration with many leading multinational pharmaceutical companies.

**Financials (September 2020)**
Enterprise Value: $4 billion
Annual Revenue: $1 billion

Polpharma

**VALUE RANK: 196**

**Details**
19 Pelplinska Starogard, Gdańsk 83-200 Poland +48 58 563 16 00 www.polpharma.pl

**Notes**
Polpharma disclosed €929mm in revenue in 2019. We multiplied this by the median multiple for generic pharma companies to impute a value estimate. We may be low given the size of their biosimilar business.

**Exch:**Ticker: Private Company
**Sector:** Generics - Branded
**Lead TA:** Broad

Established in 1935, Polpharma is a Polish-based pharmaceutical company manufacturing prescription drugs for in-care patients. Polpharma offers a portfolio of 600 products ranging from OTC medications, dietary supplements, and medical devices to cosmetic products and phyto-pharmaceuticals, with an extensive pipeline in development. In addition, the Company’s R&D focuses on biosimilars, in order to lower the cost of treatments for cancer and immune-related diseases. The Company has manufacturing plants located in Europe and Asia and is among the largest producers of active pharmaceutical ingredients in Poland. Polpharma’s motto is, ‘People helping people,’ an attitude that drives their commitment towards delivering high-quality, affordable products to the global market. The Company has won various media-sponsored awards, including one for integrating core values with business principles.

**Financials (September 2020)**
Enterprise Value: $3.9 billion
Annual Revenue: $1 billion
Idorsia was incorporated in 2017, after a demerger from Actelion, and is based in Allschwil, Switzerland. The Company was created in order to bring innovative medicines to patients with a diversified pipeline of products in the therapeutic areas of CNS, cardiovascular, immunological disorders and orphan diseases. Idorsia is guided by a five year plan of bringing three products to market, building a commercial organization with sustainable profit, creating a pipeline with strong sales potential and utilizing state-of-the-art technologies. Key pipeline items include Daridorexant, a dual orexin receptor antagonist (registration for insomnia pending), Aprocitentan, a dual endothelin receptor antagonist (Phase 3 for resistant hypertension with J&J), Clazosentan (Phase 3 endothelin receptor antagonist for vasospasm for subarachnoid hemorrhage) and Lucerastat (Phase 3 Glucosylceramide synthase inhibitor for Fabry disease). Idorsia was listed in 2017.

Financials (September 2020)
Enterprise Value: $3.9 billion
Annual Revenue: $72.7 million

Oneness Biotech, a listed biotech company in Taiwan, is dedicated to fulfilling the unmet needs in diabetes-related and immune diseases. Key pipeline drug candidates include FB825 and ON101. FB825 is a humanized monoclonal antibody that binds to the CεmX domain of membrane form IgE, leading to depletion of IgE+ B lymphocytes by inducing apoptosis and antibody-dependent cellular cytotoxicity (ADCC). This drug is being tested in atopic dermatitis and rights in certain territories were recently licensed to LEO Pharma. ON101 is for treatment of diabetic foot ulcers and is in a global Phase 3 trial. Thus far, ON101 has achieved over 60% complete healing rate within 16 weeks (p=0.0065). Oneness Biotech was founded in 2008 and went public in 2009.

Financials (September 2020)
Enterprise Value: $3.9 billion
Annual Revenue: $1.4 million
Hisun Pharma

**VALUE RANK: 199**

**Details**
No. 46, Waisha Road
Taizhou, Zhejiang Province 318000
China
+86 576 8882 7809
www.hisunpharm.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SHSE:600267
Sector: Generics - China
Lead TA: Broad

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Hisun Pharma was founded in 1956 and is headquartered in Tai Zhou, China. The Company offers a range of APIs and finished-dosage generics that cover the areas of oncology, cardiology, anti-infectives and orthopedics. In 2012, a partnership with Pfizer was announced regarding the launch of HISUN-Pfizer – an enterprise formed to develop, manufacture and commercialize branded generic pharmaceutical products in China and global markets. With the corporate belief that ‘innovation launches the best treatment for healthcare,’ the Company’s R&D covers a range of areas including oncology, cardiovascular, anti-infectives, anti-parasitics and immunosuppressants. The Hisun Research Institute has over 1200 people and is active in innovative drug development. A recent article in Lancet highlighted the excellent activity of Hisun’s favipravir against the COVID-19 virus. Hisun went public in 2000.

**Financials (September 2020)**
Enterprise Value: $3.8 billion
Annual Revenue: $1.5 billion

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Halozyme

**VALUE RANK: 200**

**Details**
11388 Sorrento Valley Road
San Diego, California 92121
United States
+1 858 794 8889
www.halozyme.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:HALO
Sector: Royalty Company
Lead TA: Oncology

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Halozyme is headquartered in San Diego, California and was founded in 1998. The Company focuses on researching, developing and commercializing human enzymes. As the innovators of the ENHANZE® technology, which can reduce hours-long biologic treatments to a matter of minutes, Halozyme’s ENHANZE® technology has been used in five commercialized products across the world via the proprietary enzyme rHuPH20 which greatly improves the delivery of injected drugs and fluids. Halozyme has licensed its ENHANZE® technology to a number of partners including Roche, Baxalta, Pfizer, Janssen, AbbVie, Lilly, Bristol-Myers Squibb, Alexion and argenx. Halozyme derives revenues from these collaborations in the form of milestones and royalties. Halozyme’s royalty revenues for 2020 will exceed $200mm and are likely to grow over time while the company’s partners positively impact health around the globe.

**Financials (September 2020)**
Enterprise Value: $3.8 billion
Annual Revenue: $180.4 million
IBSA Institut Biochimique SA is a privately owned pharmaceutical company founded in Lugano in 1945. The Company manufactures and commercializes its products to more than 80 countries, across ten core therapeutic areas. IBSA researches innovative technologies as a central part of its strategy. IBSA is the world’s fourth largest pharma in the fertility sector and a world leader in products based on hyaluronic acid. Key therapeutic areas include cardiovascular, dermatology, dermoaesthetics, endocrinology, human reproduction, respiratory, rheumatology, pain, urology, and consumer health. While many of IBSA’s products are licensed out it has recently opened its own commercial subsidiary in the United States which is successfully marketing TIROSINT® for hypothyroidism. The Company seeks to improve patients’ quality of life through effective, quality products.

Financials (September 2020)
Enterprise Value: $3.8 billion
Annual Revenue: $572 million

Celltrion Pharm Inc., a pharmaceutical company, produces and sells biosimilars and over-the-counter drugs in Korea. It offers hepatotonic, anti-inflammatory, antihistamine, respiratory apparatus, circulatory system, digestive and stomachic, hormone/metabolic disease, antibiotic/antimycotic, immunology, oncology, and other drugs. The company also exports its products to South-East Asian countries, such as China, the Philippines, Vietnam, and Kazakhstan. It serves approximately 3,800 customers, including university hospitals and general pharmacies. Celltrion Pharm is 55% owned by Celltrion and is technically a subsidiary of that company. Celltrion Pharm Inc. was founded in 1976 and is headquartered in Cheongju, South Korea.

Financials (September 2020)
Enterprise Value: $3.7 billion
Annual Revenue: $152.6 million
**neuraxpharm**

**VALUE RANK: 203**

**Details**
Elisabeth-Selbert-Strasse 23
Langenfeld, Rheinland 40764
Germany
+49 2173 10600
www.neuraxpharm.de

**Notes**
Neuraxpharm reported revenue of €480mm on its website in 2020. We multiplied this by the median revenue multiple for branded pharma companies to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** CNS

Founded in 1985, neuraxpharm, part of the NuPharm Group, is headquartered in Langenfield, Germany, where it also undertakes its logistic operations. The Company specializes in the sale and manufacture of medicines for the treatment of CNS disorders (both brands and generics). Neuraxpharm invests heavily in pharmaceutical-technology development in order to improve or upgrade pre-existing therapeutics. The Company offers over 450 products, including new patient-friendly formulations developed specifically through consultation with medical specialists. Partnerships with medical specialists, pharmacists and other professional groups are integral to the business practices of the Company. Neuraxpharm’s mission is to provide ‘high-quality, well-tolerated, easy-to-dose, affordable medicines.’

**Financials (September 2020)**
Enterprise Value: $3.7 billion  
Annual Revenue: $566.4 million

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**Hypera**

**VALUE RANK: 204**

**Details**
Avenida Magalhaes de Castro 4800, 24  
Andar Edifício Continental Tower, Bairro Cidade Jardim  
São Paulo, São Paulo 05676-120  
Brazil  
+55 800 772 0891  
www.hyperapharma.com.br

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** BOVESPA:HYPE3  
**Sector:** Generics - Branded  
**Lead TA:** Broad

Headquartered in São Paulo, Brazil, Hypera Pharma was founded in 2001, under the name Hypermarcas, when it initially offered home care services. It has since grown to become one of the largest pharmaceutical companies in Brazil. Focusing on three business units: branded prescription drugs, consumer health and branded generics, the Company’s strengths lie in its large-scale, low-cost operations, boasting one of the largest drug manufacturing plants in the world. Hypera supports its manufacturing capabilities with strong marketing investments, policies to support innovation, and continuous new product launches. The Company’s vision is to be the most complete company for health and wellbeing brands in the emerging world. Hypera has been listed on the stock exchange since 2008.

**Financials (September 2020)**
Enterprise Value: $3.7 billion  
Annual Revenue: $694 million
Ipca Labs was founded in 1949 and is headquartered in Mumbai, India. The Company produces branded and generic formulations as well as APIs and intermediates. With a portfolio that includes over 350 formulations and 80 APIs for various therapeutic segments, the Company commercializes its products both domestically and to markets in Africa, Asia, Australia, Europe and the US. Ipca has established international partnerships with leading pharmaceutical companies. The Company’s key products in its domestic market include anti-malarials and treatments for rheumatoid arthritis. Ipca’s tagline ‘A dose for life’, embraces their work philosophy of ‘touching all aspects of human life and helping it bounce back to health.’ They liken this imagery to the nature of the butterfly, ‘flitting from flower to flower,’ which ties into their corporate logo and the representation ‘of life at its energetic best’. Ipca went public in 2000.

**Financials (September 2020)**

Enterprise Value: $3.7 billion
Annual Revenue: $617.5 million

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Esteve was founded in 1929 by Dr. Antoni Esteve Subirana and is based in Barcelona, Spain. Today, Esteve has gained international recognition in the pharmaceutical sector with its research-centered approach, by holding strong to their family values, thus instilling trust and confidence in the business. Esteve is dedicated to building solid, valuable and long-term business relationships. The Company covers the whole drug supply chain through R&D, manufacturing, and marketing. Esteve has gone through a significant portfolio realignment starting in 2018, shedding its generic business (Pensa) to Towa of Japan for €320mm in Jan 2020 and then acquiring Riemser in February 2020 which brings in a branded business in Europe. This is all part of Esteve’s effort to become a specialty brand pharma company focused on innovation.

**Financials (September 2020)**

Enterprise Value: $3.7 billion
Annual Revenue: $556.9 million
Biohaven

**VALUE RANK: 207**

**Details**
- 215 Church Street
- New Haven, Connecticut 06510
- United States
- +203-404-0410
- www.biohavenpharma.com

**Notes**
- We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker:** BHVN
**Sector:** Branded Pharma
**Lead TA:** Neurology

Biohaven is a Connecticut-based commercial-stage biopharmaceutical company with a portfolio of innovative, best-in-class therapies to improve the lives of patients with debilitating neurological and neuropsychiatric diseases, including rare disorders. Biohaven’s neuroinnovation portfolio includes FDA-approved NURTEC™ ODT (rimegepant) for the acute treatment of migraine and a broad pipeline of late-stage product candidates across three distinct mechanistic platforms: CGRP receptor antagonism for the acute and preventive treatment of migraine; glutamate modulation for obsessive-compulsive disorder, Alzheimer’s disease, and spinocerebellar ataxia; and MPO inhibition for multiple system atrophy and amyotrophic lateral sclerosis. Biohaven went public in 2017.

**Financials (September 2020)**
- Enterprise Value: $3.7 billion
- Annual Revenue: $10.8 million

Haisco

**VALUE RANK: 208**

**Details**
- Taiwan Strait Technology Industry Development Park, No. 136 Baili Road, Wenjiang District, Chengdu, Sichuan Province 8560000 China
- +86 89 3783 4865
- www.haisco.com

**Notes**
- We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker:** SZSE:002653
**Sector:** Generics - China
**Lead TA:** Broad

Headquartered in Chengdu, China, Haisco’s predecessor was established in 2000 to focus on the development of new drugs. The Company remains focused on new drug development, production, and sales today and is an important Chinese generic drug marketer in a number of therapeutic market areas, including oncology, parenteral nutrition, infectious disease, anesthesiology, neurology, endocrinology, and oncology. Haisco’s flagship products are injectable generics that have been included in the National Health Insurance Catalog. Haisco has 12 production lines for the production of small-volume parenterals (including prefilled syringes), freeze-dried powder injections (including hormones), powder injections (cephalosporins), large-volume injections (including co-extruded infusion bags) and APIs. Dedicated to helping patients strive for better health and a better life, the Company went publicly listed in 2012.

**Financials (September 2020)**
- Enterprise Value: $3.7 billion
- Annual Revenue: $498.2 million
Gedeon Richter

Since its 1901 founding in Budapest, Hungary, Gedeon Richter has built worldwide reknown for being a global innovator in medicine development. Starting in 2008, Gedeon Richter expanded its focus on CNS and cardiovascular products to also encompass women’s healthcare and biosimilars. Following the acquisition of Preglem, its gynecological products now include contraceptives, emergency contraceptives, contraceptive devices, hormone replacements, fungicides, and preparations used for the treatment of uterine fibroids, as well as products for menopausal care. Gedeon Richter also offers products for pregnancy care and obstetrics, gynecological infections, and other gynecological conditions. The Company reaches 38 countries through its manufacturing facilities, subsidiaries and sales outlets. Gedeon Richter went public in 1994.

Financials (September 2020)

Enterprise Value: $3.6 billion
Annual Revenue: $1.7 billion

Relay Therapeutics

Relay Therapeutics is a clinical-stage precision medicines company transforming the drug discovery process with the goal of bringing life-changing therapies to patients. Built on unparalleled insights into protein motion and how this dynamic behavior relates to protein function, Relay Therapeutics aims to effectively drug protein targets that have previously been intractable, with an initial focus on enhancing small molecule therapeutic discovery in targeted oncology. The Company’s Dynamo platform integrates an array of leading-edge experimental and computational approaches to provide a differentiated understanding of protein structure and motion to drug these targets. The company went public in 2020.

Financials (September 2020)

Enterprise Value: $3.6 billion
Annual Revenue: NA
Headquartered in Nanjing, China and New Jersey, Legend Biotech is a biopharmaceutical company engaged in the discovery and development of novel cell therapies for oncology and other indications. Legend’s team of over 700 employees, along with its differentiated technology, global development and manufacturing strategies and expertise, provides the company with strong potential to discover, develop and commercialize best-in-class cell therapies for patients in need. Legend is engaged in a strategic collaboration with Janssen Biotech to develop and commercialize its lead product candidate, ciltacel, an investigational BCMA-targeted CAR-T cell therapy for patients living with multiple myeloma. This candidate is currently being studied in registrational clinical trials. From the very beginning, Legend has been focused on science with a vision of igniting the future of cell therapy. Legend went public in 2020.

Financials (September 2020)
Enterprise Value: $3.6 billion
Annual Revenue: $61.9 million

Founded in 1973 and spun off in 2010, Hanmi is a headquartered in Seoul, Korea. The Company conducts research, development and commercialization of a range of pharmaceuticals across oncology, immunology, endocrinology, and rare diseases, and is also involved in developing a strong pipeline to support its existing portfolio. A key area of strength in R&D is the creation of long-acting peptides using its LAPSCOVERY™ technology. Hanmi has used the platform to create a long-acting Efpeglenatide (licensed to Sanofi) and a GLP/GCG modulator (licensed to Merck). The company has a significant commercial presence in S. Korea and a growing presence in China. Hanmi goal is to improve people’s health and quality of life and the Company is devoted to discovering global breakthrough.

Financials (September 2020)
Enterprise Value: $3.6 billion
Annual Revenue: $917.2 million
Barakat Pharmaceutical Group is an Iranian Pharmaceutical company, which was founded in 2010 as Tadbir Innovation Pharmaceutical Company. Barak is publicly listed in Iran and supplies over 14 percent of Iran’s essential drugs through its 25 subsidiaries. The company produces 700 kinds of products in the pharmaceutical sector. A key goal is to deliver affordable medicines to the Iranian people. The Barkat Pharmaceutical Group has established as the first specialized drug and pharmaceutical research center in Iran, also it has been developed by constructing advanced pharmaceutical factories, called Barakat Pharmaceutical Town. Barak has capabilities to manufacture peptides, plant-based medicines and cell therapeutics.

Financials (September 2020)
Enterprise Value: $3.6 billion
Annual Revenue: $1 billion

Notes
Barakat reported $1003 million in revenue in 2019. We multiplied this times the median multiple for publicly-traded generic pharma to impute value.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Generics

Blueprint Medicines was founded in 2008 and is based in Cambridge, Massachusetts. Blueprint’s approach to treatment is founded upon its understanding of the genetics of cancer and diseases activated by the abnormal activation of kinases. Coupled with its proprietary library of novel and diverse compounds, Blueprint’s scientists are able to craft therapies aimed at unaddressed drivers of disease and to identify the patients most likely to respond based on the molecular profile of their cancers. Recently approved avapritinib is a potent and selective inhibitor of activated KIT and PDGFRA mutant kinases and is used for treating GIST and other cancers. In 2020, Blueprint entered into global collaboration with Roche on pralsetinib for RET altered cancers, including $775 million in upfront payments. The Company’s passion to make a difference is driven by its mission to put the patient first, as well as its key values of thoughtfulness, trust, optimism and urgency.

Financials (September 2020)
Enterprise Value: $3.6 billion
Annual Revenue: $75.1 million

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:BPMC
Sector: Branded Pharma
Lead TA: Oncology
Allakos

**VALUE RANK: 215**

**Details**
975 Island Drive Suite 201
Redwood City, California 94065
United States
1-650-597-5002
www.allakos.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** NasdaqGS: ALLK  
**Sector:** Biotechnology  
**Lead TA:** Respiratory

Allakos is a California-based biotechnology company developing antibodies that target immunomodulatory receptors present on immune effector cells involved in allergic, inflammatory, and proliferative diseases. The Company’s lead antibody, lirentelimab (AK002), is being evaluated in a Phase 3 study in eosinophilic gastritis (EG) and/or eosinophilic duodenitis (EoD) and a Phase 2/3 study in eosinophilic esophagitis (EoE). Lirentelimab targets Siglec-8, an inhibitory receptor selectively expressed on human mast cells and eosinophils. Lirentelimab has been tested in multiple clinical studies, in which lirentelimab eliminated blood and tissue eosinophils, inhibited mast cells and improved disease symptoms in patients with eosinophilic gastritis and/or eosinophilic duodenitis, eosinophilic esophagitis, mast cell gastrointestinal disease, severe allergic conjunctivitis, chronic urticaria and indolent systemic mastocytosis. Allakos completed its IPO in 2018.

**Financials (September 2020)**
Enterprise Value: $3.6 billion  
Annual Revenue: NA

ALK

**VALUE RANK: 216**

**Details**
6-8 Bøge Allé  
Hørsholm, 2970  
Denmark  
+45 38167070  
www.alk.net

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** CPSE: ALKB  
**Sector:** Branded Pharma  
**Lead TA:** Allergy

Founded in 1923 and headquartered in Hørsholm, Denmark, Allergologist Laboratorium København’s (ALK) has always been focused on creating preparations for allergy prevention. With production facilities in France, Spain, the US and Denmark, ALK is one of the premier international researchers and marketers of products for allergies. ALK’s portfolio includes allergy immunotherapy products as injections, sublingual drops, and sublingual tablets for the prevention of the most common allergies, including bee, cat, house dust mite, grass, ragweed and wasp. ALK’s product portfolio also includes adrenaline auto-injectors for the treatment of severe allergic reactions. Remaining at the forefront of allergy prevention technology, their research department continues to explore the next generation of allergy immunotherapy to continue their track record of firsts as pioneers in this therapeutic sector. The Lundbeck Foundation owns 40.3% of ALK’s shares.

**Financials (September 2020)**
Enterprise Value: $3.6 billion  
Annual Revenue: $505.6 million
LG Life Sciences

VALUE RANK: 217

Details
LG Gwanghwamun Building 58, Saemunan-ro
Jongno-gu
Seoul,
South Korea
+82 2 3773 1114
https://www.lgchem.com/

Notes
LG Chem reported $540mm in life sciences revenue in 2019. We multiplied this by the median branded pharma revenue multiple to impute a value estimate.

Exch: Ticker: Public Company Segment
Sector: Generics - Branded
Lead TA: Broad

LG Life Sciences is a Korean pharmaceutical company that did $543mm revenue in 2019. This company is a subsidiary of LG Chem, the massive Korean chemical and materials conglomerate. Established in 1984, LG Chem’s life sciences sub is focused on the Korea market but interested in playing a broader global role as has LG Chemical in other areas. Their focus is on diabetes drugs for the Korea market, aesthetics, vaccines and on biosimilars. Recent accomplishments include opening an innovation center in Boston, achieving Korean approval of the diabetes medicine “Zemiglo” and achieving an FDA approval for a Korean developed medicine. The company has 1800 employees.

Financials (September 2020)
Enterprise Value: $3.6 billion
Annual Revenue: $540 million

JCR

VALUE RANK: 218

Details
3-19 Kasuga-cho
Ashiya, Hyogo 659-0021
Japan
+81 7 9732 8591
www.jcrpharm.co.jp

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: TSE:4552
Sector: Branded Pharma
Lead TA: Endocrinology

Headquartered in Hyogo, Japan, and established in 1975, JCR and its subsidiaries research and manufacture pharmaceuticals, human-derived enzymes and proteins as well as medical devices and laboratory instruments for both the domestic and international markets. The Company exploits its proprietary cell construction and culture technologies to populate a portfolio that is supplemented by imported and licensed products from international companies. Through an extensive partnership with GSK that not only allows the Company to access international markets but also provides access to GSK’s global development capabilities, JCR has been able to establish a research program that prioritizes the development of therapeutic drugs for lysosomal storage diseases (Agalsidase beta®) and cell therapy for graft-versus-host-disease (TEMCELL®). JCR’s corporate philosophy is to contribute towards healthcare through the provision of pharmaceutical products. The Company went public in 1992.

Financials (September 2020)
Enterprise Value: $3.5 billion
Annual Revenue: $230.1 million
Eurofarma Laboratórios was founded in 1972 and is a privately held branded generic pharmaceutical company based in São Paulo, Brazil. The Company produces and markets medical prescription, veterinary, and OTC drugs. It also offers medicines such as antibiotics, anesthetics, antivirals, and anticoagulant drugs for hospital use. In addition, the Company provides anthelmintic, vitamins, and tonics for the prevention and treatment of diseases primarily in cattle. In 2015, Eurofarma developed and obtained the registration of the first biosimilar medicine in Latin America and started trading in 2016. The Company currently has a very extensive product development pipeline. Eurofarma exports its products across North and South America, Asia and Africa.

**Financials (September 2020)**
- Enterprise Value: $3.5 billion
- Annual Revenue: $982.5 million

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Genexine is headquartered in Gyeonggi-do, Korea. Genexine focuses on the development and commercialization of innovative immunotherapeutics as well as next generation novel long-acting biologics. Leveraging the Company’s proprietary hyFc technology platform, Genexine has established a pipeline of candidates for a number of indications including cancer, psoriasis, anemia, diabetes and short bowel syndrome. The Company’s strategic approach to partnership opportunities involves the creative partnering of key resources and expertise in collaborations such as preclinical research, global development and commercialization. To this end, the Company has established partnerships with multiple international companies. The Company is committed to transforming the lives of patients through its products. Genexine went public in 2009.

**Financials (September 2020)**
- Enterprise Value: $3.5 billion
- Annual Revenue: $4.1 million
**ROHTO**

**VALUE RANK: 221**

**Details**
1-8-1 Tatsumi-Nishi, Ikuno-ku
Osaka, 544-8666
Japan
+81 06 6758 1231
www.rohto.co.jp

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** TSE:4527  
**Sector:** Branded Pharma  
**Lead TA:** Ophthalmology

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**Besins**

**VALUE RANK: 222**

**Details**
2 Avenue des Ligures, Les Terrasses du Port
Monaco, 98000
Monaco
+377 97 97 42 60
www.besins-healthcare.com

**Notes**
We multiplied Besins’ disclosed 2019 revenues of €450mm by the median multiple for branded pharma companies to impute value.

**Exch:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Womens Health

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Founding in 1899 by Yamada Anmin as the Shintendo Yamada Anmin Pharmacy, Rohto operates its headquarters from Osaka, Japan. The Company develops, manufactures, and markets an extensive array of OTC, beauty products and supplements across a wide range of areas such as ophthalmology, gastroenterology, nutrition, skincare, and herbal medicine. Many of Rohto’s products are OTC and it also markets Obagi’s physician brand in Japan. But Rohto is also focused on building out its Rx dermatology business. Rohto’s products are developed to be highly effective as well as demonstrate ease of use. The Company constantly strives towards a world where people lead active lifestyles, are healthy and contribute towards a sense of community. Rohto has a global reach, operating branches and facilities throughout Japan as well as in North America, Asia Pacific, Europe, and Africa, and became publicly listed in 1961.

**Financials (September 2020)**
Enterprise Value: $3.5 billion  
Annual Revenue: $1.7 billion

Besins was founded in 1885 by Abel Besins in Belgium, as a family-owned pharmaceutical business headquartered in Monaco. The Company achieved international success through the introduction of a tonic wine, Vin de Bugeaud for the treatment of anemia and anxiety. In 1921 Besins developed their first pharma product, Veinosine for the treatment of venous disorders. Over four generations the Besins family has continually been involved with the development of innovative drugs for the well-being of men and women, particularly for the treatment of gynecological, obstetric and urological conditions. Led by Antoine Besins, the company’s products are distributed internationally throughout more than 90 countries via subsidiaries as well as a network of business partners. Their mission is to provide specialized solutions to all regions across the world, creating lasting partnerships based on trust, innovation, results and quality excellence.

**Financials (September 2020)**
Enterprise Value: $3.5 billion  
Annual Revenue: $531 million
Amicus Therapeutics

Amicus Therapeutics was incorporated in 2002 and is based in Cranbury, New Jersey. The publicly-traded branded pharmaceutical firms develops and commercializes pharmaceuticals for rare and orphan diseases. Amicus has developed a small molecule therapy that can be used as a monotherapy and in combination with enzyme replacement therapy for Fabry disease (migalastat). The Company is also developing treatments for Pompe disease (AT-GAA). Amicus has a promising set of gene therapies in development for CLN1, CLN3 and CLN6 mutation Batten’s disease. Acquisitions have included Scioderm ($869 million) and Celenex ($452 million). Amicus CEO and Chairman John Crowley has led this company with inspiring leadership. He is the subject of two books and a movie with Harrison Ford. Amicus went public in 2007.

Financials (September 2020)
Enterprise Value: $3.5 billion
Annual Revenue: $226.9 million

Perrigo Rx Business

Established in 1887 in Allegan, Michigan to package and distribute patented medicines to country stores, Perrigo is now headquartered in Dublin, Ireland. The opening of its first manufacturing plant in 1921 saw a phase shift in the Company’s business from re-packager of medications to a manufacturer of healthcare products in its own right. Perrigo has established a number of strategic alliances and acquisitions that have extended the Company’s geographical reach as well as the breadth of its product portfolio. Perrigo’s Rx business serves patients and health systems with ‘extended topicals’ medications, to treat ailments at more affordable prices. The differentiated and diversified Rx portfolio includes topical generic medicines in multiple dosage forms, including creams, foams, mousse, gels, liquids and inhalable products. Perrigo went public in 1991.

Financials (September 2020)
Enterprise Value: $3.5 billion
Annual Revenue: $968 million
Denali Therapeutics was founded in 2013 by investors, scientists and drug developers. The publicly-listed biotech company is based in South San Francisco, California. The founders shared a common belief that present day insight into genetics, translational medicine and biology could enable unprecedented innovation in the therapeutic area of neurodegenerative disease. Through the application of profound scientific knowledge Denali is exploring the pathways that trigger neurodegeneration and contribute to disease onset and progression to discover effective molecular therapeutics for indications such as Parkinson’s and Alzheimer’s Disease. In recent updates, for example, Denali has noted strong target engagement and biomarker data for its LRRK2 inhibitor, DNL201, in Parkinson’s disease. Denali went public in 2017.

Financials (September 2020)
Enterprise Value: $3.5 billion
Annual Revenue: $27.7 million

Kyoritsu Seiyaku was founded in 1955 and is based in Tokyo, Japan. Established to import animal vaccines into Japan, the Company has expanded into exporting specialty products internationally. Kyoritsu develops and distributes a range of aquaculture as well as companion and livestock animal products, including vaccines, nutritional supplements, pest control and diagnostic kits. The Company also manufactures human pharmaceuticals, particularly in the areas of infertility and osteoporosis treatments. With offices and facilities throughout Japan, the Company has a strong domestic presence, and aims to extend its reach into new international markets moving forward. The Company intends to contribute towards the, ‘harmonious coexistence of people, animals, and the environment, now and in the future.’

Financials (September 2020)
Enterprise Value: $3.5 billion
Annual Revenue: $524 million
Zentiva

VALUE RANK: 227

Details
U kabelovny 529/16, Dolní Měcholupy
Prague 10, 102 00
Czech Republic
+42 267 241 111
www.zentiva.com

Notes
Based on disclosures of Sanofi, Creo, Solacium and Alvogen we estimate that Zentiva’s 2019 revenue is $957mm. We multiplied this by the median revenue multiple for generic companies to impute value.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

Zentiva is a privately-held producer of high-quality generic medicines serving patients in Europe and beyond. Zentiva’s roots reach back 530 years to the Black Eagle pharmacy, a small business that served the people of Prague. With a dedicated team of more than 4,500 people and a network of production sites - including flagship sites in Prague, Bucharest and Ankleshwar - Zentiva strives to be the champion of branded and generic medicines in Europe to better support people’s daily healthcare needs. Zentiva reaches over 40 million patients in 25 European countries. Zentiva was acquired by Sanofi in 2008 and then sold to Advent International in 2018. Since then, with Advent’s support, Zentiva has acquired Solacium (Romania generics), Creo Pharma (UK generics) and Alvogen Europe.

Financials (September 2020)
Enterprise Value: $3.4 billion
Annual Revenue: $957 million

Genus

VALUE RANK: 228

Details
Matrix House, Basing View
Basingstoke, Hampshire RG21 4DZ
United Kingdom
+44 1256 347100
www.genusplc.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: LSE:GNS
Sector: Animal Health
Lead TA: Animal Health

Genus was established in 1994 and is a publicly-traded animal health company headquartered in Basingstoke, UK. The Company applies quantitative genetics and biotechnology to animal breeding in the porcine, dairy, and beef sectors. Genus sells its products to farmers and food producers in North America, Latin America, Europe, the Middle East, Africa, and Asia. Genus forms strategic partnerships with research institutes and other organizations in order to improve their animal strains. Leveraging their in-house technology to screen their porcine and bovine stock for favorable traits, the Company aims to continuously improve their animals, focusing on disease resistance, feed efficiency, fat and protein content and fertility. The Company went public in 2008.

Financials (September 2020)
Enterprise Value: $3.4 billion
Annual Revenue: $682.7 million
Amneal Pharmaceuticals was established in 2002 and is headquartered in Bridgewater, NJ, where it was founded by brothers Chirag and Chintu Patel. The Company is a proudly U.S. generics pharmaceutical manufacturer with excellent manufacturing facilities in the U.S. Generic drug therapeutic areas include cardiology, oncology, dermatology, endocrinology, and hematology. Following its merger with Impax, Amneal also markets branded products in neurology. The Company also owns 65% of AvKARE. AvKARE provides pharmaceuticals, medical and surgical products and services primarily to US governmental agencies. AvKARE is also a packager and wholesale distributor. Amneal is driven by a commitment to providing high-quality, affordable medicines. The Company is grateful for the backing of the community it serves and seeks to give back by supporting a variety of community groups and outreach programs.

Financials (September 2020)
Enterprise Value: $3.4 billion
Annual Revenue: $1.7 billion

China Grand Pharma was founded in 1995, and is listed on the Hong Kong stock exchange. China Grand Pharma owns over a dozen subsidiaries which span fine chemicals and therapies for cardiovascular and infection. China Grand Pharma has a strong position in China for drugs that are used to treat stroke, ENT, and ophthalmic conditions. The company is one of the largest producers of amino acid intermediates in China and is also the world’s largest producer of taurine. A key subsidiary is GrandPharma. China Grand Pharma is majority owned by China Grand Enterprises (CGE). CGE holds separate majority stakes in Huadong Medicine (listco), Leiyungshang (TCM), Shuyang Pharma (blood products) and Nuokang Bio (biologics). The pharmaceutical business of CGE comprises 40+ companies with total sales of over $6 billion. Were this business consolidated, we estimate its value would be over $20 billion, putting it in the top 50 pharma players worldwide and in the top 5 in China.

Financials (September 2020)
Enterprise Value: $3.4 billion
Annual Revenue: $807.6 million
Headquartered in San Francisco, California and incorporated in 1993, FibroGen researches and develops therapeutics including those for the treatment of anemia, cancer and fibrotic disease. FibroGen created a hypoxia-inducible factor prolyl hydroxylase inhibitor (HIF-PHI) platform that has allowed their researchers to monitor the body’s own biological responses when taking FibroGen’s medications. FibroGen is developing Pamrevlumab, an anti-CTGF antibody in fibrotic diseases and some forms of cancer. Furthermore, after a leading pipeline candidate’s success in clinical trials (HF-PHI or Roxadustat), FibroGen launched a subsidiary located in Beijing, China known as FibroGen China. Their long term strategies include strategic R&D to expand their existing successful pharmaceutical candidates. FibroGen has partnered Roxadustat with Astellas for Japan and Europe and with AstraZeneca for other territories. FibroGen has been listed since 2014.

Financials (September 2020)
Enterprise Value: $3.4 billion
Annual Revenue: $108.4 million

Vir is a clinical-stage publicly-traded biotechnology company focused on combining immunologic insights with cutting-edge technologies to treat and prevent serious infectious diseases. Infectious diseases are one of the leading causes of death worldwide and the cause of hundreds of billions of dollars of economic burden each year. Vir has assembled four technology platforms that are designed to stimulate and enhance the immune system by exploiting critical observations of natural immune processes. Its current development pipeline consists of product candidates targeting hepatitis B virus, influenza A, SARS-CoV-2, human immunodeficiency virus and tuberculosis. Vir went public in 2019.

Financials (September 2020)
Enterprise Value: $3.4 billion
Annual Revenue: $75 million
Dermapharm

VALUE RANK: 233

Details
Lil-Dagover-Ring 7
Grünwald, 82031
Germany
+49 89 641860
www.dermapharma.de

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: XTRA:DMP
Sector: Generics - Branded
Lead TA: Broad

Dermapharm is a leading manufacturer of branded generic pharmaceuticals in Germany. Founded in 1991, the company is based in Grünwald near Munich. Dermapharm develops, makes and markets pharmaceuticals through a medical and pharmaceutical sales force. Dermapharm has approximately 250 active pharmaceutical ingredients for around 900 marketing authorizations, which are marketed as pharmaceuticals, supplements or supplemental balanced diets. Core markets include Austria, Germany and Switzerland. Dermapharm’s parallel import business operates under the “axicorp” brand. In the “Herbal Extracts” segment Dermapharm markets products made by Euromed S.A. one of the leading manufacturers of plant extracts. In 2020 Dermapharm acquired the Allergopharma allergy business of Merck KGaA.

Financials (September 2020)
Enterprise Value: $3.4 billion
Annual Revenue: $855.3 million

Schrodinger

VALUE RANK: 234

Details
120 West 45th Street, 7th Floor
New York, New York 10036
United States
+1 212 295 5800
https://www.schrodinger.com/

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: NasdaqGS:SDGR
Sector: Biotechnology
Lead TA: Broad

Schrödinger’s industry-leading computational platform facilitates the research efforts of biopharmaceutical and industrial companies, academic institutions and government laboratories worldwide. Schrödinger also has wholly-owned and collaborative drug discovery programs in a broad range of therapeutic areas. Schrödinger is deeply committed to investing in the science and talent that drive its computational platform. Schrödinger was founded in 1990, has over 400 employees and is engaged with customers and collaborators in more than 70 countries. Shrodinger went public in 2020.

Financials (September 2020)
Enterprise Value: $3.4 billion
Annual Revenue: $95 million
Dompé

**VALUE RANK: 235**

**Details**
6 Via Santa Lucia
Milan, Lombardy 20122
Italy
+39 02 583831
www.dompe.com

**Notes**
We multiplied Dompé’s 2019 revenue by the median multiple for branded pharma companies to impute value.

**Exch:**Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Rare Disease

**Financials (September 2020)**
Enterprise Value: $3.3 billion  
Annual Revenue: $507.4 million

Luoxin Pharma

**VALUE RANK: 236**

**Details**
NO. 18 Huxi Road, National New and High-tech Industrial Development Zone  
Linyi, Shandong Province 276017  
China  
+86 539 8241226  
www.luoxin.cn

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**SZSE:002793  
**Sector:** Generics - China  
**Lead TA:** Respiratory

**Financials (September 2020)**
Enterprise Value: $3.3 billion  
Annual Revenue: $897.1 million
MorphoSys

**VALUE RANK: 237**

**Details**
7 Semmelweisstraße
Planegg, Bavaria 82152
Germany
+49 89 899 270
www.morphosys.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** XTRA:MOR  
**Sector:** Biotechnology  
**Lead TA:** Oncology

MorphoSys is a publicly-traded biotechnology company based in Munich, Germany. Founded in 1992, MorphoSys discovers and develops antibodies. Based on a deep understanding of disease biology and through its antibody library technology, HuCAL, the Company has solidified itself in the pharmaceutical industry. This understanding has helped them develop a pipeline of over 20 therapeutic antibody candidates focusing on, but not limited to, the areas of inflammation, oncology and autoimmune. Therapeutic partners tend to license their technology platform whereas innovation capital partners are more collaborative, working in synergy with MorphoSys to develop the medicines of tomorrow. Morphosys was pleased to achieve FDA approval of Monjuvi for adults with relapsed or refractory DLBCL in 2020. Morphosys went public in 1999.

**Financials (September 2020)**
Enterprise Value: $3.3 billion  
Annual Revenue: $329.9 million

Shafadarou Investment

**VALUE RANK: 238**

**Details**
West Town,Farahzadi Boulevard, West Dadman Boulevard,Fakhar Moghadam St. Corner Of The 4th Golbarg East,No.14
Tehran,  
Iran
+98-2188368521
www.shafadarou.org

**Notes**
We multiplied Shafadarou’s disclosed revenue by the median market multiple for generic companies to impute a value estimate.

**Exch:Ticker:** Private Company  
**Sector:** Generics - Branded  
**Lead TA:** Broad

Shafadarou Investment Co. is an Iranian pharmaceutical company that invests in and manages companies that produce human medicines and medical materials and equipment. The company is based in Tehran and has over 3200 employees. It has seven subsidiaries. Shafa Darou accounts for 20% of production and sales of pharmaceutical products in Iran. Key products include among others, antibiotics, analgesics, cardiovascular treatments, gastrointestinal agents, vitamins, nutritional supplements. The company is publicly-traded in Iran.

**Financials (September 2020)**
Enterprise Value: $3.3 billion  
Annual Revenue: $906.9 million
Norgine

VALUE RANK: 239

Details
7 Hogehilweg
Amsterdam Zuid-Oost, 1101 CA
Netherlands
+31 20 567 0900
www.norgine.com

Notes
We multiplied Norgine’s disclosed FY 2019 revenues of €419mm by the median multiple for branded pharma companies to impute value.

Exch: Ticker: Private Company
Sector: Branded Pharma
Lead TA: Gastroenterology

Norgine is a privately held specialty pharmaceutical company headquartered in the Netherlands. Founded in 1906, Norgine develops, manufactures and commercializes products for all major European markets. Norgine’s portfolio consists of treatments for gastroenterology, hepatology and cancer. Norgine has manufacturing facilities in Dreux, France and Hengoed, Wales, where their R&D facility is also based. With a vision of being the ‘go to’ pharma company for Specialist Pharmaceutical products in Europe, Norgine has built up its product portfolio in recent years through a JV with SpePharm and acquisitions of Merus Labs and Azanta. Norgine seeks to become, a partner for a healthy life, benefiting healthcare systems and patients through transformative products.

Financials (September 2020)
Enterprise Value: $3.3 billion
Annual Revenue: $494.4 million

AnkeBio

VALUE RANK: 240

Details
AnkeBio Building, 669 Changjiang West Road
Hefei, Anhui Province 230088
China
+86 551 6531 9890
www.ankebio.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: SZSE:300009
Sector: Generics - Biosimilars
Lead TA: Broad

Established in 1993 and headquartered in Hefei, China, Anhui Anke Biotechnology, also known as AnkeBio, is focused on a fully-integrated approach to commercializing genetically-engineered products, diagnostics, precision medicine, polypeptide APIs, and biochemical medicines, as well as traditional Chinese medicine. The Company values and invests heavily in R&D, boasting world-class, internationally-accredited facilities in China. AnkeBio’s robust portfolio includes recombinant human growth hormones, recombinant human interferons and anti-sperm antibody kits that have been developed in-house to treat conditions such as leukemia, tumors, chronic viral infections, and sterility. The Company is dedicated to improving human quality of life through the discovery and development of superior products. AnkeBio became a publicly-traded company in 2009.

Financials (September 2020)
Enterprise Value: $3.3 billion
Annual Revenue: $235.1 million
Yuhan

Headquartered in Seoul, Korea, Yuhan Corporation was founded by Dr. Ilhan New in 1926 in the hope that by helping solve widespread public health problems he could help his people regain their sovereignty. The Company is a global leader in the production and distribution of generic pharmaceuticals, APIs and intermediates, and consumer goods, and is focused mainly on the treatment of immunology, oncology and endocrinology indications. Yuhan also provides ETC and OTC products and is equipped with state-of-the-art facilities, they also offer custom synthesis services from R&D to commercial production of APIs. Yuhan markets Revanex®, a potassium-competitive acid blocker for the treatment of peptic ulcers and gastritis-related mucosal injury. Yuhan recently licensed two innovative small molecule drugs to Gilead in 2019 for up to $785 million and continues to focus on other innovative R&D projects. Yuhan went public in 1962.

Financials (September 2020)
Enterprise Value: $3.2 billion
Annual Revenue: $1.2 billion

Macleods Pharma

Founded in 1986 and headquartered in Mumbai, India, Macleods is a private developer and manufacturer of APIs and finished dosage forms for both the domestic and international markets. The Company’s portfolio contains a broad spectrum of products including anti-infective, cardiovascular, CNS, dermatology, oncology and orthopedics and offers its products to international markets through subsidiaries and offices located in a number of CIS countries, Africa, Latin America, the Middle East, South East Asia, the US and the UK. The Company’s primary dedication is to manufacturing difficult to make medicines without compromising affordability to patients. Macleods has an API manufacturing facility in India with ISFDA and WHO-Geneva approval as well as two finished product manufacturing facilities that have approvals from the most prominent regulatory bodies in the international community. Its R&D center was opened in 2000 and is located in Mumbai.

Financials (September 2020)
Enterprise Value: $3.2 billion
Annual Revenue: $0 billion
**PROBIOMED**

**VALUE RANK: 243**

**Details**
Av. Ejercito Nacional No. 499
Colonia Granada, Miguel Hidalgo 11520
Mexico
+52 1166 2000
www.probiomed.com.mx

**Notes**
Industry sources indicated that 2016 revenue for PROBIOMED was approximately $100mm. We multiplied this by the median revenue multiple for biosimilar companies to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Generics - Biosimilars  
**Lead TA:** Broad

Probiomed was established in 1970 and is headquartered in Mexico City, Mexico. The Company conducts R&D, manufacturing, and marketing of biotechnology and pharmaceutical products. Probiomed’s extensive portfolio includes recombinant proteins and pharmaceuticals for a variety of specialty areas, including family and internal medicine, neurology, psychiatry, oncology and hematology. Probiomed welcomes partnership opportunities with other organizations to import or export pharmaceuticals. The Company currently exports its products to more than 20 countries worldwide. Probiomed’s mission is to improve human health and patients’ quality of life through its high-tech products. To this end, the Company has created the Probiomed Foundation to form alliances with other organizations with a goal of meeting the existing health needs found in some communities within the country.

**Financials (September 2020)**
Enterprise Value: $3.2 billion  
Annual Revenue: $317 million

**Dr. Falk Pharma**

**VALUE RANK: 244**

**Details**
5 Leinenweberstrasse
Freiburg, Baden-Wurttemberg 79108
Germany
+49 761 15140
www.drfalkpharma.com

**Notes**
We used D&B’s revenue estimate for Dr. Falk and multiplied it by the median multiple for branded pharma companies to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Gastroenterology

Headquartered in Freiburg, Germany and formed in 1960, Dr. Falk Pharma is a privately-owned family company that develops and markets therapeutics for gastroenterology and hepatology indications. The central principle is to provide doctors, pharmacists and patients with the most up-to-date and impartial information concerning diseases and therapies in gastroenterology and hepatology. Dr. Falk’s portfolio includes products for the treatment of liver disease, inflammatory bowel disease and other gastro-intestinal diseases, which are marketed in over 60 countries worldwide. Overseen today by Ursula Falk, the Company has a pipeline of over a dozen potential candidates at a variety of clinical stages of development and favors working with international partners to develop its projects.

**Financials (September 2020)**
Enterprise Value: $3.2 billion  
Annual Revenue: $485 million
ChemoCentryx

VALUE RANK: 245

Details
850 Maude Avenue
Mountain View, California 94043
United States
+1 650 210 2900
www.chemocentryx.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:CCXI
Sector: Biotechnology
Lead TA: Renal

ChemoCentryx is a publicly-traded biotechnology company based in Mountain View California. Founded in 1997, ChemoCentryx targets the chemokine and chemoattractant systems to discover, develop and commercialize inflammatory, autoimmune and oncologic disease drugs. ChemoCentryx filed an NDA for avacopan in the treatment of ANCA-associated vasculitis in July 2020. This C5a receptor inhibitor has exhibited impressive clinical results to date. The company is also developing CCX559, an orally available checkpoint inhibitor for cancer. ChemoCentryx states that it aims for a, ‘new way of healing’ and pushing beyond good enough, striving for excellence. The Company has established several partnerships aimed at improving research and marketing opportunities including an ex-US partnership for avacopan with Vifor Pharma. ChemoCentryx went public in 2012.

Financials (September 2020)
Enterprise Value: $3.2 billion
Annual Revenue: $76 million

Arrowhead Pharma

VALUE RANK: 246

Details
225 South Lake Avenue, Suite 1050
Pasadena, California 91101
United States
626-304-3400
www.arrowheadpharma.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:ARWR
Sector: Biotechnology
Lead TA: Virology

Arrowhead Research Corporation, a publicly-traded Pasadena-based biotech develops novel drugs to treat intractable diseases. The company’s product candidates include ARC-520, an RNAi-based therapeutic that is in Phase IIa clinical trial to treat chronic hepatitis B virus infection; and ARC-AAT, a novel unlocked nucleobase analog containing RNAi-based therapeutic for the treatment of liver disease associated with alpha-1 antitrypsin deficiency. The company is also involved in the development of Adipotide, which is in phase I clinical trial for the treatment of obesity and metabolic disorders; and CRLX-101 that is in phase II clinical trial to treat various cancer types, including relapsed renal cell carcinoma, relapsed ovarian cancer, and non-metastatic rectal cancer. Its platform technology includes the Dynamic Polyconjugate platform, an RNAi delivery system that addresses multiple organ systems and cell types.

Financials (September 2020)
Enterprise Value: $3.2 billion
Annual Revenue: $123.6 million
Taisho Pharma

**VALUE RANK: 247**

**Details**
3-24-1 Takada, Toshima-ku
Tokyo, Kanto 170-8655
Japan
+81 339852020
www.taisho-holdings.co.jp

**Notes**
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** TSE: 4581  
**Sector:** Branded Pharma  
**Lead TA:** Anti-infectives

Taisho Pharmaceutical, founded in 1912 and headquartered in Tokyo, Japan, manufactures and sells OTC medicines and prescription pharmaceuticals. Taisho has the largest market share of OTC medicines in Japan. Taisho's main prescription products are antibiotics and anti-inflammatory agents. Taisho also works in partnership with national industrial organizations to develop market-oriented products. The Company's aim is to further expand their business in the ever-growing Asian market and beyond. Taisho acquired BMS' UPSA business in 2018 for $1.6 billion. In 2011, Taisho acquired Malaysia's HOE Pharma. In 2019 Taisho acquired a controlling stake in Vietnam's DHG Pharma. Taisho's mission is to contribute to improving people’s lives and knowledge about health and beauty through the provision of superior pharmaceuticals and healthcare products. The Company's shares were first listed in 1966.

**Financials (September 2020)**
Enterprise Value: $3.2 billion  
Annual Revenue: $2.8 billion

Pars Darou

**VALUE RANK: 248**

**Details**
1st Square, East 144 Ave, #13
Tehran, Iran
+98 (21) 77704061-70
http://www.parsdarou.ir/

**Notes**
We multiplied Pars Darou’s disclosed revenue by the median market multiple for generic companies to impute a value estimate.

**Exch:** Private Company  
**Sector:** Generics - Branded  
**Lead TA:** Broad

Pars Darou is one of the largest and oldest Pharmaceutical Companies in Iran which belongs to Tamin Pharmaceutical Investment Holding. Tamin owns 34% market share in Iran and its products are covered by the social security organization. Currently, Pars Darou Company with more than half a century of experience and production of more than 80 pharmaceutical products such as antibiotics, antigens, antifungal, antidepressants and medications for women by generic and brand names of various doses has been recognized as one of Iran’s leading pharmaceutical companies in research, production and supply. Pars Darou Company was established by Germany’s Bayer Company under on the east side of Tehran in 1960 and was put into operation in 1962. In 1982, according to an agreement between Iran's National Industry Organization and Germany’s Bayer Company, 76.25 percent ownership of Bayer Company was transferred to Iran’s National Industry Organization.

**Financials (September 2020)**
Enterprise Value: $3.2 billion  
Annual Revenue: $881 million
China Meheco Group was founded in 1984 and is based in Beijing, China. State-owned Meheco produces generic drugs and traditional Chinese medicines and distributes them throughout China. The company is also involved with other healthcare products and runs a number of pharmacies. Upholding the tenet of "Cherishing Life and Seeking Excellence", China Meheco is dedicated to the promotion of human health and the development of pharmaceutical industry, endeavoring to become a flagship pharmaceutical enterprise in China. Its products include API, antibiotics, and drugs for stroke, diabetes, infections, pain, and allergy. The company works with TCM, small molecule chemical medicines and biologics. Meheco has established a nationwide sales network and distribution channels covering important cities and provinces as Beijing, Guangdong, Jiangxi, Hubei, Henan, Hebei, Liaoning, Heilongjiang and Xinjiang. Meheco went public in 1994.

Financials (September 2020)
Enterprise Value: $3.2 billion
Annual Revenue: $5.2 billion

China Biologic Products Holdings is a leading fully integrated plasma-based biopharmaceutical company in China. The Company’s products are used as critical therapies during medical emergencies and for the prevention and treatment of life-threatening diseases and immune-deficiency related diseases. China Biologic is headquartered in Beijing and manufactures over 20 different dosage forms of plasma products through its indirect majority-owned subsidiary, Shandong Taibang Biological Products Co., Ltd. and its wholly-owned subsidiary, Guizhou Taibang Biological Products Co., Ltd. Top selling products include albumin and IVIG. Founded in 2002, China Biologics went public on the NASDAQ in 2009.

Financials (September 2020)
Enterprise Value: $3.1 billion
Annual Revenue: $511.9 million
BridgeBio Pharma

**VALUE RANK:** 251

**Details**

421 Kipling Street  
Palo Alto, California 94301  
United States  
+1-650-391-9740  
bridgebio.com

**Notes**

We used the Company’s enterprise value as of September 15, 2020 as our estimate of value. We deducted the value of its stake in Eidos Therapeutics.

**Exch:Ticker:** NasdaqGS:BBIO  
**Sector:** Biotechnology  
**Lead TA:** Rare Disease

BridgeBio is a publicly-traded biotechnology company based in the Bay Area. Founded in 2015, BridgeBio brings a team of experienced drug discoverers, developers and innovators working to create life-altering medicines that target well-characterized genetic diseases at their source. BridgeBio advances transformative medicines to treat patients who suffer from Mendelian diseases, which are diseases that arise from defects in a single gene, and cancers with clear genetic drivers. BridgeBio’s pipeline of over 20 development programs includes product candidates ranging from early discovery to late-stage development. Key programs include acoramidis for ATTR cardiomyopathy, low-dose infigratinib for achondroplasia, AAV5 gene therapy for congenital adrenal hyperplasia (CAH) and encaleret for autosomal dominant hypocalcemia type 1. Notably, Bridgebio uses a decentralized subsidiary model which allows each team to stay focused on a specific disease while drawing on central resources. BridgeBio went public in 2019.

**Financials (September 2020)**

Enterprise Value: $3.1 billion  
Annual Revenue: $40.5 million

LFB

**VALUE RANK:** 252

**Details**

3 avenue des Tropiques  
Courtaboeuf, Cedex 91958  
France  
+33 1 69 82 70 10  
www.lfb.fr

**Notes**

LFB disclosed €400mm in revenue in 2018. We multiplied this by the median multiple for branded pharma companies to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Blood Products

LFB was founded in 1994 and is headquartered in Les Ulis, France. The Company develops and markets medicinal products for the treatment of serious and rare diseases in immunology, hemostasis, and intensive care. LFB’s pipeline includes products for the treatment of pre-eclampsia during pregnancy and hemophilia treatments. LFB has developed two innovative proprietary technology platforms to aid in developing novel therapeutics for the Company’s portfolio. The Company has a global reach, enabling it to bring its products to over 60 national markets worldwide. Through its partners and subsidiaries, LFB markets to countries in North and South America as well as Europe. The Company is ‘committed to life.’

**Financials (September 2020)**

Enterprise Value: $3.1 billion  
Annual Revenue: $472 million
PTC Therapeutics

**VALUE RANK: 253**

**Details**
100 Corporate Court
South Plainfield, New Jersey 07080
United States
+1 908 222 7000
www.ptcbio.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** NasdaqGS:PTCT  
**Sector:** Branded Pharma  
**Lead TA:** Rare Disease

Headquartered in South Plainfield, New Jersey, PTC Therapeutics was founded in 1998. PTC is a science-driven, global biopharmaceutical company focused on the discovery, development and commercialization of clinically differentiated medicines that provide benefits to patients with rare disorders. PTC’s direct presence in over 20 countries and 850+ employees give it the ability to globally commercialize rare disease products. This, in turn, is the foundation that drives investment in a robust pipeline the company’s mission to provide access to best-in-class treatments for patients. Key marketed drugs include Emflaza® and Translarna® for Duchenne’s Muscular Dystrophy, Most recently, Risdiplam, partnered to Roche for SMA, was approved by the FDA. Today, PTC has a rich pipeline exploiting a range of technologies in nucleic acids aimed at delivering transformation medicines to patients. PTC went public in 2013.

**Financials (September 2020)**
Enterprise Value: $3.1 billion  
Annual Revenue: $311.3 million

Immunovant

**VALUE RANK: 254**

**Details**
320 West 37th Street
New York, New York 10018
United States
1-917-580-3099
www.immunovant.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** NasdaqGS:IMVT  
**Sector:** Biotechnology  
**Lead TA:** Immunology

Immunovant is a biopharmaceutical company focused on enabling normal lives for patients with autoimmune diseases. Immunovant is developing IMVT-1401, a novel, fully human monoclonal antibody targeting the neonatal Fc receptor (FcRn). This product has the potential to address a variety of IgG-mediated autoimmune diseases as a subcutaneous injection. The FcRn receptor facilitates IgG recycling. Thus, IMVT-1401 enhances the degradation of IgG by targeting FcRn and preventing persistent circulation of harmful auto-antibodies. Immunovant reported encouraging Phase 2a data from this asset in Myasthenia Gravis in August 2020 and is now in Phase 2 studies in thyroid eye disease. Immunovant also intends to develop IMVT-1401 in warm autoimmune hemolytic anemias. IMVT-1401 was licensed from Daewoong/HanAll in 2017 for $30mm upfront. Daewoong retains rights in Asian territories. Immunovant went public in 2019 by merging into a SPAC called HSAC.

**Financials (September 2020)**
Enterprise Value: $3.1 billion  
Annual Revenue: NA
Insmed

Insmed is headquartered in Bridgewater, New Jersey and was founded in 1998. Insmed’s first commercial product is ARIKAYCE® (amikacin liposome inhalation suspension), which is approved in the United States for the treatment of Mycobacterium avium complex (MAC) lung disease as part of a combination antibacterial drug regimen for adult patients with limited or no alternative treatment options. Insmed’s clinical pipeline includes INS1007, a novel oral reversible inhibitor of DPP1 with therapeutic potential in non-cystic fibrosis bronchiectasis and other inflammatory diseases, and INS1009, an inhaled formulation of a treprostinil prodrug that may offer a differentiated product profile for rare pulmonary disorders. Capably led by Will Lewis, Insmed ‘is dedicated to improving the lives of patients battling serious and rare diseases’ and their business operations are ‘powered by purpose.’ Insmed went public in 2000.

Financials (September 2020)
Enterprise Value: $3.1 billion
Annual Revenue: $163.9 million

Asahi Kasei Pharma

Asahi Kasei Corporation was founded in 1931 and is based in Tokyo, Japan. The company is a diversified conglomerate with operations in chemicals, materials, health care and homes. Asahi Kasei Pharma, a pharmaceutical sector subsidiary, offers prescription drugs, mainly for the Japan market. Key therapeutic areas include bone, immunology, hospital and CNS. Asahi focuses on areas of unmet clinical need. Separately, Asahi Kasei’s healthcare business has done quite well with its acquisition of Zoll Medical, a medical device business with great strength in hospital care. In November 2019, Asahi Kasei announced the acquisition of Veloxis to build its pharma presence in the U.S. hospital market. Veloxis markets a successful immunosuppressive drug, used after kidney transplants. Asahi Kasei aims to strengthen its competitiveness by combining Veloxis’ business with Zoll. Asahi Kasei went public in 1949.

Financials (September 2020)
Enterprise Value: $3.1 billion
Annual Revenue: NA
GC Pharma

Established in 1967, Green Cross Pharma (GC Pharma) originated as a distributor of vaccines and drugs for animal and humans, and is headquartered in Yongin, Korea. GC Pharma is the first company in Korea to establish a plasma fractionation plant (1971) and today a leading vaccine developer, the first in the world to develop a vaccine for the Hantavirus hemorrhagic fever (Hantavax). GC Pharma was also a world leader in developing a varicella vaccine. GC Pharma is also interested in rare disease therapeutics becoming developing a treatment for Hunter syndrome (Hunterase®) and a recombinant factor treatment for hemophilia A (GreenGene F®). GC Pharma focuses on developing necessary, but difficult-to-make medicines, and is devoted to improving the health of people everywhere. GC’s core values are boldness and innovation, care and compassion, transparency and integrity, respect and dedication, work together to help this organization make the world safer and healthier.

Financials (September 2020)
Enterprise Value: $3 billion
Annual Revenue: $1.1 billion

BrightGene Bio

BrightGene Bio-Medical Technology Co., Ltd. is a research-driven biopharmaceutical company that engages in the R&D and manufacturing of innovative medicine as well as APIs and generic drugs. BrightGene also has an innovative pipeline that includes immuno-oncological therapeutic agents, orally available GLP-1RA peptides for type 2 diabetes, antibody-drug conjugates for solid tumors, non-antibody dependent tumor targeting conjugates for brain cancer and solid tumor brain-metastasis. Its generic pipeline includes molecules like Eribulin, Trabectedin, Fondaparinux, Caspofungin and non-biological macromolecules such as Ferumoxytol and Ferric pyrophosphate citrate. BrightGene has built a state-of-the-art plant for manufacturing complex injectable products. BrightGene’s 600+ employees work both at its headquarters in Suzhou, China, a plant in nearby Taizhou and a fermentation facility in Chongqing, China.

Financials (September 2020)
Enterprise Value: $3 billion
Annual Revenue: $84.3 million
Established in 1970 in Northern Germany, medac is a growing global pharmaceutical and diagnostics company. Privately-held medac develops, manufactures and markets specialised therapeutics and diagnostics, mainly in the fields of hemato-oncology, urology and autoimmune. In addition to the established product portfolio, medac is dedicated to the refining of existing and the development of new unique therapeutic products. medac markets more than 50 oncology products in Europe. The company’s products are sold in more than 90 countries. Medac owns 50% of two subsidiaries, Oncotec GmbH in Dessau Germany and oncomed manufacturing a.s. in the Czech Republic city of Brno, for the production of highly effective, sterile pharmaceuticals like cytotoxics. medac has 1700 employees and over $400mm in revenue.

Financials (September 2020)
Enterprise Value: $2.9 billion
Annual Revenue: $446 million

3SBio was founded in 1993, and is headquartered in Shenyang, China. 3SBio is a publicly-traded vertically-integrated branded pharmaceutical company with market leading franchises in biologics for the treatment of cancer auto-immune diseases, dermatology and nephrology. The Company’s portfolio includes a number of recombinant human therapeutic products. As one of the earliest Chinese biopharmaceutical companies to enter the international market, through an export company, 3SBio now uses local agency cooperation to expand their international endeavors throughout the Middle East, Latin America and Asia. They have also established a number of commercial and development partnerships with various other companies and continue to grow through strategic acquisitions. 3SBio is based in China, globally driven and focused on innovation. The Company was first listed in 2007.

Financials (September 2020)
Enterprise Value: $2.9 billion
Annual Revenue: $760.2 million
Amoytop Biotech

VALUE RANK: 261

Details
No. 330 Wengjiao Road, Haicang Xinyang Industry Zone
Xiamen, Fujian Province 361028
China
+86 5 926889114
www.amytop.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: SHSE: 688278
Sector: Branded Pharma
Lead TA: Hematology

Founded in 1996, Xiamen Amoytop Biotech Co., Ltd. is an innovative biopharmaceutical company in China, specialized in R&D, manufacturing and marketing of regular and long-acting recombinant protein drugs. Focusing on the R&D of immune-related cytokine medicines, Amoytop Biotech is committed to providing better solutions for major diseases including viral hepatitis, malignant tumors and immunotherapy. Key products include Pegylated Recombinant Human Interferon alfa-2b for hepatitis B/C, molgramostim, filgrastim for neutropenia and oprelvekin (IL-11) for thrombocytopenia. Aiming to improve the life quality of people, Amoytop is actively developing the international market to supply therapeutic biological products with all the endeavors. Amoytop went public in December 2019.

Financials (September 2020)
Enterprise Value: $2.9 billion
Annual Revenue: $109 million

United Therapeutics

VALUE RANK: 262

Details
1040 Spring Street
Silver Spring, Maryland 20910
United States
+1 301 608 9292
www.unither.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: NasdaqGS: UTHR
Sector: Branded Pharma
Lead TA: Rare Disease

United Therapeutics Corporation was founded in 1996 by parents of a child with pulmonary arterial hypertension (PAH) and is headquartered in Silver Spring, Maryland. Originally named Lung Rx, Inc., the Company changed its name in 1997. Its portfolio includes Remodulin®, Tyvaso®, Orenitram® and Adcirca® for pulmonary arterial hypertension, and Unituxin® for neuroblastoma. United Therapeutics is also focusing on the shortage of transplantable lungs and other organs with technologies that either delay the need for such organs or expand the supply. United Therapeutics are inspired by and committed to their patients, in their relentless pursuit of, ‘medicines for life.’ The Company went public in 1999.

Financials (September 2020)
Enterprise Value: $2.9 billion
Annual Revenue: $1.4 billion
Global Blood Therapeutics (GBT) is passionate about the discovery, development and commercialization of novel therapeutics for the treatment of grievous blood-based disorders. The Company focuses on transforming their patients’ lives by addressing the steam causes of many blood-based disorders and diseases, especially sickle cell disease. GBT's primary drug-candidate is an oral, once-daily therapy designed to regulate haemoglobin affinity for oxygen and it is in development for the treatment of sickle cell disease in both adult and adolescent patients. GBT are also exploring potential applications for the treatment of idiopathic pulmonary fibrosis. GBT has been public since 2015.

Financials (September 2020)
Enterprise Value: $2.9 billion
Annual Revenue: $47.7 million

GW Pharmaceuticals was founded in 1998 and is based in Cambridge, UK. The Company specializes in cannabinoid prescription medicines for treating a range of conditions, including epilepsy, multiple sclerosis, glioma, and schizophrenia. GW’s cannabinoid product pipeline includes its lead product, EPIDIOLEX®, designed to treat rare childhood-onset epilepsy disorders, and other product candidates for the treatment of glioma, ulcerative colitis, type-2 diabetes, and schizophrenia. The Company has developed various strategic alliances with other pharma companies, and has a global reach, with branches in Europe, the US, Canada, and Asia. GW is patient-driven and seeks to address clear unmet needs. The Company went public in 2001 and subsequently listed in the U.S. in 2013.

Financials (September 2020)
Enterprise Value: $2.9 billion
Annual Revenue: $441.9 million
Established in 1997 Arena Pharmaceuticals is based in San Diego, California and is focused on building a vibrant and sustainable company that delivers transformational medicines. Arena Pharmaceuticals is interested in a variety of therapeutic areas including autoimmune, vascular and rare diseases and is making excellent progress in advancing its pipeline. Key pipeline items include etrasimod, an orally available S1P receptor modulator for atopic dermatitis and ulcerative colitis; olarinab, a CB2 modulator for pain and IBS; and APD418, a first-in-class β3-adrenergic receptor (AdrR) antagonist for acute heart failure. Arena has also created subsidiary Arena Neuroscience which is pursuing three drug candidates for the management of microglial inflammation. Arena Pharmaceuticals went public in 2000.

**Financials (September 2020)**
- Enterprise Value: $2.9 billion
- Annual Revenue: $4.6 million

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Established in 2009, and based in Pine Brook, New Jersey, Alvogen develops, manufactures, researches, and sells generics, biosimilars and OTC products. Alvogen’s product portfolio treats a broad range of therapeutic areas including cardiology, oncology, respiratory, neurology, and gastroenterology. The Company has commercial networks over 35 countries, marketing over 350 generic products and Alvogen works with third parties to promote and distribute a range of biosimilars. In 2020 Alvogen sold CEE operations to Zentiva. We estimate that remaining North America and Asia operations have revenue of $800mm. Alvogen balances consistent innovation and operational growth with a rich workplace culture and a commitment to social responsibility.

**Financials (September 2020)**
- Enterprise Value: $2.9 billion
- Annual Revenue: $800 million
Simcere Pharma

**VALUE RANK: 267**

**Details**
No 699-18 Xuanwu Avenue
Nanjing, Jiangsu Province 210042
China
+86 25 8556 6666
www.simcere.com

**Notes**
Simcere was founded in 1995 and is based in Nanjing, China. The Company’s portfolio of products, manufactured at its GMP-inspected facilities, cover oncology, cardiovascular and cerebrovascular, anti-infection and rheumatology therapeutic areas. Additionally, the Company has a pipeline of product candidates designed to broaden their marketed portfolio. Simcere has engaged in collaborative partnerships with a number of international partners. China’s Ministry of Science and Technology designated one of the company’s R&D facilities as a ‘National Key Laboratory for Translational Medicine and Innovative Drugs’ in 2015. The Company’s goal is to, ‘discover and develop high-quality medicines for patients.’ Simcere floated in 2007 and later went private. Simcere has filed to relist in Hong Kong as of June 2020.

**Financials (September 2020)**
Enterprise Value: $2.9 billion
Annual Revenue: $800 million

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Prasco

**VALUE RANK: 268**

**Details**
6125 Commerce Court
Mason, Ohio 45040
United States
+1 513 618 3333
www.prasco.com

**Notes**
We multiplied a revenue estimate of $800mm by the median generic industry multiple to impute value.

**Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad**

Prasco was founded in 2002 by E. Thomas Arington and is based on Christian principles and values. Over 50 of the most trusted brand companies have relied on Prasco to bring its products to the generic marketplace as authorized generics (AGs). The acknowledged category leader, Prasco has launched over 90 AGs, providing patients with brand quality at more affordable prices in over 60,000 pharmacies nationwide. Prasco’s financials are, of course, private but our understanding is that net revenue in 2020 is approximately $800mm. Of course, significant margin is shared back with the brand partner. Prasco is experiencing growth not only in their AG business, but also in select ANDA products.

**Financials (September 2020)**
Enterprise Value: $2.9 billion
Annual Revenue: $800 million
ADC Therapeutics

ADC Therapeutics SA is an oncology-focused biotechnology company headquartered in Lausanne, Switzerland. ADC develops and intends to commercialize antibody-drug conjugates (ADCs) for liquid and solid tumors. ADC is using next-generation pyrrolobenzodiazepine (PBD) technology. Strategic target selection for PBD-based ADCs and investment in early clinical development have enabled ADC Therapeutics to build a deep pipeline of therapies. Loncastuximab tesirine, the Company’s lead product candidate, has been evaluated in a 145-patient pivotal Phase 2 clinical trial for the treatment of DLBCL that showed a 45.5% overall response rate. Camidanlumab tesirine is being evaluated in a 100-patient Phase 2 clinical trial for the treatment of relapsed Hodgkin lymphoma after having shown an 86.5% ORR in a Phase 1 clinical trial. ADC’s focus is “Innovating science. Inspiring hope.” ADC Therapeutics went public in 2000.

Financials (September 2020)
Enterprise Value: $2.9 billion
Annual Revenue: NA

Axsome

Axsome Therapeutics, Inc. is a clinical-stage biopharmaceutical company developing novel therapies for the management of central nervous system (CNS) disorders for which there are limited treatment options. For the many people facing unsatisfactory treatments for CNS disorders, Axsome accelerates the invention and adoption of life-changing medicines. Axsome’s core CNS product candidate portfolio includes five clinical-stage candidates, AXS-05, AXS-07, AXS-09, AXS-12, and AXS-14. AXS-05 is being developed for major depressive disorder (MDD), treatment resistant depression (TRD), Alzheimer’s disease (AD) agitation, and as treatment for smoking cessation. AXS-07 is being developed for the acute treatment of migraine. AXS-12 is being developed for the treatment of narcolepsy. AXS-14 is being developed for fibromyalgia. AXS-05, AXS-07, AXS-09, AXS-12, and AXS-14 are investigational drug products not approved by the FDA.

Financials (September 2020)
Enterprise Value: $2.9 billion
Annual Revenue: NA
**BIOCAD**

**VALUE RANK: 271**

**Details**  
Strelna, Svyazi st., 34-A  
St. Petersburg, 198515  
Russia  
+7 (812) 380 49 33  
biocadglobal.com

**Notes**  
Biocad disclosed $283mm in revenue. We multiplied this by the median multiple for biosimilar pharma companies to impute a value estimate.

**Exch:Ticker:** Private Company  
**Sector:** Generics - Biosimilars  
**Lead TA:** Broad

CJSC BIOCAD a Russian pharmaceutical company which engages in the research, development, and manufacturing of biosimilar pharmaceuticals. Its products include acellbia (rituximab), avegra (bevacizumab), and herticad (trastuzumab); and drugs for treatment of autoimmune diseases, such as infliximab, interferon beta-1b, adalimumab, anti il-17 mAb, tenexia (pegylated interferon beta-1a), and anti il-6r mAb; and anti PCSK9 mAb. It offers beta-1b (BIOCAD), a biosimilar of recombinant human interferon beta-1b against multiple sclerosis; and Genferon suppositories. In addition, it offers Genferon Light, a medicine of recombinant interferon; and Algeron for the treatment of chronic hepatitis C. The company was founded in 2001 and is based in Moscow, Russia with additional office in Saint-Petersburg, Russia.

**Financials (September 2020)**  
**Enterprise Value:** $2.9 billion  
**Annual Revenue:** $283 million

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**Guojian Pharmaceutical**

**VALUE RANK: 272**

**Details**  
No. 399 Libing Road, Pilot Free Trade Zone  
Shanghai, China  
+86-21-5079 1399  
https://www.3s-guojian.com/

**Notes**  
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** SHSE:688336  
**Sector:** Branded Pharma  
**Lead TA:** Immunology

Founded in 2002, Sunshine Guojian is a Chinese developer and marketer of biosimilar and biobetter products. Guojian has three antibody drugs on the market in China today. The company operates the largest production base of antibody drugs among all biopharmaceutical companies in China and has built the bioreactor with a scale of more than 38,000 liters. The company’s R&D mainly focuses on innovative therapeutic antibody drugs for autoimmune diseases, tumors and other major diseases. The company has a variety of leading antibody products in different development stages, including 304R (recombinant human-mouse chimeric anti-CD20 monoclonal antibody injection), and 602 (an anti-epidermal growth factor receptor antibody used for the treatment of cancer). Adhering to the concept of “Cherish Life, Care for Life, Create Life”, Sunshine Guojian is committed to growing an innovative therapeutic antibody drug enterprise that benefits China and embraces the world.

**Financials (September 2020)**  
**Enterprise Value:** $2.8 billion  
**Annual Revenue:** NA
KrKa

VALUE RANK: 273

Details
6 Šmarješka cesta
Novo mesto, 8501
Slovenia
+386 7 331 7861
www.krka.biz

Notes
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: LJSE:KRKG
Sector: Generics - Branded
Lead TA: Broad

Krka was founded in 1954, and is headquartered in Novo Mesto, Slovenia. Krka is an international generic pharmaceutical company that develops, produces and markets prescription and non-prescription pharmaceuticals. It also produces animal health products, as well as engaging in health resort and tourist services, aiming to enable people to live healthy, good quality lives. Krka’s product portfolio is dominated by branded generic pharmaceuticals including those for cardiovascular diseases, diseases of the alimentary tract and metabolism, infections and diseases of the central nervous system. Krka has manufacturing facilities in Slovenia, Poland, the Russian Federation, Croatia and Germany, with further international subsidiaries for marketing and sales operations. The Company’s products are sold in over 70 countries. Krka’s IPO was in 1997.

Financials (September 2020)
Enterprise Value: $2.8 billion
Annual Revenue: $1.7 billion

Chipscreen

VALUE RANK: 274

Details
Biology Incubator Building 2 Rooms 601 – 606 First Gaoyinhong Avenue, Technology Park Nanshan District
Shenzhen, Guangdong Province 518057
China
+86 75 5269 57330
www.chipscreen.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SHSE:688321
Sector: Biotechnology
Lead TA: Oncology

Chipscreen Biosciences was founded in Shenzhen on 2001, specializing in the research and development of original small molecule drugs. With the self-created "integrated drug discovery and early evaluation platform based on chemical genomics" as its core competitiveness, Chipscreen Biosciences has now become one of China’s leading innovative drug enterprises, forming a modern biopharmaceutical group company in Shenzhen. At present, the company has developed a number of original new drug product lines for oncology, metabolic diseases, and autoimmune diseases. Shenzhen Chipscreen Biosciences Co., Ltd. was listed on Shanghai Stock Exchange STAR Market on August 12, 2019.

Financials (September 2020)
Enterprise Value: $2.8 billion
Annual Revenue: $28.6 million
Harmony Biosciences

VALUE RANK: 275

Details
630 W. Germantown Pike, Suite 215
Plymouth Meeting, Pennsylvania 19462
United States
+1-484-539-9800
harmonybiosciences.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGM:HRMY
Sector: Branded Pharma
Lead TA: CNS

Harmony Biosciences is a pharmaceutical company headquartered in Plymouth Meeting, PA and Chicago, IL. The company was established in October 2017 by Paragon Biosciences, LLC, with a vision to provide novel treatment options for people living with rare, neurological disorders who have unmet medical needs. Harmony's lead product, WAKIX (pitolisant), is a first-in-class molecule designed to increase histamine signaling in the brain by binding to H3 receptors. In August 2019, WAKIX was approved FDA for the treatment of excessive daytime sleepiness, or EDS, in adult patients with narcolepsy, and its U.S. commercial launch was initiated in November 2019. WAKIX is the first and only approved product for patients with narcolepsy that is not scheduled as a controlled substance. Harmony went public in August 2020.

Financials (September 2020)
Enterprise Value: $2.8 billion
Annual Revenue: $63.8 million

Fate Therapeutics

VALUE RANK: 276

Details
3535 General Atomics Court, Suite 200
San Diego, California
United States
+1 858 875 1800
www.fatetherapeutics.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGM:FATE
Sector: Biotechnology
Lead TA: Oncology

Fate Therapeutics is a San Diego based biopharmaceutical company dedicated to the development of first-in-class cellular immunotherapies for cancer and immune disorders. The Company has established a leadership position in the clinical development and manufacture of universal, off-the-shelf cell products using its proprietary induced pluripotent stem cell (iPSC) product platform. The Company’s immuno-oncology product candidates include natural killer (NK) cell and T-cell cancer immunotherapies, which are designed to synergize with well-established cancer therapies, and to target tumor-associated antigens with chimeric antigen receptors (CARs). The Company’s immuno-regulatory product candidates include ProTmune™, a pharmacologically modulated, donor cell graft that is currently being evaluated in a Phase 2 clinical trial for the prevention of graft-versus-host disease.

Financials (September 2020)
Enterprise Value: $2.8 billion
Annual Revenue: $13.2 million
Reata Pharma

**VALUE RANK: 277**

**Details**
2801 Gateway Drive, Suite 150
Irving, Texas 75063
United States
+1 972 865 2219
www.reatapharma.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** Ticker: NasdaqGM: RETA  
**Sector:** Biotechnology  
**Lead TA:** Renal

Headquartered in Irving, Texas and founded in 2002, Reata Pharmaceuticals targets molecular pathways that regulate cellular metabolism and inflammation, developing novel therapeutics for patients with rare diseases. Reata’s drug candidate, bardoxolone, a Nrf2 inhibitor for Alport syndrome, has exhibited strong efficacy and safety in recent clinical studies. Its omaveloxolone targets the mitochondrial dysfunction associated with Friedrich’s Ataxia and is being studied in the registrational part 2 of the MOXIe study. Reata actively seeks partnership opportunities with academic institutions as well as other biotechnology and pharmaceutical companies develop innovative technologies that target the core pathophysiological processes implicated in driving intractable diseases. The Company’s mission is to, ‘develop novel therapeutics for patients with serious and life-threatening diseases.’ Reata went public in 2016.

**Financials (September 2020)**
Enterprise Value: $2.8 billion  
Annual Revenue: $13.7 million

Hisamitsu

**VALUE RANK: 278**

**Details**
408 Tashiro Daikan-machi
Tosu, Saga 841-0017
Japan
+81 35 293 1712
www.hisamitsu.co.jp

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** Ticker: TSE: 4530  
**Sector:** Branded Pharma  
**Lead TA:** Pain

Hisamitsu was founded in 1847 and is headquartered in Tokyo, Japan, with subsidiaries across Japan and in countries including the US, UK, Asia and South America. The Company operates R&D facilities in Japan and the US, focusing on transdermal drug delivery system (TDDS) products in a wide range of therapeutic fields. TDDS products are the core of Hisamitsu’s portfolio, marketed both domestically and internationally. The Company offers OTC products including topical antifungal drugs and eye drops as well as analgesic, anti-inflammatory, dermatological, central nervous system and respiratory system drugs for the domestic market. In 2009, Hisamitsu acquired Noven Pharmaceuticals, a specialty transdermal pharmaceutical company based in Florida. The Company’s goal is to meet people’s need for a, “healthy, safe and comfortable life.” Hisamitsu went public in 1962.

**Financials (September 2020)**
Enterprise Value: $2.8 billion  
Annual Revenue: $1.2 billion
China Medical System (CMS) was established in 1995 and is headquartered in Shenzhen, China. The Company focuses on providing marketing, promotion and sales services to specialty pharmaceutical companies. The marketing and sales division of the company employs a number of strategies to promote pharmaceutical products including one-on-one physician visits, medical symposia and industry conferences. The group also provides other ancillary services, including product registration and clinical trials to support pharmaceutical companies introducing its products to the Chinese market. CMS has established international long-term business partnerships with companies from Germany, Denmark, Ireland, France, the Ukraine and Japan to introduce new products to the Chinese pharmaceutical service market. The Company has been listed since 2010.

Financials (September 2020)

Enterprise Value: $2.8 billion
Annual Revenue: $880.1 million

Biolab was founded in 1997 and is based in Sao Paulo, Brazil. The Company produces medicines in the areas of cardiology, rheumatology, orthopedics, general practice, pediatrics, endocrinology, geriatrics, and dermatology. With an innovative portfolio of over 100 products developed in collaboration with key partners, Biolab is one of the leading largest pharmaceutical companies in Brazil, having a global reach into over 50 international markets. Biolab has more than 1600 sales reps in the Brazilian market. The Company values quality of life and aims to supports this through its products and CSR activities. Biolab has created the Educ Esporte Project to encourage children to take part in sports and maintain a healthy lifestyle.

Financials (September 2020)

Enterprise Value: $2.8 billion
Annual Revenue: $418 million
Mankind Pharma

**Value Rank:** 281

**Details**
208 Okhla Industrial Estate, Phase-III
New Delhi, Delhi 110 020
India
+91 11 4654 1111
www.mankindpharma.com

**Notes**
Mankind's press reported revenue of FY20 revenue of $766mm was multiplied by the median generic industry revenue multiple to impute value.

**Exch:** Ticker: Private Company
**Sector:** Generics - Branded
**Lead TA:** Broad

Sawai was founded in 1929 as a pharmacy, by Hanpei and Noyo Sawai, and today is headquartered in Osaka, Japan. Founded in 1948, Sawai has developed, manufactured and marketed pharmaceutical products including OTC and generic drugs. Sawai has the largest market share of generic medicines in Japan. Sawai’s portfolio contains over 700 prescription drugs, including treatments for therapeutic areas such as antibiotics, cardiovascular, central nervous system, oncology and gastro-intestinal indications. The Company’s R&D operations focus on developing first-to-market generic pharmaceuticals. Sawai acquired Upsher-Smith, a Minnesota-based generic company, in 2017 to enter the U.S. market. The Company seeks to always put patients first, enabling patients to live healthy lives, growing through innovation and cooperation. The Company went public on the Tokyo Stock Exchange in 2000.

**Financials (September 2020)**
Enterprise Value: $2.7 billion
Annual Revenue: $1.6 billion
**Jubilant Pharma Segment**

**VALUE RANK:** 283

**Details**
1A, Sector 16A  
Noida, Uttar Pradesh 201301  
India  
+91 12 0436 1000  
www.jubilantpharma.com

**Notes**
We imputed a value estimate for Jubilant Pharma by multiplying 2019 segment revenue times the median generic industry revenue multiple.

**Exch:Ticker:** Public Company Segment  
**Sector:** Generics - Branded  
**Lead TA:** Generics

Jubilant Life Sciences is a publicly-traded Indian company with operations in pharmaceuticals, life sciences ingredients and drug discovery services. Subsidiary, Jubilant Pharma, is a major provider of generic formulations for the markets in the U.S. with a growing presence in Europe, Canada, Japan, and Australia. As at December 2019, Jubilant had 56 commercialized generic solid dosage formulations products and another 100 generic products in development. Further, there is a large U.S. radiopharmaceuticals business (built from the Draximage acquisition). Finally, Jubilant owns a major provider of allergen extracts for the treatment of allergies. Jubilant has 25% of the U.S. allergen extract market. Jubilant Pharma includes a CMO business called Jubilant HollisterStier which is an integrated contract manufacturer of sterile injectables, ophthalmics, otics, and ointments (sterile and non-sterile), creams and liquids.

**Financials (September 2020)**
Enterprise Value: $2.7 billion  
Annual Revenue: $758.9 million

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**TG Therapeutics**

**VALUE RANK:** 284

**Details**
2 Gansevoort Street, 9th Floor  
New York, New York 10014  
United States  
+1 212 554 4484  
www.tgtherapeutics.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** NasdaqCM:TGTX  
**Sector:** Biotechnology  
**Lead TA:** Oncology

TG Therapeutics was founded in 2012 and is based in New York, US. The Company focuses on the acquisition, development and commercialization of novel treatments for B-cell malignancies and autoimmune diseases. The Company has a development pipeline that includes therapies to target hematological malignancies and autoimmune diseases as well as candidates for indications such as multiple sclerosis. With a number of other potential candidates undergoing pre-clinical development, TG Therapeutics have considerable expertise in conducting robust clinical trials. The Company is dedicated to, ‘the development of innovative therapeutic products that extend and enhance the quality of life for patients suffering from cancer and other underserved therapeutic needs.’

**Financials (September 2020)**
Enterprise Value: $2.7 billion  
Annual Revenue: $0.1 million
Ethypharm

VALUE RANK: 285

Details
194 Bureaux de la Colline, Building D, 12th Floor
Saint Cloud, Cedex 92213
France
+33 1 41 12 17 20
www.ethypharm.com

Notes
Ethypharm reports €350mm in 2019 revenue. This was multiplied by the median revenue multiple for branded pharma companies to impute a value estimate.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Pain

China TCM Holdings

VALUE RANK: 286

Details
No. 288 Hennessy Road, Room 1601 Emperor Group Centre
Wanchai, New Territories
Hong Kong
+852 2854 3393
www.china-tcm.com.cn

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SEHK:570
Sector: Generics - China
Lead TA: Broad

Headquartered in Saint Cloud, France and founded in 1977, Ethypharm specializes in drug delivery systems. The Company develops, manufactures, and recently started marketing its own products in the therapeutic areas of pain, addiction, critical care and affordable essential medicines. The Company also has activity in the fields of gastroenterology and cardiology, in over 80 countries worldwide. Ethypharm is engaged in both in and out-licensing and has over 100 far reaching international partnerships and distributors covering Europe, the Americas, Africa, the Middle East and Asia. Since building its own commercial structure, bringing their product directly to prescribers and patients, the Company continues to innovate and understand what is needed from a user perspective.

Financials (September 2020)
Enterprise Value: $2.7 billion
Annual Revenue: $413 million

China Traditional Chinese Medicine (China TCM) was founded by Liang Zhonghong in 1573 in Foshan, China, and is now based in Wanchai, Hong Kong. Originally a medical clinic and responsible for manufacturing one of the earliest wax pills in China, the Company expanded into a Medicinal shop, treating patients whilst also creating new products. Since the Company has seen many name changes, mergers and acquisitions. Today China TCM is a fully-integrated pharmaceutical group engaged in R&D, manufacturing and the distribution of over 2,000 products, including traditional Chinese medicine prescription drugs, traditional Chinese herbal drugs, and pharmaceutical drugs. The Company’s mission is to carrying forward the essence of Chinese medicine, protecting human health, to improve the health of the entire nation. China TCM went publicly traded in 2009.

Financials (September 2020)
Enterprise Value: $2.7 billion
Annual Revenue: $1.9 billion
Kowa Pharma Segment

**VALUE RANK:** 287

**Details**
6-29 Nishiki 3-chome, Naka-ku
Nagoya, Aichi 460-8625
Japan
+1-334.288.1288
www.kowa.co.jp

**Notes**
Kowa disclosed pharma business revenues in 2019 were $1.3bn. We multiplied this by the median revenue multiple for Japanese pharma companies to impute value for this segment of Kowa's business.

**Exch:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Cardiometabolic

Founded in 1947 and headquartered in Nagoya, Japan, Kowa engages in a diverse range of business activities. The Company conducts the research, development and manufacture of OTC, ethical drugs, consumer healthcare products and medical equipment as well as having interests in LED lighting, energy, fashion and optics. Kowa is dedicated to producing high quality products to promote a better standard of health and more comfortable life for all. The pharmaceutical division is one of the six pillar business areas of Kowa. The division has a portfolio that includes treatments for bronchial asthma, anti-epileptic agents, and statin products. Kowa’s products are marketed throughout Asia and the Company’s international footprint also includes research and development facilities and subsidiaries for the marketing of products internationally in both the US and the UK.

**Financials (September 2020)**
Enterprise Value: $2.7 billion
Annual Revenue: $1.3 billion

Alembic

**VALUE RANK:** 288

**Details**
Alembic Road
Vadodara, Gujarat 390 003
India
+91 26 5228 0550
www.alembicpharmaceuticals.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** BSE:533573  
**Sector:** Generics - Branded  
**Lead TA:** Broad

Founded in 1907 and headquartered in Gujarat, India, Alembic started manufacturing tinctures and alcohol. Scientific research has remained at the core of Alembic activities which today focuses on the manufacture and marketing of branded generic pharmaceutical products for the domestic and international market for both human and veterinary needs. The Company has a state-of-the-art research facility and explores opportunities in dermatology, oncology and injectable formulations. Alembic has six formulation and three cGMP compliant API manufacturing facilities to produce their portfolio of therapeutics for indications including gynecology, urology, dermatology, ophthalmology and animal health. Alembic aims to improve healthcare through innovation, commitment and trust. Included on Forbes’ ‘India’s Super 50 Companies 2016’ list, the company has been public since 2011.

**Financials (September 2020)**
Enterprise Value: $2.7 billion
Annual Revenue: $661.6 million
Alkermes

VALUE RANK: 289

With headquarters in Dublin, Ireland, the foundations of Alkermes were built in 1987 and the Company has developed a portfolio based on its proprietary science and technology. The Company as it is known today is the result of a merger in 2011 between Alkermes and Elan Corporation. Alkermes develops innovative medicines to make a meaningful difference to the unmet needs and challenges of patients living with debilitating disease. Their target therapeutic areas are CNS diseases such as schizophrenia, depression and multiple sclerosis. Alkermes’ lead pipeline item is ALKS 3831 which is nearing FDA registration in schizophrenia and bipolar disorder. Alkermes is engaged in out-licensing its technology for third-party use in both the US and Europe and they have a strong global presence in the field. Alkermes completed an IPO in 1991.

Financials (September 2020)
Enterprise Value: $2.7 billion
Annual Revenue: $1.1 billion

Details
1 Burlington Road, Connaught House
Dublin, Co. Dublin 4
Ireland
+353 1 772 8000
www.alkermes.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: NasdaqGS: ALKS
Sector: Branded Pharma
Lead TA: Psychiatry

Nektar

VALUE RANK: 290

Founded in 1990, Nektar Therapeutics is a biotech with a robust, pipeline of investigational medicines in oncology and immunology as well as a portfolio of approved partnered medicines. Nektar is headquartered in San Francisco, California, with additional operations in Huntsville, Alabama and Hyderabad, India. Nektar’s lead drug candidate, Bempegaldesleukin is a CD122-preferential IL-2 pathway agonist designed to stimulate the immune system to fight cancer. Bempegaldesleukin is designed to grow specific cancer-killing T cells and natural killer (NK) cell populations, which are known as endogenous tumor-infiltrating lymphocytes (TILs) and is partnered with Bristol-Myers Squibb. Nektar Therapeutics has established partnerships with a range of leading companies and institutions, and also has a number of licensing agreements in place. The Company is dedicated to bringing new, effective therapies to patients and went public in 1994.

Financials (September 2020)
Enterprise Value: $2.7 billion
Annual Revenue: $162.5 million

Details
455 Mission Bay Boulevard South
San Francisco, California 94158
United States
+1 415 482 5300
www.nektar.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: NasdaqGS: NKTR
Sector: Biotechnology
Lead TA: Oncology
Neopharm Ltd

VALUE RANK: 291

Details
6 Hashiloach St.
Petach Tikva, 4917001
Israel
+972-3-937-3737
neopharmgroup.com

Notes
We multiplied 2019 revenue of $400mm by the median revenue multiple for branded pharma companies to impute value.

Exch: Ticker: Private Company
Sector: Branded Pharma
Lead TA: Broad

Founded in 1941, Neopharm is one of the leading pharmaceutical companies in Israel. For over 75 years, we have been providing the Israeli market with a wide range of products and integrated services for patients in need with a track record of successful market access and launches. Neopharm Israel is part of the privately owned Neopharm Group which, through its family of companies, engages in the research and development, manufacturing, marketing, sales and distribution of a broad range of products in the healthcare market in more than 60 countries worldwide. The Neopharm Group operates in three major segments: Pharmaceutical, Consumer Healthcare and Medical Devices, which together generate annual revenues exceeding four hundred million US dollars. The Group has offices in Israel, Europe, United States and employs over 900 employees worldwide.

Financials (September 2020)
Enterprise Value: $2.6 billion
Annual Revenue: $400 million

AoDong Medicine

VALUE RANK: 292

Details
No. 2158 Jilin Aodong Avenue
Dunhua, Jilin Province 133700
China
+86 43 3623 8973
www.jlaod.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: SZSE:000623
Sector: Generics - China
Lead TA: Broad

Based in Dunhua City, China, AoDong Medicine was originally founded in 1957 as Dunhua Luchang Yanbian Factory. The Company produces modern Chinese medicines, biochemicals, phytochemicals and healthcare products as well as offering pharmaceutical sales and support services. The Company has five core corporate advantages: brand, quality, technical, management and capital, delivered by being focused on people, whilst specializing in medicine. The Company’s mission is to ‘provide society with safe and reliable medicine.’ In 2015 the Company was recognized at the nation-level by receiving an award recognizing their Management, Modernization and Innovation achievements. AoDong Medicine went public in 1996.

Financials (September 2020)
Enterprise Value: $2.6 billion
Annual Revenue: $363.4 million
Chase Sun Pharma

VALUE RANK: 293

Details
No.20 Quanfa Road, Wuqing Development Zone
Tianjin, Tianjin Province
China
+86 22 5962 3169
www.chasesun.cn

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:300026
Sector: Generics - China
Lead TA: Broad

Chase Sun Pharma was established in 1996 by founder and Chairman Yao Xiaoqing, and is based in Tianjin, China. Integrating investment and financing with R&D, production, and sales of therapeutic products in areas such as neurology, cardiology, respiratory medicine and oncology, Chase enjoys extensive market coverage across every province in China. The Company is engaged in various fields, including the production of raw materials, traditional and modernized Chinese medicines, synthetic drugs, biotech drugs, medical apparatus, wearable medical products, and internet based-therapy, as well as farming of Chinese herbal medicinal flora. Chase’s mission is to develop superior medicines to contribute to improving human health. The Company has successfully developed many new products and boasts an extensive product portfolio. Chase Sun Pharma went publicly traded in 2009.

Financials (September 2020)
Enterprise Value: $2.6 billion
Annual Revenue: $778.1 million

Akeso

VALUE RANK: 294

Details
6 Shennong Road Torch Development Zone
Zhongshan, Guangdong Province
China
+86 76 8987 3936
www.akesobio.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SEHK:9926
Sector: Biotechnology
Lead TA: Oncology

Akeso, Inc. is a clinical-stage biopharmaceutical company committed to in-house discovery, development and commercialization of innovative biologics therapies. Since its inception, the Company has had the foresight to develop an end-to-end platform, Akeso Comprehensive Exploration platform (“ACE Platform”), encompassing comprehensive drug discovery and development functionalities, including target validation, antibody drug discovery and development, CMC, and GMP-compliant manufacturing. The Company dedicated to addressing global unmet medical needs in oncology, immunology and other therapeutic areas. Its lead compound, AK104, is a bispecific PD-1/CTLA4 antibody. This drug is proceeding in a second-line therapy in patients with recurrent cervical cancer. Akeso’s vision is to become a global leader in developing, manufacturing and commercializing innovative, next-generation and affordable therapeutic antibodies for patients worldwide.

Financials (September 2020)
Enterprise Value: $2.6 billion
Annual Revenue: $10 million
Joincare Pharma

Joincare Pharma, has undergone many re-namings and transformations in its lifetime but was established in 1992 and is currently based in Shenzhen, China. The Company develops and manufactures a substantial range of natural health and beauty supplements, active pharmaceutical ingredients, prescribed drugs, OTC drugs, and food additives. The Company was elected as one of the Top 50 best performing Enterprises in China in 2003. Joincare is constantly striving to be better, with their company motto ‘For health, and a better tomorrow, we are always working hard!’ Joincare went public in 2001.

Financials (September 2020)
Enterprise Value: $2.6 billion
Annual Revenue: $1.7 billion

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value. We deducted the value of its stake in Livzon.

Exch:Ticker: SHSE:600380
Sector: Generics - China
Lead TA: Broad

Turning Point

Turning Point Therapeutics is a publicly-traded biotech company based in San Diego. The company’s repotrectinib, is a next-generation kinase inhibitor targeting the ROS1 and TRK drivers of non-small cell lung cancer and advanced solid tumors. Repotrectinib, which is being studied in a registrational Phase 2 study in adults and a Phase 1/2 study in pediatric patients, has shown antitumor activity and durable responses among kinase inhibitor treatment-naïve and pre-treated patients. Turning Point’s next-generation kinase inhibitors are designed to bind to their targets with a novel, compact structure that has demonstrated an ability to potentially overcome treatment resistance associated with current therapies. The company is driven to develop therapies that mark a turning point for patients in their cancer treatment.

Financials (September 2020)
Enterprise Value: $2.6 billion
Annual Revenue: NA

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:TPTX
Sector: Biotechnology
Lead TA: Oncology
Pacira

VALUE RANK: 297

Details
5 Sylvan Way, Suite 300
Parsippany, New Jersey 07054
United States
+1 973 254 3560
www.pacira.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:PCRX
Sector: Branded Pharma
Lead TA: Hospital

Pacira was founded in 2006 and is headquartered in Parsippany, New Jersey. Pacira is committed to driving improved patient outcomes with opioid-reducing strategies, thus reversing the trend of over-reliance on opioid medications in post-surgical medicine. The Company develops, manufactures and commercializes proprietary pharmaceutical products based on its proprietary extended-release drug delivery technology. Its portfolio includes a long-acting local analgesic for the treatment acute post-surgical pain. Further products are currently being developed including a long-acting local anti-clotting agent and a long-acting non-steroidal anti-inflammatory drug. Pacira is dedicated to, ‘providing solutions that address unmet medical needs and improve clinical results.’ The Company went public in 2011.

Financials (September 2020)
Enterprise Value: $2.6 billion
Annual Revenue: $408.2 million

Dendreon / Sanpower

VALUE RANK: 298

Details
1700 Saturn Way
Seal Beach, California 90740
United States
+1-562-252-7500
www.dendreon.com

Notes
We multiplied 2019 revenue of $393mm by the median revenue multiple for branded pharma companies to impute value.

Exch:Ticker: Public Company Segment
Sector: Branded Pharma
Lead TA: Oncology

Dendreon is a specialty pharma company that is owned by Cenbest, a Chinese healthcare and retail company that has a large ownership stake from Sanpower. Its lead product, Provenge® (known generically as sipuleucel-T), is an immunotherapy for prostate cancer. It consists of a mixture of the patient's own blood cells (autologous, with dendritic cells thought to be the most important) that have been incubated with the Dendreon PAP-GM-CSF fusion protein. Phase III clinical trial results demonstrating a survival benefit for prostate cancer patients receiving the drug were presented at the AUA meeting on April 28, 2009. After going through the approval process, Provenge was given full approval by the FDA on April 29, 2010. Revenues of Dendreon in 2019 were $393mm and EBITDA has exceeded $130mm.

Financials (September 2020)
Enterprise Value: $2.6 billion
Annual Revenue: $393 million
Bio-Thera Solutions

**VALUE RANK: 299**

**Details**
Building A6 5th Floor 11Kai-Yuan Boulevard
Science City
Guanzhou, Guangdong Province
China
+86 20 3220 3220
www.bio-thera.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** SHSE: 688177
**Sector:** Generics - Biosimilars
**Lead TA:** Oncology

Bio-Thera Solutions is a Chinese pharma focused on biosimilars and innovative biologics. Adhering to "innovation for life" Bio-Thera is focused on drugs for cancer, autoimmune diseases, cardiovascular diseases and other threats to human life. The company has more than 20 main products in its pipeline. Glerli® is the first China-made adalimumab approved for marketing. The company’s self-developed bevacizumab is in a multi-center phase III clinical study. The company’s self-developed tocilizumab is undergoing a phase III clinical study in autoimmune diseases. The company also has a number of innovative antibody drugs in the preclinical development stage. The company’s antibody industrial park is located in Yonghe Development Zone, Guangzhou, covering an area of about 40,000 square meters. Currently, two 3500L stainless steel bioreactors and their supporting downstream purification production lines have been put into use. Bio-Thera regards the well-being of patients as the primary core value.

**Financials (September 2020)**
Enterprise Value: $2.6 billion
Annual Revenue: $7 million

Zelgen Bio

**VALUE RANK: 300**

**Details**
No. 209, Chenfeng Road
Kunshan, Anhui Province 215300
China
+86 512 5701 8310
www.zelgen.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** SHSE: 688266
**Sector:** Biotechnology
**Lead TA:** Oncology

Zelgen is a China-based innovation-driven new drug research and development company focusing on multiple therapeutic areas such as oncology, blood disorders, and liver and gallbladder diseases. It has the distinction of being the first non-revenue generating company to be listed on a mainland China stock exchange. Zelgen has research and development centers in Shanghai, Kunshan, China, and California. The company has successfully established two core technology platforms, i.e. small-molecule drug precision development and industrialization platform, and complex recombinant protein new drug development and industrialization platform. Currently, Zelgen has 11 innovative drugs in its pipeline, six of which have advanced into clinical development development. A key drug candidate, donafenib tosylate is in trials for the treatment of late-stage liver cancer and colon cancer.

**Financials (September 2020)**
Enterprise Value: $2.6 billion
Annual Revenue: NA
Jumpcan Pharma

**VALUE RANK: 301**

**Details**
Baota Bay, West Daqing Road
Taizhou, Jiangsu Province 225441
China
+86 523 8760 6428
www.jumpcan.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** SHSE:600566  
**Sector:** Generics - China  
**Lead TA:** Broad

Jumpcan Pharmaceutical was established in 1996, with the name Hubei Hongcheng General Machinery Company, changing its name in 2015. The Company is based in Taizhou, China. Jumpcan Pharma engages in the research and development, production and distribution of Western medicines, traditional Chinese medicines, and related Chinese health products and daily use chemicals. Jumpcan Pharma’s products cover a broad range of therapeutic areas including gastroenterology, cardiology, dermatology, CNS, women’s health, nutrition, pediatrics, respiratory and anti-infectives. Jumpcan is tolerant of diversity and encourages an entrepreneurial spirit based on teamwork and innovation, focused on the belief that these will foster a win-win environment to use technology to defend health.

**Financials (September 2020)**

- Enterprise Value: $2.6 billion
- Annual Revenue: $847.1 million

Luye Pharma

**VALUE RANK: 302**

**Details**
No.9 Baoyuan Road, Laishan District
Yantai, Shandong Province 264003
China
+86 535 6717618
www.luye.cn

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** SEHK:2186  
**Sector:** Generics - China  
**Lead TA:** Broad

Founded in 1994 and based in Yantai, China, Luye Pharma specializes in the end-to-end development of oncology, cardiovascular, metabolic and CNS therapeutics. With a robust portfolio boasting over 30 products, the Company markets to its domestic market, as well as many of the main global pharmaceutical markets in North America, Europe, and Asia Pacific. Luye has also developed a strong pipeline in support of its existing product offerings, in line with the Company’s commitment to innovation, internationalization and growth. Critical investment has been made to establish a world-class R&D system, leading to the development of new drug delivery systems, such as liposomes and microspheres. The Company’s mission is ‘professional technology serves human health’ and they implement this through respect and their core values of integrity, cooperation, innovation and excellence. Luye went public in 2014.

**Financials (September 2020)**

- Enterprise Value: $2.5 billion
- Annual Revenue: $876 million
Shuanglin Biopharma

**VALUE RANK:** 303

**Details**
Xinfeng Road on the 1st, Ma Chapter
Zhanjiang, Guangdong Province 524076
China
+86 7593231999
www.zjslbio.com

**Notes**
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**SZSE:000403  
**Sector:** Branded Pharma  
**Lead TA:** Blood Products

Guangdong Shuanglin Bio-Pharmacy Co. Ltd. was founded on May 22, 1995 and is headquartered in Taiyuan, China. Shuanglin Bio-Pharmacy is a blood products company focusing on human serum albumin, human immunoglobulin, lyophilized human immunoglobulin for intravenous injection, rabies immunoglobulin for human, and hepatitis B immunoglobulin. Commensurate with rapid demand growth for blood products in PRC, its revenues have nearly doubled in the last five years. It is China’s top producers of rabies immunoglobulin. Shuanglin holds national invention patents, six provincial high-tech products, and 16 drug approval documents issued by the State Food and Drug Administration.

**Financials (September 2020)**
Enterprise Value: $2.5 billion  
Annual Revenue: $133.2 million

Pharmascience

**VALUE RANK:** 304

**Details**
6111 Royalmount Avenue
Montreal, Quebec H4P 2T4
Canada
+1 514 340 9800
www.pharmascience.com

**Notes**
Industry sources have indicated Pharmascience revenues of approximately $700mm in 2016. This has not been updated since. We multiple this figure by the median multiple for branded pharma companies to impute value.

**Exch:**Private Company  
**Sector:** Generics - INN  
**Lead TA:** Broad

Pharmascience, founded in 1983, operates out of headquarters in Quebec, Canada. Pharmascience is privately-held and owned by the Goodman family. As a global, full-service pharmaceutical company, Pharmascience distributes its products to more than 60 countries worldwide. Specializing in generic OTC and prescription pharmaceuticals, the Company’s portfolio contains over 2,000 products in a wide variety of dosage forms. Pharmascience offers contract manufacturing, packaging, and other support services, having built a reputation as a leading supplier of reliable private label pharmaceuticals. The Company is committed to delivering unparalleled support and customer service, providing educational materials as well as marketing and manufacturing advice and materials to pharmacists and other healthcare professionals.

**Financials (September 2020)**
Enterprise Value: $2.5 billion  
Annual Revenue: $700 million
Almirall, based in Barcelona, Spain and founded in 1943, is focused on innovation in the skin-health industry. The Company specializes in the production of medicines, particularly in the field of dermatology. Almirall’s portfolio includes products for treating actinic keratosis, eczema, psoriasis, acne, and spasticity in multiple sclerosis. Almirall produces medicines used by patients in over 70 countries, while the Company has a direct presence in Europe and Latin America. The Company’s business objectives include the need to extend its global reach whilst maintaining its position as a market leader within the Spanish market. Almirall is dedicated to applying its scientific know-how and experience to finding transformative solutions to skincare needs to improve people’s health and quality of life. The Company’s IPO took place in 2007.

**Financials (September 2020)**
Enterprise Value: $2.5 billion
Annual Revenue: $981.7 million

Karo Pharma

Headquartered in Stockholm, Sweden, Karo Pharma was founded in 1987. The Company researches, develops, manufactures and commercializes a broad range of healthcare products directly to pharmacies and the health care sector. In addition to products developed in-house, Karo Pharma also acquires third-party products to bring to market. Karo Pharma’s diverse portfolio contains a number of well-established and recognized Nordic brands and includes a number of prescription drugs in treatment areas such as gout, cardiology, gastroenterology and diabetes, as well as OTC products covering areas including pain management and hair loss as well as ergonomic products for people with disabilities and a range of nutritional products. Karo Pharma went public in 1998 and is 49% owned by the private equity firm EQT.

**Financials (September 2020)**
Enterprise Value: $2.5 billion
Annual Revenue: $276.9 million
Ocumension

VALUE RANK: 307

Ocumension Therapeutics is a China-based ophthalmic pharmaceutical platform company dedicated to identifying, developing and commercializing first-in-class or best-in-class ophthalmic therapies. The company’s vision is to provide a world-class pharmaceutical total solution to address significant unmet ophthalmic medical needs in China. Since the inception, Ocumension Therapeutics has focused on building a platform integrating specialized capabilities in each major functionality involved in an ophthalmic drug’s development cycle, from research and development, manufacturing to commercialization. Ocumension Therapeutics believes its platform positions it well to achieve leadership in China ophthalmology, with a first-mover advantage over future competitors.

Financials (September 2020)
Enterprise Value: $2.5 billion
Annual Revenue: $0.3 million

Fudan-Zhangjiang

VALUE RANK: 308

Shanghai Fudan-Zhangjiang Bio-Pharmaceutical Co., Ltd., together with its subsidiaries, researches, develops and sells bio-pharmaceutical products in the People’s Republic of China. The company offers genetic engineering drugs, which include recombinant tissue type plasminogen activator for heart infarction; recombinant human lymphotoxin a-derivatives that has completed Phase II clinical trials for tumors; recombinant human tumor necrosis recipient Fc fusion protein (Etanercept) and high bio-activity recombinant human TNF receptor for arthritis. Additionally, the company offers research and development of pharmaceutical projects, medical instruments, medical diagnostic products, and biological and medical technology. It has a strategic agreement with Shanghai Pharmaceutical Co., Ltd. The company was founded in 1996 and is based in Shanghai, the People’s Republic of China.

Financials (September 2020)
Enterprise Value: $2.5 billion
Annual Revenue: $123.7 million
Emcure was founded in 1981 and is a privately held generic company based in Pune, India. Its name embodies its mission which is to make effective medicines to cure patients. Emcure ranks as the #12 Indian pharma company by domestic sales and is increasingly focused on international markets. Today, Emcure ships product to over 70 international markets. Its US subsidiary, Heritage Pharma, recently acquired a significant portfolio of new products. Emcure makes APIs and finished dose generics and is present in medications for cardiology, oncology, nephrology, HIV, infection, pain, gynecology and pediatrics. Emcure has five manufacturing facilities in India, of which four are located in Pune and one in Jammu. Heritage Pharma Labs has a manufacturing facility along with an R&D centre in New Jersey, US. The company is largely owned by the promoter family (the Mehta’s). Bain Capital owns a 13% stake in the company.

Financials (September 2020)
Enterprise Value: $2.4 billion
Annual Revenue: $673.7 million

OPKO Health was incorporated in Delaware in 1991 as Cytoclonal Pharmaceutics, and is headquartered in Miami, Florida. OPKO markets Rayaldee® (calcifediol capsules), a treatment for SHPT in stage 3-4 chronic kidney disease (CKD) patients with vitamin D insufficiency. Besides nephrology, OPKO is focused on the development of diagnostic and therapeutic agents in urology and endocrinology. Through its BioReference division, OPKO operates one of the largest full-service clinical diagnostic laboratories in the US. The Company has an international presence in more than 50 countries around the world and has established a number of collaborative partnerships with international organizations to further the Company’s strategic objectives and key projects. OPKO went public in 2007.

Financials (September 2020)
Enterprise Value: $2.4 billion
Annual Revenue: $965.7 million
Seres Therapeutics

**VALUE RANK: 311**

**Details**
200 Sidney Street
Cambridge, Massachusetts 02139
United States
+1 617 945 9626
www.serestherapeutics.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** NasdaqGS: MCRB  
**Sector:** Biotechnology  
**Lead TA:** Gastroenterology

Founded in 2010, Seres is headquartered in Cambridge, Massachusetts. The Company has initiated a new class of therapeutics, harnessing live bacterial microbiomes to treat conditions arising from dysbiosis - an imbalance in the natural microbial population of the body. Seres’ SER-109 program achieved the first-ever positive pivotal clinical results for a targeted microbiome drug candidate. It’s SER-109 program is being advanced for the treatment of recurrent C. difficile infection and has potential to become a first-in-class FDA-approved microbiome therapeutic. Seres’ SER-287 is being evaluated in a Phase 2b study in patients with active mild-to-moderate ulcerative colitis. Seres remains highly committed to its mission to transform the lives of patients worldwide with revolutionary microbiome therapeutics. Seres went public in 2015.

**Financials (September 2020)**
Enterprise Value: $2.4 billion  
Annual Revenue: $28.8 million

Xianju Pharma

**VALUE RANK: 312**

**Details**
No.1 Xianyao Road, Xianju County
Taizhou, Zhejiang Province 317300
China
+86 576 8773 1178
www.xjpharma.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** SZSE: 002332  
**Sector:** Generics - China  
**Lead TA:** Broad

Xianju operates from headquarters in Taizhou, China and was founded in 1972. The fully-integrated Company specializes in the development and commercialization of APIs and finished formulations in a range of dosage forms and presentations including cortical hormones, muscle relaxants and sex hormones. Xianju’s goal is to develop and manufacture top quality products, and this is evident in their compliance with CGMP standards and international accreditation. Xianju Pharma advocates quality orientated safety and effectiveness and they are ‘dedicated to the health of human beings.’ The Company went public in 1999.

**Financials (September 2020)**
Enterprise Value: $2.4 billion  
Annual Revenue: $512.3 million
**Tsumura**

**VALUE RANK: 313**

**Details**
2-17-11 Akasaka, Minato-Ku
Tokyo, Osaka 107-8521
Japan
+81 3 6361 7200
www.tsumura.co.jp

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** TSE: 4540  
**Sector:** Generics - Branded  
**Lead TA:** Broad

Tokyo, Japan-headquartered Tsumura was founded in 1893, and specializes in the production and sale of traditional Chinese medicine extracts and formulations. Tsumura has the largest market share of Chinese herbal medicines in Japan. The Company is focused on combining the popular benefits of Kampo – traditional Chinese medicine – with Western medicine, to produce high-quality, reliable OTC treatments for a wide range of conditions including: gastroenterological, women’s health, and respiratory complaints. Tsumura has established a thorough traceability system and stringent manufacturing process to ensure the quality and consistency of its products. The Company’s mission is to contribute to people’s health through the provision of their Kampo products. Tsumura’s stock went public in 1978.

**Financials (September 2020)**
Enterprise Value: $2.4 billion  
Annual Revenue: $1.1 billion

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**Boya Bio**

**VALUE RANK: 314**

**Details**
No.333 Huiquan Road, High-Tech Industrial Park
Fuzhou, Jiangxi Province 344000
China
+86 79 4822 4549
www.china-boya.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**SZSE: 300294  
**Sector:** Branded Pharma  
**Lead TA:** Broad

Headquartered in Fuzhou City, China, Boya was founded in 1993. Boya is composed of six subsidiary companies that are focused on R&D, manufacturing, sales, and the export of over 900 generic pharmaceutical products. The Company primarily manufactures synthetic blood products, as well as covering various therapeutic areas, including endocrinology and infectious disease. Boya has established a number of key partnerships, building cooperative research goals with leading research and industry organizations. These alliances have led to the establishment of various projects, including a joint research laboratory. Boya is committed to contributing to human health by providing people with better health and medical products. The Company went public in 2012.

**Financials (September 2020)**
Enterprise Value: $2.4 billion  
Annual Revenue: $404.9 million
Galapagos

**VALUE RANK: 315**

**Details**
L11 A3 Generaal De Wittelaan
Mechelen, Antwerp 2800
Belgium
+32 1 534 29 00
www.glpg.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** ENXTAM: GLPG
**Sector:** Biotechnology
**Lead TA:** Respiratory

Galapagos was founded in 1999 as a joint venture between Crucell and Tibotec, and is headquartered in Mechelen, Belgium. Galapagos is a biotechnology company focused on a growing pipeline targeting cystic fibrosis, inflammation and other indications. Galapagos works to develop first-in-class disease-modifying medicines based on novel protein target inhibitors. Galapagos entered into a major collaboration with Gilead in July 2019. Gilead paid $3.95 billion upfront and made a $1.1 billion equity investment to gain access to Galapagos’ drug discovery platform and to amend the already in-place deal on filgotinib. Gilead has received a positive European CHMP opinion for filgotinib, and a Complete Response Letter from the FDA. Galapagos has been publicly listed since 2005.

**Financials (September 2020)**
Enterprise Value: $2.4 billion
Annual Revenue: $1.1 billion

Teijin Pharma

**VALUE RANK: 316**

**Details**
Kasumigaseki Common Gate West Tower, 2-1 Kasumigaseki 3-chome
Chiyoda-ku, Tokyo 100-8585
Japan
+81 3 3506 4529
www.teijin-pharma.com

**Notes**
Teijin’s last reported pharma revenue number is $1.11bn for 2016. We multiplied this by the median multiple for Japan pharmas to impute value to Teijin’s pharma segment.

**Exch:** Public Segment
**Sector:** Branded Pharma
**Lead TA:** Bone & Osteo

Founded in 1918 and headquartered in Tokyo, Japan, Teijin entered the pharmaceutical business in 1973 with the name Biomedical Research Laboratories. Teijin has two divisions: pharmaceuticals and home healthcare. Advances in one division are used to leverage development in the other. The Company has three main dedicated therapeutic areas of expertise: bone and joint, respiratory and cardiometabolic diseases. Its largest seller is FEBURIC®, a xanthine oxidase inhibitor, for gout. Teijin is committed to CSR not only through corporate activities but also in the products they manufacture, redesigning its products to be more energy efficient to reduce environmental burden and increase energy efficiency. Enhancing quality of life is Teijin’s corporate philosophy and they judge their success by this standard and they are constantly in search of ways to further patient care through partnerships and joint efforts.

**Financials (September 2020)**
Enterprise Value: $2.3 billion
Annual Revenue: $1.1 billion
Fidia Farma

**VALUE RANK: 317**

**Details**
3a Via Ponte della Fabbrica
Abano Terme, Padua 35031
Italy
+39 049 8232111
www.fidiapharma.com

**Notes**
Fidia disclosed $357mm in revenue in early 2019. We multiplied this by the median branded pharma multiple to impute value.

**Exch:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Bone & Osteo

Fidia Farmaceutici is an Italian company founded in 1946 and is headquartered in Abano, Italy. The Company specializes in neuroscience and products based on hyaluronic acid (HA). HA has applications in areas such as rheumatology, orthopedics, wound care, and tissue repair. Fidia’s products are marketed in over 100 countries, through wholly-owned subsidiaries in USA, Kazakhstan, Germany, Spain, Russia and the Middle East as well as a comprehensive network of international partners and distributors. As a result of its investment in R&D, Fidia has generated over 900 patents, ensuring a robust portfolio primarily focused on therapeutic areas such as orthopedics, tissue repair, dermatology, and women’s health and wellness. The Company is deeply committed to the health of its customers.

**Financials (September 2020)**
Enterprise Value: $2.3 billion  
Annual Revenue: $354 million

Glenmark

**VALUE RANK: 318**

**Details**
Glenmark House, B. D. Sawant Marg,  
Chakala, Off Western Express Highway,  
Adheri (East)  
Mumbai, Maharashtra 400 099  
India  
+91 22 4018 9999  
www.glenmarkpharma.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** BSE: 532296  
**Sector:** Generics - INN  
**Lead TA:** Broad

Established in 1977, Glenmark is headquartered in Mumbai, India and serves domestic and international markets through direct sales and out-licensing of APIs and generic pharmaceuticals. The Company specializes in the therapeutic areas of oncology, respiratory and dermatology. The Company boasts 40 local offices worldwide as well as 17 manufacturing facilities across four continents. Glenmark considers R&D to be at the core of its business, with multiple state-of-the-art R&D centers. Glenmark has a total of 164 ANDA approved products with 44 products pending approvals (of which 24 are Para IV). In FY20, Glenmark received 14 approvals of which most have been launched. Glenmark’s specialty pipeline includes Ryaltris® for allergic rhinitis, omalizumab biosimilar and GRC 39815, a RORγt inhibitor for COPD. The Company is committed to creating, ‘A new way for a new world. Glenmark went public in 2003.

**Financials (September 2020)**
Enterprise Value: $2.3 billion  
Annual Revenue: $1.4 billion
CytoDyn is a late-stage biotechnology company developing innovative treatments for multiple therapeutic indications based on leronlimab, a novel humanized monoclonal antibody targeting the CCR5 receptor. CytoDyn has successfully completed a Phase 3 pivotal trial with leronlimab in combination with standard antiretroviral therapies in HIV-infected treatment-experienced patients. CytoDyn is also conducting a Phase 3 investigative trial with leronlimab as a once-weekly monotherapy for HIV-infected patients. Lastly, CytoDyn is conducting a Phase 2 trial to evaluate leronlimab for the treatment of COVID-19, the prevention of GvHD and a Phase 1b/2 clinical trial with leronlimab in metastatic triple-negative breast cancer. Led by CEO, Nader Pourhassan, CytoDyn remains committed to enhancing the lives of patients through target specific medicine.

Financials (September 2020)
Enterprise Value: $2.3 billion
Annual Revenue: NA

I-Mab is a global biotech company focused on discovery, development and commercialization of biologics in the therapeutic areas of immuno-oncology and autoimmune diseases. I-Mab’s innovative pipeline of more than 10 clinical and pre-clinical stage drug candidates is driven by the Company’s Fast-to-PoC (Proof-of-Concept) and Fast-to-Market development strategies through internal R&D and global partnerships. Lemzoparlimab, an anti-CD47 mAb, is designed to minimize inherent binding to normal red blood cells while preserving its strong anti-tumor activity. Uliledlimab is an anti-CD73 antibody for solid tumors. I-Mab has offices in Beijing, Shanghai, Hong Kong and Maryland, United States. I-Mab’s mission is to bring transformational medicines to patients around the world through innovation. I-Mab went public on the NASDAQ in 2020.

Financials (September 2020)
Enterprise Value: $2.3 billion
Annual Revenue: $2.1 million
Sage Therapeutics

VALUE RANK: 321

Details
215 First Street
Cambridge, Massachusetts 02142
United States
+1 617 299 8380
www.sagerx.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGM:SAGE
Sector: Branded Pharma
Lead TA: CNS

Sage Therapeutics was founded in 2010 and is based in Cambridge, Massachusetts. The Company specializes in novel medicines to treat life-threatening and rare CNS disorders. Sage’s depression franchise features zuranolone, Sage’s next-generation positive allosteric modulator (PAM) of GABAA receptors being evaluated in clinical development as a treatment for various affective disorders and ZULRESSO™ (brexanolone) CIV injection, approved by the U.S. Food and Drug Administration (FDA) as the first treatment specifically indicated for post-partum depression. Sage seeks strategic partnerships with other companies and research institutions in order to broaden its reach and develop its portfolio.

Financials (September 2020)
Enterprise Value: $2.3 billion
Annual Revenue: $8.9 million

Biocodex

VALUE RANK: 322

Details
7 Avenue Gallieni
Gentilly, 94257
France
+33 1 41 24 30 00
www.biocodex.com

Notes
Biocodex disclosed its revenue for France was €89mm in 2018 and this was 30% of total revenue (this was in a 2019 corporate brochure). This implies total revenue of €297mm. We multiplied this by the median revenue multiple for branded pharma companies to impute value.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Gastroenterology

Biocodex was founded in 1953 and is headquartered in Gentilly, France. Its then-flagship product featured harnessing Saccharomyces boulardii to provide the first beneficial probiotic product of its time. The Company’s now extensive portfolio covers many therapeutic areas, including: gastroenterology, neurology, otolaryngology, and anesthesiology, and also sports nutrition supplements. With a global reach spanning over 100 countries and across five continents, Biocodex leverages its network of partners and affiliates to create a strong worldwide presence. The Company actively pursues acquisitions, joint-development partnerships and licensing opportunities to expand the scope of its operations. Biocodex is dedicated to improving patients’ lives by developing, ‘meaningful solutions to challenging healthcare problems.’

Financials (September 2020)
Enterprise Value: $2.3 billion
Annual Revenue: $350 million
Helsinn

Helsinn was established by the Braglia family in 1976 and is headquartered in Pazzallo-Lugano, Switzerland. The Company conducts R&D and manufacturing of innovative therapies for a range of specialty areas including oncology, anesthesiology, and gastroenterology. Helsinn has developed a robust pipeline of products in oncology and endocrinology to support its existing portfolio. The Company has established an extensive global network, distributing its products to as many as 190 countries worldwide. The development of in and out-licensing partnerships is a core part of the Company’s business strategy, and Helsinn seeks to constantly expand this network in order to build its reach. The Company is dedicated to improving the everyday lives of people all over the world who are suffering from cancer.

Financials (September 2020)
Enterprise Value: $2.3 billion
Annual Revenue: $350 million

Deciphera

Deciphera Pharmaceuticals is a clinical-stage biopharmaceutical company focused on improving the lives of cancer patients by addressing key mechanisms of tumor and drug resistance that limit the rate and/or durability of response to existing cancer therapies. Deciphera uses its understanding of kinase biology together with a proprietary chemistry library to purposefully design compounds that maintain kinases in a “switched off” or inactivated conformation. Deciphera has used this platform to develop a diverse pipeline of tumor-targeted and immuno-targeted drug candidates designed to improve outcomes for patients with cancer by improving the quality, rate and/or durability of their responses to treatment. QINLOCKTM is Deciphera’s FDA-approved switch-control kinase inhibitor for the treatment of fourth-line gastrointestinal stromal tumor (GIST). QINLOCK is also approved for fourth-line GIST in Canada and Australia.

Financials (September 2020)
Enterprise Value: $2.3 billion
Annual Revenue: $7.1 million
**Virbac**

**VALUE RANK: 325**

**Details**
- 13 rue LiD
- Carros, Cedex 06511
- France
- +33 4 92 08 71 00
- corporate.virbac.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** ENXTPA:VIRP  
**Sector:** Animal Health  
**Lead TA:** Animal Health

Founded in 1968, Virbac is headquartered in Paris, France. The Company’s name comes from an amalgamation of virology and bacteriology. The Company provides veterinarians, farmers and pet owners with a comprehensive and practical range of products and services covering the majority of animal species and diseases, with a focus on companion and food production animals. Virbac’s portfolio includes microbiology, vaccinology, nutrition dermatology, aquaculture and dental hygiene products. Throughout Virbac’s history the Company has engaged in the development of new products, capitalizing on technological advances and their customers’ experience to improve the treatment of animal pathologies and to facilitate veterinary practice. With subsidiaries and sales networks worldwide, the Company’s products are distributed to over 100 countries. The Company went public in 1985.

**Financials (September 2020)**
- Enterprise Value: $2.3 billion
- Annual Revenue: $1 billion

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**Conba Pharma**

**VALUE RANK: 326**

**Details**
- No.568 Binkang Road, Binjiang District
- Hangzhou, Zhejiang Province 310052
- China
- +86 571 8777 4801
- www.conba.com.cn

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** SHSE:600572  
**Sector:** Generics - China  
**Lead TA:** Broad

Headquartered in Hangzhou, Zhejiang, China, Conba was initially founded in 1969, under a different name and focused on the production of bee products. Today the Company now combines the production of traditional Chinese medicine with the research, development, manufacture and commercialization of pharmaceutical products. The Company has established a number of manufacturing facilities and subsidiaries across China. Conba has an established R&D infrastructure that includes activities relating to plant extraction and separation, structure modification and new drug release system applications as well as developing APIs and new drugs with independent intellectual property rights. Conba is committed to serving and supporting consumer health. The Company went public in 2004.

**Financials (September 2020)**
- Enterprise Value: $2.3 billion
- Annual Revenue: $893.7 million
BIAL, headquartered in Trofa, Portugal, was founded in 1924 by Alvaro Portela. The Company’s key objective is to discover, develop and produce therapeutic solutions to healthcare problems and the Company focuses heavily on R&D activities. BIAL has a growing portfolio in therapeutic areas including neurology, respiratory medicine, cardiology, microbiology, and women’s health, and a supporting pipeline to help enhance the Company’s international image. Present in over 55 countries throughout Europe, North America, Africa and Asia, the Company seeks to further expand both its reach and portfolio through judicious partnerships and licensing agreements. BIAL seeks to contribute towards a knowledgeable society through the promotion of its products.

Financials (September 2020)
Enterprise Value: $2.3 billion
Annual Revenue: $345.1 million

Zhejiang Medicine (ZMC), founded in 1997, is headquartered in Shaoxing, China. Specializing in the large-scale production of nutritional products and antibiotics, ZMC is a fully-integrated Company. ZMC’s portfolio includes an extensive range of products, presented in a variety of dosage forms manufactured at the Company’s state-of-the-art production facilities. The Company has gained local and national recognition for their research efforts, having been named a Key Enterprise Institute and National Innovation Enterprise. Zhejiang has also received numerous national, international, and provincial collaboration, business, and science and technology progress awards. The Company was listed in 1999.

Financials (September 2020)
Enterprise Value: $2.3 billion
Annual Revenue: $989 million
Adamed

VALUE RANK: 329

Details
Pienkow 149, Czosnów near Warsaw
Warsaw, Mazowieckie 05-152
Poland
+48 22 732 77 00
www.adamed.com.pl

Notes
EMIS indicates that revenues in 2019 were $343.8mm. We multiplied this by the median revenue multiple of branded pharma companies to impute value.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

Founded and headquartered in Poland in 1986, the Adamed Group has grown from a single company to a group of companies controlling 250 products and 159 pharmaceutical patents over 14 therapeutic areas. The Company’s portfolio spans across prescription, non-prescription and dermocosmetics, following on from Adamed’s move into the national arena in 2009. The Company’s first product, introduced in 1991, was used to treat urinary tract infections, and this led to the opening of Adamed’s first manufacturing plant in 1994. A second facility was opened in 2001 following a growth in the Company’s product portfolio. The Group now exports to 60 countries and focuses its R&D primarily in the areas of oncology and CNS diseases. Adamed’s mission is to respond to the key challenges in modern medicine.

Financials (September 2020)
Enterprise Value: $2.3 billion
Annual Revenue: $343.8 million

ASK Pharm

VALUE RANK: 330

Details
699 Kejian Road, Jiangning Science Park
Nanjing, Jiangsu Province 211112
China
+86 25 8509 0979
www.ask-pharm.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:002755
Sector: Generics - China
Lead TA: Broad

ASK Pharm was founded in 2003 and is based in Nanjing, China. The fully-integrated, research-focused Company conducts R&D, manufactures, and commercializes proprietary pharmaceuticals, fine chemicals and other healthcare products, covering a variety of therapeutic areas including: gastroenterology, oncology, infectious disease, cardiology and endocrinology. Specializing in proton pump inhibitor products and oncology medication, the Company’s primary focus is in its own proprietary products. Boasting world-class production facilities as well as comprehensive nationwide sales and marketing networks, ASK has significant national market shares. The Company seeks to contribute towards improving societal prosperity and harmony.

Financials (September 2020)
Enterprise Value: $2.2 billion
Annual Revenue: $526.5 million
Hile Bio-Technology

VALUE RANK: 331

Details
No. 6720 Jinhai Highway, Fengxian District
Shanghai, 201403
China
+86 2 160890892
www.hile-bio.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Exch: Ticker: SHSE:603718
Sector: Animal Health
Lead TA: Animal Health

Founded in 1981, Hile Bio-Technology is a China-based animal vaccines maker with a strong focus on hog vaccines. Hile Bio is a designated enterprise approved by the Ministry of Agriculture in Shanghai to produce veterinary biological products and represents a major animal epidemic prevention and control production base. Run by Chairman Zhang Haiming, Hile has a complete animal vaccine product line with 44 product categories involving poultry, livestock, and pets. In early 2017, the company established a joint venture in China with Argentina’s Biogénse Bagó S.A. and is building a sales network to tap global markets. Through cooperative research and development and technology licensing deals with Chinese academic institutes they have achieved a number of industry-leading veterinary vaccines.

Financials (September 2020)
Enterprise Value: $2.2 billion
Annual Revenue: $36.4 million

China Animal Husbandry

VALUE RANK: 332

Details
Building 16-19 District 8 No. 188 South 4th Ring West Road
Beijing, 100070
China
+86 10 6370 2195
www.cahic.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Exch: Ticker: SHSE:600195
Sector: Animal Health
Lead TA: Animal Health

China Animal Husbandry Industry Co., Ltd. manufactures and sells animal health and nutrition products in China. It offers various biological products consisting of vaccines for fowls, diagnostic liquid products, avian influenza vaccines, foot-and-mouth disease vaccines, swine vaccines, and others; feedstuffs, such as feedstuff raw materials, feedstuff additives, pre-mixed feedstuffs, and multi-vitamin feedstuffs; and veterinary drugs comprising animal remedy products and drug additives. It also provides food grade dairy products, pet supplies, and bulk materials. The company was founded in 1998 and is based in Beijing, China.

Financials (September 2020)
Enterprise Value: $2.2 billion
Annual Revenue: $644.4 million
Bluebird Bio was founded in 1992 and is headquartered in Cambridge, Massachusetts. The Company develops innovative gene therapies for severe genetic and rare diseases. Bluebird also develops various CAR T cell products for liquid and solid tumor cancers. Bluebird has established a number of collaborations to develop cancer-destroying cell therapies and seeks further partnerships and licensing opportunities. The Company has developed proprietary integrated product platforms that combine gene therapy, cancer immunotherapy, and gene editing. Bluebird is committed to developing therapies with the potential to transform the lives of patients suffering from rare and severe genetic diseases. The Company went public in 2013.

Financials (September 2020)
Enterprise Value: $2.2 billion
Annual Revenue: $239.6 million

Founded in 1938, Liomont is headquartered in Cuajimalpa, Mexico. The Company produces a range of prescription and OTC products with a policy of offering, ‘quality drugs at an affordable price.’ Liomont’s portfolio includes a broad range of prescription drugs in therapeutic areas including cardiology, gastroenterology, respiratory and anti-epileptics. The Company exports to the US, Europe, and Latin America. Privately-held, Liomont is a 100% Mexican company.

Financials (September 2020)
Enterprise Value: $2.2 billion
Annual Revenue: $600 million
Stallergenes Greer

**VALUE RANK: 335**

**Details**
40 Bernard Street  
London, Greater London WC1N 1LE  
United Kingdom  
+44 20 7239 4500  
www.stallergenesgreer.com

**Notes**
We multiplied the company’s reported 2018 revenue by the median revenue multiple for branded pharma companies to impute value.

**Exch:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Allergy

Headquartered in London (UK), Stallergenes Greer is a privately held branded pharmaceutical company. Stallergenes Greer is specialized in the diagnosis and treatment of allergies through the development and commercialisation of allergy immunotherapy products and services across the globe. Stallergenes Greer has more than 1,100 employees, a direct presence in 19 countries, and five global manufacturing sites for its allergy immunotherapy products. Stallergenes Greer is the parent company of GREER Laboratories, Inc. (whose registered office is in the USA) and Stallergenes SAS (whose registered office is in France). Stallergenes Greer is owned by interests associated with the Bertarelli family, who are advised by the Waypoint Capital Group. Waypoint is a business enterprise for the managers and advisers of the funds and investments associated with the Bertarelli family.

**Financials (September 2020)**
Enterprise Value: $2.2 billion  
Annual Revenue: $326.8 million

Haiyao

**VALUE RANK: 336**

**Details**
192 Nanhai Road, Xiuying District  
Haikou, Hainan Province 570311  
China  
+86 898 6865  
www.haiyao.com.cn

**Notes**
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** SZSE:000566  
**Sector:** Generics - China  
**Lead TA:** Broad

Hainan Haiyao was initially founded as a state-operated company in 1965 and is headquartered in Haikou City, China. The Company owns a number of subsidiaries that carry out the R&D and manufacturing of its portfolio of pharmaceutical products and traditional Chinese medicine. Therapeutic areas covered by their portfolio include anti-infection, anti-tumor, nervous system, gastrointestinal and antibiotics. In addition to having an extensive sales network throughout its domestic market, the Company is licensed to export its products. Consequently, Haiyao products are marketed in several Asian countries, including Vietnam, India, Cambodia, Singapore and Malaysia. The Company philosophy is founded upon: integrity, development, innovation, and looking towards the future. Haiyao went public in 1994.

**Financials (September 2020)**
Enterprise Value: $2.1 billion  
Annual Revenue: $298.8 million
Bailing Group Pharma

VALUE RANK: 337

Details
Xihang Avenue, Economic and Technological Development Zone
Anshun, Guizhou Province 561000
China
+86 85 3341 5126
www.gzbl.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:002424
Sector: Generics - China
Lead TA: Broad

Founded in 1999 and based in Guizhou, China, Bailing Group Pharma develops, manufactures, and trades over 160 nationally-approved traditional Chinese medicine products. The Company’s portfolio features traditional medicine from the Miao tribe. The company has over 5,000 employees. Bailing’s products include therapies targeted at the immune, skeletal, nervous, and cardiovascular systems as well as treatments for type II diabetes. Key products include “Bailing Bird” brand cardio-cerebrovascular drugs, Yindan Xinnaotong soft capsules, cold and cough drugs, Vitamin C Yinqiao tablets, Kesuting syrup and capsules, Jingan capsules, Xiaoer Chai Gui Antipyretic granules, as well as Kangfuling capsules, Jingdaining capsules and other traditional Chinese medicines. Bailing went public in 2010.

Financials (September 2020)
Enterprise Value: $2.1 billion
Annual Revenue: $393.1 million

Aristo Pharma

VALUE RANK: 338

Details
8-10 Wallenroder Straße
Berlin, 13435
Germany
+49 30 710 94 4200
www.aristo-pharma.de

Notes
Aristo disclosed €500 million+ in revenue in 2020 We multiplied this times the median multiple for publicly-traded branded pharma to impute value.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

Headquartered in Berlin, Germany, Aristo Pharma was founded in 2008, resulting from a merger of a few medium-sized German pharmaceutical companies. As a developer, manufacturer and distributor of generic and branded pharmaceuticals for both the domestic and international markets the Company has developed a portfolio of products to treat a wide range of therapeutic areas including respiratory, cardiovascular, gastrointestinal, metabolic, urological and CNS conditions. Aristo Pharma is owned by the Strüngmann family. The Company operates four manufacturing facilities in Germany with an additional facility in Spain. In 2016 Aristo Pharma acquired CEB Pharma in order to strengthen its presence within the UK market. Aristo Pharma is founded on three main pillars; high quality, availability of products and transparency. They are dedicated to providing an affordable health care system with high-quality medicines.

Financials (September 2020)
Enterprise Value: $2.1 billion
Annual Revenue: $590 million
Nhwa Pharma

VALUE RANK: 339

Details
No.69 Minzhu South Road, Enhua Building
Xuzhou, Jiangsu Province 221009
China
+86 516 8766 1189
www.nhwa-group.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:002262
Sector: Generics - China
Lead TA: CNS

Huvepharma

VALUE RANK: 340

Details
3a Nikolay Haytov Street, 5th floor
Sofia, 1113
Bulgaria
+359 28625331
www.huvepharma.com

Notes
We multiplied 2018 revenues of $320mm by the median revenue multiple of branded pharma companies.

Exch:Ticker: Private Company
Sector: Animal Health
Lead TA: Animal Health

Nhwa Pharma

Jiangsu Nhwa was founded in 1978 and operates its headquarters from Xuzhou, China. The fully-integrated Company specializes in R&D, manufacture and sale of freeze-dried powder injections, small volume injections, tablets, hard capsules and APIs for both the domestic and international markets. The Company’s products are targeted towards a range of therapeutic areas such as anesthesiology, neurology, and psychiatry, and in a range of dosage forms. Jiangsu Nhwa went public in 2008.

Financials (September 2020)
Enterprise Value: $2.1 billion
Annual Revenue: $500.3 million

Huvepharma

Huvepharma is headquartered in Sofia, Bulgaria and was founded in 1954 with the creation of three production companies. Today Huvepharma has multiple production units, representative offices and subsidiaries in various countries and with a distribution network across 90 countries. The Company’s products and services benefit customers worldwide, and Huvepharma is a fast-growing global company focused on developing, manufacturing and marketing human and animal health products; hence the company name HUman VEterinary PHARMAceuticals (Huvepharma). The Company also manufactures and markets enzymes for food, feed and industrial applications. Products vary by each global region. Huvepharma is a fermentation specialist with more than 50 years’ experience in formulation.

Financials (September 2020)
Enterprise Value: $2.1 billion
Annual Revenue: $320 million
PharmaMar

**VALUE RANK: 341**

**Details**
Avda. De los Reyes, 1, Pol. Ind. La Mina
Colmenar Viejo, Madrid 28770
Spain
+34 91 846 6000
www.pharmamar.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** BME:PHM  
**Sector:** Branded Pharma  
**Lead TA:** Oncology

PharmaMar was founded in 1986 and headquartered in Madrid, Spain, PharmaMar researches and develops novel marine-derived oncology treatments. The Company’s products focus on ovarian cancer, soft tissue carcinoma, small cell lung cancer and multiple myeloma. PharmaMar collaborates with a number of partners, including patient organizations, scientific associations, as well as public funding bodies. The Company’s lead product, YONDELIS®, is a novel anti-tumor agent designed to treat advanced soft tissue sarcomas and for the treatment of relapsed ovarian cancers as part of a combination regime. It is now marketed in the EU, US and Japan. After a merger in 2015 that saw PharmaMar absorb Zeltia, the Company was listed on the Spanish Stock Exchange.

**Financials (September 2020)**
- Enterprise Value: $2.1 billion  
- Annual Revenue: $240.2 million

Aimmune Therapeutics

**VALUE RANK: 342**

**Details**
8000 Marina Boulevard, Suite 300
Brisbane, California 94005
United States
+1 650 614 5220
www.aimmune.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** NasdaqGS:AIMT  
**Sector:** Branded Pharma  
**Lead TA:** Allergy

Aimmune was founded in 2011 and is headquartered in Brisbane, California. Dedicated to oral immunotherapy drug development, Aimmune develops proprietary desensitization therapies to safely and reliably protect against reactions from accidental exposures to food allergens. The Company’s lead candidate in their development pipeline is indicated for peanut allergies. Aimmune operates a discovery program focused on the eight most common food allergens — peanut, egg, milk, tree nuts, soy, wheat, fish and shellfish. Aimmune was founded to ‘address the unmet medical need to develop regulatory-approved treatments for food allergies.’ The Company went public in 2015 and entered into an agreement to be acquired by Nestlé in August 2020 for $2.6 billion.

**Financials (September 2020)**
- Enterprise Value: $2.1 billion  
- Annual Revenue: $0.5 million
**Xinbang Pharma**

**VALUE RANK: 343**

**Details**
6th Floor, Building 1, Intersection of Aerospace Avenue and Xintian Avenue, Wadang District, Guiyang, Guizhou Province 550014, China
+86 851 8866 0227
www.xinbang.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** SZSE:002390
**Sector:** Generics - China
**Lead TA:** Broad

Xinbang was formed in 1995 and is headquartered in Guiyang City, China. The Company operates in three divisions: hospital services, pharmaceutical distribution and integrated pharmaceutical services. The hospital service sector is dedicated to patient-centric treatment, providing high-end medical therapeutic solutions and technologies to improve diagnosis and treatment in hospital settings. The integrated pharmaceutical services division covers every aspect from research and development to the commercialization of a broad range of herbal medicines, patented traditional Chinese medicines, biological drugs and other products, for a broad variety of indications. The Company aims to be seen as trustworthy, sincere, reassuring and responsible for rejuvenating people, restoring their health and developing their livelihood. They follow the core values of ‘integrity, cooperation, truth-seeking, innovation and pursuing results.’ The Company went public in 2010.

**Financials (September 2020)**
Enterprise Value: $2.1 billion
Annual Revenue: $860.6 million

**Haohai Biotech**

**VALUE RANK: 344**

**Details**
No.1386 Hongqiao Road, 23rd Floor Media Building, Changning District, Shanghai, 200052, China
+86 21 5229 3555
www.3healthcare.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** SEHK:6826
**Sector:** Generics - Biosimilars
**Lead TA:** Broad

Haohai Biotech was founded in 2007 and is based in Shanghai, China. Focusing on the research and development, manufacture, and sales of absorbable biomedical materials, the Company’s portfolio covers a variety of therapeutic areas including orthopedics, medical aesthetics, ophthalmology, surgery, and wound care. Haohai is dedicated towards driving R&D to develop innovative new products and has developed a series of partnerships with education and research institutions to further this strategy. With an extensive sales and distribution network, the Company boasts excellent coverage of the domestic market, selling its products across China. The Company has won national and local awards for its innovative products. Haohai went public in 2015.

**Financials (September 2020)**
Enterprise Value: $2.1 billion
Annual Revenue: $0 million
Myovant Sciences

Established in 2016, Myovant Sciences is headquartered in London, United Kingdom. Myovant’s lead product candidate, relugolix, is a once-daily, oral GnRH receptor antagonist. Relugolix combination tablet is under regulatory review in Europe and the U.S. for women with uterine fibroids. Relugolix monotherapy tablet is under regulatory review in the U.S. for men with advanced prostate cancer. Myovant is also developing MVT-602, an oligopeptide kisspeptin-1 receptor agonist for assisted reproduction. Myovant Sciences is 54% owned by Dainippon Sumitomo and was originally founded by Roivant based on products licensed from Takeda. Myovant went public in 2016.

Financials (September 2020)
Enterprise Value: $2 billion
Annual Revenue: $33.3 million

ROVI

Headquartered in Madrid, Spain, Rovi was founded in 1946. The Company engages in the complete process of product development, from R&D to marketing their portfolio of small molecule and biological medical specialties to both the domestic and global markets. Organized along three main pillars of growth, Rovi offers an extensive range of in-house and licensed pharmaceutical products, together with contract manufacturing and strong investment in R&D to add to their asset portfolio. The Company has established key partnerships with a range of industrial and research institutes to broaden their product range as well as international scope. Present in more than 55 countries worldwide, Rovi actively seeks licensing opportunities. The Company strives to contribute towards the wellbeing of society, using its products to promote human health. Rovi went public in 2007.

Financials (September 2020)
Enterprise Value: $2 billion
Annual Revenue: $444.4 million
SSY Group

VALUE RANK: 347

Details
Rooms 4902-03, 49th Floor, Central Plaza, 18 Harbour Road, Wanchai, New Territories, Hong Kong
+852 2688 0869
www.ssygroup.com.hk

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SEHK:2005
Sector: Generics - China
Lead TA: Broad

SSY Group, formerly known as Lijun International Pharmaceutical Holding, was founded in 2004 and is based in Hong Kong. SSY is a well-established pharmaceutical manufacturer involved in the full cycle from research and development to sales of products, mainly intravenous infusions solutions operating primarily through the subsidiary Shijiazhuang No.4 Pharmaceutical Co., Ltd. which was founded in 1948. The Company also produces small volume injectables, oral preparations, Chinese medicine preparations and biological preparations. SSY Group has a distinct focus on green production driven by low-cost, low-power consumption and zero-pollution. Product quality is regarded as ‘our lives’ and by establishing and implementing superior ideas and initiatives both domestically and internationally they guarantee the health of many patients through the provision of excellent service and product quality. The Group went public in 2005.

Financials (September 2020)
Enterprise Value: $2 billion
Annual Revenue: $528 million

Norbrook Laboratories

VALUE RANK: 348

Details
Carnbane Industrial Estate, Newry, Northern Ireland BT35 6QQ, United Kingdom
+44 28 3026 4435
www.norbrook.com

Notes
Norbrook had £237mm in 2019 revenue. We multiplied by the median branded pharma multiple to impute value.

Exch:Ticker: Private Company
Sector: Animal Health
Lead TA: Animal Health

Norbrook Laboratories was established in 1969 by Lord Ballyedmond and is headquartered in Newry, Northern Ireland. Norbrook develops, manufactures and sells veterinary pharmaceutical products in a variety of dosage forms, including parenterals, tablets, pour-ons, drenches and spot-ons. Norbrook’s products cover a broad variety of indications including antibiotics, endocrinology, dermatology, CNS, nutrition and ophthalmology. Norbrook is committed to supporting farmers and pet owners with innovative products and work in partnership with their customers to ensure their needs are met and delivery performance is optimal. The Company’s vision is to ‘be a world class global provider of veterinary pharmaceuticals enhancing the health of farm and companion animals.’ Their vision and strategy is underpinned by the six core values of customer, the team, being results driven, excellence, innovation and quality.

Financials (September 2020)
Enterprise Value: $2 billion
Annual Revenue: $305.7 million
Intra-Cellular Therapies

**VALUE RANK:** 349

**Details**
430 East 29th Street  
New York, New York 10016  
United States  
+1 646 440 9333  
www.intracellulartherapies.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** NasdaqGS:ITCI  
**Sector:** Branded Pharma  
**Lead TA:** CNS

Intra-Cellular Therapies, Inc., a biopharmaceutical company, discovers and develops small molecule drugs for the treatment of neuropsychiatric and neurologic disorders within the central nervous system (CNS). Tenaciously and capably led by Sharon Mates, its lead product CAPLYTA® (lumateperone) is FDA approved for the treatment of schizophrenia. Lumateperone acts as a potent antagonist with high binding affinity at serotonin 5-HT2A receptors, as an antagonist with moderate binding affinity at postsynaptic D2 receptors, an inhibitor of the reuptake of serotonin transporter (SERT) with moderate binding affinity, and a partial agonist with moderate binding affinity at D1 receptors. These receptors are believed to play an important role in schizophrenia, bipolar disorder, depressive disorders and other neuropsychiatric disorders. In September 2020, Intra-Cellular delivered impressive data that lumateperone alleviates symptoms of bipolar disorder, which significantly increases the commercial potential of this product. The company is headquartered in New York, New York.

**Financials (September 2020)**
- Enterprise Value: $2 billion  
- Annual Revenue: $3 million

Inovio Pharma

**VALUE RANK:** 350

**Details**
660 West Germantown Pike, Suite 100  
Plymouth Meeting, Pennsylvania 19462  
United States  
+1 267 440 4200  
www.inovio.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** NasdaqGS:INO  
**Sector:** Biotechnology  
**Lead TA:** Oncology

Headquartered in Plymouth Meeting, Pennsylvania, Inovio was founded in 1979. The Company specializes in the development of novel immunotherapies for the prevention and treatment of cancer and infectious diseases. Leveraging their proprietary technology platform to activate antigen-specific immune responses, Inovio has established a pipeline of potential candidates, developed both internally and as a result of strategic partnerships, that focus on treating pathogens and tumor types with critical unmet needs. Inovio actively engages in development and licensing collaborations with institutions and businesses. The Company is ‘driven by unmet need and powered by immune-ingenuity.’ Inovio was listed in 1998.

**Financials (September 2020)**
- Enterprise Value: $2 billion  
- Annual Revenue: $2.7 million
Mesoblast

VALUE RANK: 351

Details
55 Collins Street, Level 38
Melbourne, Victoria 3000
Australia
+61 3 9639 6036
www.mesoblast.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: ASX:MSB
Sector: Biotechnology
Lead TA: Rare Disease

Mesoblast is headquartered in Melbourne, Australia and was founded in 2004. Mesoblast specializes in the development of innovative cellular medicines and has facilities in Singapore and the US. The Company’s portfolio of Phase 3 product candidates are: (1) RYONCIL™ (remestemcel-L) for steroid-refractory acute graft versus host disease (acute GVHD) in children; (2) Remestemcel-L for moderate to severe acute respiratory distress syndrome (ARDS) due to COVID-19 infection; (3) REVASCOR® for advanced chronic heart failure and (4) MPC-06-ID for chronic low back pain due to degenerative disc disease. To support the Company’s clinical development, manufacturing and commercial capabilities, Mesoblast actively seeks strategic relationships and has established partnerships with companies, in Japan and Singapore. Mesoblast went public in 2004.

Financials (September 2020)
Enterprise Value: $2 billion
Annual Revenue: $32.1 million

Micro Labs

VALUE RANK: 352

Details
27 Race Course Road
Bangalore, Karnataka 560 001
India
+91 80 2237 0451
www.microlabsltd.com

Notes
We multiplied Micro Labs 2019 revenue of 398,655 Lakhs by the median multiple for generic pharma companies to impute value.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

Micro Labs was founded in 1973 by Mr. Surana and is headquartered in Bangalore, India. Originally a manufacturer of ethical pharmaceutical preparations in the city of Chennai, the Company has grown to become a multi-faceted healthcare organization with a proficient marketing team, state-of-the-art manufacturing facilities and world-class R&D centers. Micro Labs has a commitment to developing bio-equivalent generics and is dedicated to manufacturing medicine to the highest standards and marketing it at affordable prices globally. The Company’s portfolio includes pharmaceuticals for therapeutic areas including cardiology, diabetes, CNS, dermatology and animal health. The Company has a presence in over 30 countries, with ground level operations in 15 countries. It exports to countries throughout Asia, Europe, the US, and Africa and has wholly-owned subsidiaries in the US, UK, Germany, Australia, and Nigeria.

Financials (September 2020)
Enterprise Value: $2 billion
Annual Revenue: $558.1 million
Cheezheng Tibetan Med

VALUE RANK: 353

Details
No.2 Deji Road
Nyingchi, Bayi 860 000
Tibet
+86 89 4582 6041
www.cheezheng.com.cn

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: SZSE:002287
Sector: Generics - China
Lead TA: Broad

Agios Pharmaceuticals was founded in 2007 and is based in Cambridge, Massachusetts. Agios is focused on discovering and developing medicines to treat malignant hematolgy, solid tumors and rare genetic diseases. In addition to an active research and discovery pipeline across these three therapeutic areas, Agios has two approved oncology medicines and multiple first-in-class investigational therapies in clinical and/or preclinical development. In 2010, Agios and Celgene Corporation entered into a collaboration agreement focused on cancer metabolism. Under the terms of the agreement, Celgene has worldwide development and commercialization rights for IDHIFA® which the two firms are jointly selling. Agios seeks to make a significant difference to the lives of patients suffering from cancer and rare metabolic diseases. Agios went public in 2013.

Financials (September 2020)
Enterprise Value: $2 billion
Annual Revenue: $185.9 million
Kodiak Sciences

VALUE RANK: 355

Details
2631 Hanover Street
Palo Alto, California 94304
United States
+1-650 281 0850
www.kodiak.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: KOD
Sector: Biotechnology
Lead TA: Ophthalmology

Kodiak is a publicly-traded Palo Alto based biotech company focused on retinal diseases. Founded in 2009, Kodiak is focused on bringing new science to the design and manufacture of next generation retinal medicines. Its ABC Platform® uses molecular engineering to merge the fields of antibody-based and chemistry-based therapies. Kodiak’s lead product candidate, KSI-301 is an investigational anti-VEGF therapy built on its Antibody Biopolymer Conjugate (ABC) Platform and is designed to maintain potent and effective drug levels in ocular tissues for longer than existing agents. Kodiak’s objective with KSI-301 is to develop a new first-line agent to improve outcomes for patients with retinal vascular diseases and to enable earlier treatment and prevention of vision loss for patients with diabetic eye disease. The Company’s DAZZLE pivotal study in patients with treatment-naïve wet AMD was initiated in October 2019. Kodiak went public in 2018.

Financials (September 2020)
Enterprise Value: $1.9 billion
Annual Revenue: $0

Taiji Group

VALUE RANK: 356

Details
No.38 Huanglong Road, Yuzhong District
Chongqing City, Sichuan Province 401147
China
+86 23 8988 6001
www.taiji.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SHSE:600129
Sector: Generics - China
Lead TA: Broad

Founded in 1993 and based in Chongqing, China, Chongqing Taiji focuses on researching, developing and commercializing traditional Chinese medicines and western pharmaceuticals. With a portfolio of over 1,500 products covering a broad array of therapeutic areas such as gynecology, nephrology, neurology, rheumatology, cardiology, pediatrics, and oncology the Company enjoys an excellent reputation with its end users. Focused on exacting quality control, Chongqing Taiji has a perfect record in terms of quality, safety and reliability. The Company has been listed on the Stock Exchange since 1997.

Financials (September 2020)
Enterprise Value: $1.9 billion
Annual Revenue: $1.5 billion
Headquartered in Newark, California, Revance was founded in 1999, under the name Essentia Biosystems. The Company is dedicated to the development of products for aesthetic medicine and underserved therapeutic specialties that include dermatology, orthopedics and neurology. Utilizing their proprietary peptide technology combined with active drug molecules, Revance is developing treatments with the aim of addressing current unmet needs. Revance’s pipeline is built around a highly purified botulinum toxin. The Company’s pipeline includes a variety of candidates targeted at treating aesthetic and therapeutic indications such as glabellar lines, cervical dystonia, plantar fasciitis, facial wrinkles and muscle movement disorders. Revance went public in 2014.

Financials (September 2020)
Enterprise Value: $1.9 billion
Annual Revenue: $0.4 million

Founded in 2009 and based in the Boston area, Apellis Pharmaceuticals focuses on the development of products for the treatments of autoimmune and inflammatory diseases. Apellis aims to develop therapies for a broad range of debilitating diseases that are driven by uncontrolled or excessive activation of the complement cascade, including those within hematology, ophthalmology, nephrology, and neurology. Lead drug candidate, Pegcetacoplan is the only investigational targeted C3 therapy in late-stage clinical trials. Pegcetacoplan is a synthetic cyclic peptide conjugated to a polyethylene glycol polymer that binds specifically to C3 and C3b. Apellis is evaluating pegcetacoplan in several clinical studies including geographic atrophy (GA), paroxysmal nocturnal hemoglobinuria (PNH), cold agglutinin disease, and C3 glomerulopathy. Apellis went public in 2017.

Financials (September 2020)
Enterprise Value: $1.9 billion
Annual Revenue: $0
Natco

VALUE RANK: 359

Details
No. 2 Natco House Road, Banjara Hills
Hyderabad, Andhra Pradesh 500 034
India
+91 40 2354 7532
www.natcopharma.co.in

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: BSE: 524816
Sector: Generics - INN
Lead TA: Broad

Natco is headquartered in Hyperabad, India and was founded in 1981. The Company develops, manufactures and markets APIs and FDFs, offering a portfolio including products for oncology, orthopedic, gastroenterology, cardiology and diabetes. Natco also manufactures products under contract. The Company operates five manufacturing facilities and a further two chemical manufacturing facilities as well as a R&D facility, Natco Research Center, in Hyderabad. The Company has a pipeline of potential candidates that include NCEs for multiple types of cancer, they are leaders in generic oncology and wish to expand into other therapeutic segments whilst focusing on niche products. Natco has been impressive by being first to file in the U.S. with oseltamivir (Tamiflu® via Alvogen) and lapatinib ditosylate (Tykerb® with Lupin). The Company seeks to “make specialty medicine accessible to all.” Natco went public in 1992.

Financials (September 2020)
Enterprise Value: $1.9 billion
Annual Revenue: $262.9 million

MSN Laboratories

VALUE RANK: 360

Details
MSN House, C-24 Industrial Estate
Hyderabad, Telangana 18
India
+91 40 30438600
www.msnlabs.com

Notes
MSN reported on its website that it did approximately $520mm in 2019 revenue. We multiplied this by the median generic revenue multiple to impute value.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

MSN Labs was founded in 2003 and is based in Hyderabad, India. It is a research-based pharmaceutical company with a diverse product portfolio of APIs and formulations. The Company focuses on producing first-in-class and best-in-class products over 35 therapeutic areas, including oncology. MSN Labs has developed the first Indian generic versions of nine products and has developed over 100 products since they began operations. The Company is very active in filing patents and is, ‘pioneering research for newer worlds of wellness.’ Working to international standards, MSN Labs continuously works with integrity, imagination and innovation to build its intellectual property, expand the Company’s network and evaluate its regulatory compliance. MSN’s motto is, ‘research for better medicines’ and its aim is to be the preferred supplier for global markets. The Company is currently present in 65 countries across Europe, the Americas, the Middle-East, Asia Pacific and Africa.

Financials (September 2020)
Enterprise Value: $1.9 billion
Annual Revenue: $520 million
Karuna Therapeutics

VALUE RANK: 361

Karuna is a clinical-stage biopharmaceutical company committed to developing and delivering first-in-class therapies with the potential to transform the lives of people with CNS disorders. Led by CEO Steve Paul, Karuna’s lead product candidate, KarXT, is an oral modulator of muscarinic receptors that are located both in the central nervous system, or CNS, and various peripheral tissues. KarXT combines xanomeline, a novel muscarinic agonist, with trospium, an approved muscarinic antagonist, to preferentially stimulate muscarinic receptors in the CNS. Following positive Phase 2 data with KarXT in schizophrenia, the company is initiating a Phase 3 program for registration. Galvanized by the understanding that today’s neuropsychiatric patients deserve better, Karuna’s mission is to harness the untapped potential of the brain’s complex biology in pursuit of novel therapeutic pathways that will advance the standard of care. Karuna went public in 2019.

Financials (September 2020)
Enterprise Value: $1.9 billion
Annual Revenue: $0

Sorrento Therapeutics

VALUE RANK: 362

Headquartered in San Diego, California, Sorrento was founded in 2006. Sorrento is a clinical stage, antibody-centric, biopharmaceutical company developing new treatments for COVID-19, cancer, and pain. Sorrento’s extensive immunotherapy platforms include proprietary assets such as fully human antibodies (G-MAB™ library), clinical stage cellular therapies (CAR-T, DAR-T™), antibody-drug conjugates (ADCs), clinical stage oncolytic viruses (Seprehvir™, Seprehvec™) and a Tyrosine Kinase Inhibitor (Abivertinib). Sorrento is also developing potential antiviral therapies, vaccines and diagnostic tests for coronaviruses. In the pain field Resiniferatoxin is completing (i) a phase IB trial for intractable pain associated with cancer; and (ii) a phase 1B trial in osteoarthritis patients. ZTlido® for PHN was approved by the FDA on February 28, 2018.

Financials (September 2020)
Enterprise Value: $1.9 billion
Annual Revenue: $35.5 million
IGM Biosciences

VALUE RANK: 363

Details
325 East Middlefield Road
Mountain View, California 94043
United States
+1-650-965-7873
igmbio.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:IGMS
Sector: Biotechnology
Lead TA: Oncology

IGM Biosciences is a publicly-traded Bay Area based biotech company focused on creating and developing engineered IgM antibodies. Since 2010, IGM Biosciences and its 70+ scientists have worked hard to overcome the hurdles that have limited the use of IgM antibodies. Capably led by Fred Schwarzer, IGM Biosciences has created a proprietary IgM platform. IgM antibodies have 10 binding units compared to 2 for IgG antibodies. This can lead to both stronger binding to cell surface targets in general and difficult targets in particular. IGM’s lead candidate, IGM-2323, is a bispecific T cell engaging IgM antibody targeting CD20 and CD3, that is currently in a Phase 1 clinical trial for the treatment of relapsed/refractory Non-Hodgkin’s lymphoma. Its second product candidate is IGM-8444, targeting Death Receptor 5 for the treatment of patients with solid and hematologic malignancies. The company’s IPO was completed in 2019.

Financials (September 2020)
Enterprise Value: $1.9 billion
Annual Revenue: $0

Shyndec

VALUE RANK: 364

Details
1320 West Beijing Road
Shanghai, 200040
China
+86 21 6251 0990
www.shyndec.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SHSE:600420
Sector: Generics - China
Lead TA: Broad

Shyndec was created in 1996 and is headquartered in Shanghai, China. Majority owned by Sinopharm, Shyndec engages in the development, manufacture and sale of small molecule medicines for a range of therapeutic areas including antibiotics, oncology, cardiovascular, women’s health and dermatology. The broad spectrum of therapeutice treatment areas goes hand-in-hand with their company slogan ‘care for life, care for health’, focusing on the broader picture and not one specific area of care. Shyndec produce APIs, intermediates, finished drug products and custom synthesis from their multiple factories across China. Shyndec has over 15,000 employees, over 15 subsidiaries and a large salesforce. Parent company Sinopharm is state-owned and the largest pharmaceutical enterprise in China but is largely focused on distribution (95,000+ employees, revenues over $40 billion). Shyndec went public in 2004.

Financials (September 2020)
Enterprise Value: $1.8 billion
Annual Revenue: $1.7 billion
CK Life Sciences

VALUE RANK: 365

Details
2 Dai Fu Street, Tai Po Industrial Estate
Tai Po, New Territories
Hong Kong
+86 852 2126 1212
www.ck-lifesciences.com

Founded in 2000 and headquartered in Hong Kong, China, CK Life Sciences, researches, develops, manufactures, commercializes, markets and invests in biotechnological products including agriculture-related, nutraceuticals, and pharmaceuticals. The Company's nutraceutical portfolio demonstrates their long-term vision of widespread pre-emptive health management. Their generic pharmaceutical pipeline focuses closely on oncology and CNS pain management, their R&D efforts are conducted both in-house and in partnership with companies and academic institutions globally. CK Life Sciences agriculture related products include fertilizers, products for crop protection and home garden products.

Financials (September 2020)
Enterprise Value: $1.8 billion
Annual Revenue: $612.8 million

Bukwang Pharma

VALUE RANK: 366

Details
7 Sangdo-ro, Dongjak-gu
Seoul, Gyeonggi-do 06955
South Korea
+82 2 828 8114
www.bukwang.co.kr

Headquartered in Seoul, South Korea, Bukwang Pharma was founded in 1960. The Company offers a portfolio consisting of over 100 products in therapeutic areas that include: liver disease, diabetes, CNS disorders, and respiratory disease. Bukwang Pharma also offers a number of OTC and healthcare products such as toothpastes and skincare treatments, as well as nutritional supplements. The Company operates manufacturing facilities capable of producing oral solid dosage forms, injections, oral solutions, external-use solutions, and ointments. Intelligently led by CEO Hee-Won Yoo, Bukwang has invested in biotech companies and has formed its own biotech subsidiaries which include ImmPACT Bio (solid tumor cell therapy), Dyna Therapeutics and Contera Pharma (Parkinson's). Bukwang Pharma went public in 1988.

Financials (September 2020)
Enterprise Value: $1.8 billion
Annual Revenue: $142.5 million
Ironwood Pharmaceuticals is a public-listed branded pharma company headquartered in Cambridge, Massachusetts. Founded in 1998, the Company markets LINZESS® for the treatment of irritable bowel syndrome (IBS) with constipation or chronic idiopathic constipation. Ironwood has collaboration agreements with several other companies to develop and commercialize treatments for IBS and other GI conditions in North America and some parts of Asia. Ironwood recently spun out its non-GI pipeline products into Cyclerion Therapeutics. The company is in Phase 3 studies of IW-3718 for recurrent GERD. The Company went public in 2010.

**Financials (September 2020)**

Enterprise Value: $1.8 billion  
Annual Revenue: $426.8 million

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ADVANZ PHARMA operates a global pharmaceutical business with a diversified portfolio of more than 200 branded and unbranded products, and sales in more than 90 countries. Going forward, ADVANZ is focusing on becoming the leading platform for niche-established medicines, with advanced commercial capabilities throughout Western Europe. The specialty healthcare distribution division distributes diabetes testing supplies, wound care products, and urinary catheters. The orphan drugs division manufactures photodynamic therapy for cancer treatment. In May 2020 ADVANZ entered into the European specialty pharma business by acquiring Correvio for $76 million. Previously ADVANZ was named Concordia International. Concordia went through an insolvency process and was acquired by its debtors, GSO and Bybrook Capital.

**Financials (September 2020)**

Enterprise Value: $1.8 billion  
Annual Revenue: $503.4 million
Brilliant Pharma

VALUE RANK: 369

Details
No. 1166, Konggang 4th Road, Southwest Airport, Economic Development Zone, Shuangliu District, Chengdu, Sichuan Province 610300, China
+86-28-85912478
http://www.btyy.com/

Chengdu Brilliant Pharmaceutical Co., Ltd., founded in 2007, is a privately held branded generic pharmaceutical company based in Chengdu, China. Brilliant Pharma integrates research and development, production and sales for innovative drugs, high-end generic drugs, specialty formulations, and Traditional Chinese Medicines. For over 10 years, Chengdu Brilliant Pharmaceutical Co., Ltd. has been adhering to the philosophy of committing to the development of excellent pharmaceutical products and improving core competitiveness, and implementing the strategies of both internal growth and external expansion. Internally, Brilliant Pharma is focused on R&D investment and product innovation, and externally the company has expanded its industrial distribution network through strategic acquisitions of targeted enterprises. Now the Group has established 12 branches including R&D centers, manufacturing facilities, and sales divisions.

Financials (September 2020)
Enterprise Value: $1.8 billion
Annual Revenue: $500 million

Notes
We multiplied the company’s reported 2019 revenue by the median generic pharma revenue multiple to impute value.
Exch:Ticker: Private Company
Sector: Generics - China
Lead TA: Broad

Medochemie

VALUE RANK: 370

Details
Tsiflikoudia Area
Limassol, Limassol 3011
Cyprus
+357 25 867600
www.medochemie.com

Headquartered in Limassol, Cyprus, Medochemie was established in 1976 by Dr. Andreas Pittas. The Company develops, licenses, manufactures, markets, and distributes branded generic and super-generic pharmaceutical products, as well unique patented brands to 107 countries worldwide. The Company offers contract manufacturing services for products such as high-capacity gels, creams, ointments, and syrups at the Company’s manufacturing plants and facilities, located across Europe and Asia. The Company maintains 3,800 marketing authorization licenses for 630 different pharmaceutical products, classified in over 10 therapeutic categories. Medochemie has licensed out several product dossiers to customers in Western Europe, North America, Australasia, and Africa, with products registered on behalf of customers in 29 countries. Medochemie’s philosophy is to build its business around the interests of the patients.

Financials (September 2020)
Enterprise Value: $1.8 billion
Annual Revenue: $500 million

Notes
We imputed value by reporting the company’s estimated revenue by the median generic industry revenue multiple.
Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad
Grupo Uriach

VALUE RANK: 371

Details
51-57 Avinguda Cami Reial
Barcelona, Catalonia 08184
Spain
+34 938 649 692
www.uriach.com

Notes
Uriach reported revenue of €174mm in 2017 and forecast 15% growth going forward. We took this to 2019 and multiplied by the median branded revenue multiple to impute value.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Cardiometabolic

Uriach was founded in 1838 in Barcelona, Spain. The Company is a diversified organisation that markets its products internationally. The products marketed and sold by Uriach Pharma, cover a wide range of therapeutic areas, including: hematology, cardiology, respiratory medicine and microbiology. Since it was founded, Uriach has always maintained an ethical, social position, as well as its independent, family structure. The international vision of the Company has marked the development of the business, with a global presence in more than 150 countries over five continents. Uriach actively pursues licensing and partnership opportunities with international organizations. Uriach’s mission is to improve the health, quality of life and well-being of people all over the world through its quality products and services.

Financials (September 2020)
Enterprise Value: $1.8 billion
Annual Revenue: $271.5 million

Square Pharma

VALUE RANK: 372

Details
Square Centre, 48 Mohakhali Commercial Area
Dhaka, 1212
Bangladesh
+880 2 985 9007
www.squarepharma.com.bd

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: DSE:SQURPHARMA
Sector: Generics - Branded
Lead TA: Broad

Square Pharmaceuticals was founded in 1958 and is headquartered in Dhaka, Bangladesh. The Company offers products for a range of therapeutic areas, including anesthetics, respiratory medicine, neurology, immunology, hematology, microbiology and cardiology. Square was the first company to introduce a ‘modular aseptic compact’ system in Bangladesh and has invested in state of the art formulation plants aligned to regulated market standards. The Company markets as many as 900 products within its domestic market and exports over 700 products to Europe, Asia, Africa, and Central and South America. Square Pharma seeks to improve the lives of all its key stakeholders. The Company went public in 1994.

Financials (September 2020)
Enterprise Value: $1.8 billion
Annual Revenue: $545.9 million
Acino was established in 1836 and is headquartered in Aesch, Switzerland. The Company offers an extensive portfolio of pharmaceutical products covering a wide range of therapeutic areas, including cardiology, osteology, neurology, urology, infectious diseases, endocrinology and hepatology. Acino has the distinction of being the first pharmaceutical company active in Mosul since its liberation, focusing much of its distribution in Africa and the Middle East markets while also reaching into Eastern Europe and Latin America. Acino is a leading provider of branded generics in emerging markets around the world. Acino recently acquired approximately 30 Takeda primary care brands for MENA and the Ukraine in 2020 for a price of over $200 million. The Company went public in 1994 and later privatized. Today, Acino is principally owned by Avista Capital and Nordic Capital.

Financials (September 2020)
Enterprise Value: $1.8 billion
Annual Revenue: $495.6 million

Zhongheng Group

Headquartered in Wuzhou, China, Zhongheng was founded in 1993. The Company’s focus is on the R&D, manufacture and sale of high-quality pharmaceutical products and traditional Chinese medicine products. Offering an extensive variety of products in its portfolio, including treatments in areas such as: cardiology, gynecology, urology, pediatrics and oncology, the Company’s state-of-the-art manufacturing facilities comply with international standards, maintaining continuous quality improvements to ensure the superiority of its products. Zhongheng’s shares were first publicly traded in 2000.

Financials (September 2020)
Enterprise Value: $1.8 billion
Annual Revenue: $530.4 million
Ajanta Pharma

**VALUE RANK: **375

**Details**
98 Ajanta House, Charkop, Kandivli West
Mumbai, Maharashtra 400 067
India
+91 22 6606 1000
www.ajantapharma.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: BSE:532331
Sector: Generics - INN
Lead TA: Broad

Ajanta was founded in 1973 and is headquartered in Mumbai, India. The Company researches, develops, manufactures and markets branded and unbranded generic pharmaceuticals for domestic and international markets. Ajanta’s portfolio for its domestic market consists of over 200 products in therapeutic areas including cardiology, dermatology, ophthalmology and pain management. Ajanta has a commercial presence across the globe including India, CIS, US, East and West Asia and Africa. Ajanta operates six manufacturing facilities throughout India, two of which have been inspected by the USFDA, and a further facility in Mauritius. The Company’s R&D facility combines research on finished formulations as well as API synthesis of different dosage forms. Ajanta aims to ‘serve global healthcare needs through empathy, innovation and technology.’ Ajanta has been a public company since 2000.

**Financials (September 2020)**
Enterprise Value: $1.8 billion
Annual Revenue: $350 million

Xencor

**VALUE RANK: **376

**Details**
111 West Lemon Avenue
Monrovia, California 91016
United States
+1 626 305 5900
www.xencor.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: NasdaqGM:XNCR
Sector: Biotechnology
Lead TA: Rheumatology

Xencor is headquartered in Monrovia, California and was founded in 1997. The Company leverages its proprietary antibody-engineering platform to establish candidates for its drug development program. By ensuring their drug candidates are over 99.5 percent identical to natural antibodies in both structure and sequence, Xencor is able to maintain stability, development and pharmacokinetic properties in their candidates as well as producing them with standard methods for antibody manufacture. In addition to their internal pipeline candidates, Xencor actively seeks out development and licensing partnerships. Consequently, therapeutic antibody programs have been established for the treatment of autoimmune disorders, cancer, asthma and allergic diseases with various partners. The Company is committed to, ‘redesigning antibodies from the ground up.’ Xencor went public in 2013.

**Financials (September 2020)**
Enterprise Value: $1.8 billion
Annual Revenue: $70.7 million
SL Pharm

VALUE RANK: 377

Details
No. 1 Building Bitongyuan, No. 69 Fushi Road, Haidian District, Beijing, Hainan Province 100049, China
+86 10 8862 7630
www.slpharm.com.cn

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:002038
Sector: Generics - China
Lead TA: Broad

SL Pharm was founded in 1994 and is headquartered in Beijing, China. The Company engages predominantly in the development and marketing of genetic engineering and biochemical drugs. The Company has an extensive portfolio of therapeutics for a variety of indications including oncology, hepatopathy and CNS, with products in both the national and international markets. The Company is focused on helping patients to live longer, better quality lives through innovative research and therapeutics. The Company was listed in 2004.

Financials (September 2020)
Enterprise Value: $1.7 billion
Annual Revenue: $214.6 million

Hisoar Pharma

VALUE RANK: 378

Details
No. 100 Waisha Road, Jiaojiang District, Taizhou, Zhejiang Province 318000, China
+86 576 8908 8179
www.hisoar.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:002099
Sector: Generics - China
Lead TA: Broad

Hisoar’s history stretches back to 1966 and the Company has undergone many name changes, but remains based in the Province of Zhejiang, with headquarters in Taizhou, China. Hisoar produces specialty pharmaceutical raw materials, pharmaceuticals and refined chemicals, dyes and dye intermediates. Hisoar’s portfolio features an extensive collection of products, including antibiotics, cardiovascular medications, diabetes treatments and other bulk drugs. Operating in both the domestic and international markets, to areas that include Europe, Asia, and the Americas, the Company boasts internationally-certified facilities located across the country. Hisoar is dedicated to enriching the lives of people everywhere, driven by their motto ‘Healthy Enterprise, Healthier Life.’ Hisoar went publicly traded in 2006.

Financials (September 2020)
Enterprise Value: $1.7 billion
Annual Revenue: $356.2 million
### Xiangxue Pharma

**VALUE RANK: 379**

**Details**
2 Jinfengyuan Road, Science City, Guangzhou Economic and Technological Development Zone
Guangzhou, Guangdong Province 510663 China
+86 20 2221 1555
www.xphcn.com

**Notes**
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

**Exch**:Ticker: SZSE:300147  
**Sector**: Generics - China  
**Lead TA**: Oncology

Headquartered in Guangzhou, China, and established in 1997, XiangXue (XPH) focuses on developing and modernizing the production of traditional Chinese medicine. The Company, through its subsidiaries, offers an integrated system of production from R&D and procurement to manufacturing and distribution. The Company’s lead product has earned recognition throughout China and five of the XPH’s medicines have been awarded National New Medicine certificates. In 2012, XPH founded XLifesc to focus on the development of a new generation of anti-tumor drugs and treatments for autoimmune diseases and viral infectious diseases as well as specific T-cell adoptive immunotherapy clinical application technologies. The Company’s mission is to ‘embrace innovation to help people everywhere lead happier and healthier lives.’ XPH was listed in 2010.

**Financials (September 2020)**

- Enterprise Value: $1.7 billion
- Annual Revenue: $464 million

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### Eidos Therapeutics

**VALUE RANK: 380**

**Details**
101 Montgomery Street Suite 2000
San Francisco, California 94104 United States
+1-415 887 1471
www.eidostx.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch**:Ticker: NasdaqGS:EIDX  
**Sector**: Biotechnology  
**Lead TA**: Cardiovascular

Eidos Therapeutics is a clinical stage biopharmaceutical company based in San Francisco, CA. The Company is 63% owned by BridgeBio and was founded in 2013. Focused on addressing the large and growing unmet need in diseases caused by transthyretin (TTR) amyloidosis (ATTR), Eidos is developing acoramidis, a potentially disease-modifying therapy for the treatment of ATTR. Acoramidis is designed to stabilize tetrameric transthyretin, or TTR, thereby halting the series of molecular events that give rise to ATTR at its outset. In a randomized, placebo-controlled Phase 2 clinical trial in patients with symptomatic ATTR-CM, acoramidis demonstrated greater than 90% average TTR stabilization at day 28, and increased serum TTR concentrations, a prognostic indicator of survival in a retrospective study of ATTR-CM patients, in a dose-dependent manner. Eidos is in a Phase 3 study. Eidos went public in 2018.

**Financials (September 2020)**

- Enterprise Value: $1.7 billion
- Annual Revenue: $26.6 million
Founded in 1996 and based in Heilongjiang, China, ZBD is involved in the development, manufacture and trade of modern Chinese medicines, as well as the logistics and distribution of traditional Chinese herbs and medical equipment. Their portfolio includes OTC products in a wide range of therapeutic areas including cardiology, antibacterial, anti-inflammation, osteopathy, pediatrics as well as health balance and restoration. ZBD’s mission is to build a harmonious community through the pursuit of innovation and excellence. The Company has been identified as a national high-technology center for post-doctoral research and innovation. ZBD was listed in 2015.

Financials (September 2020)
Enterprise Value: $1.7 billion
Annual Revenue: $450.9 million

IDT was founded in 1921 in Dessau, Germany, where it is currently headquartered. IDT Biologika has over 95 years’ experience in manufacturing vaccines and pharmaceuticals. IDT operates subsidiaries worldwide and has won numerous awards internationally such as the CMO Leadership Award 2017. Many human vaccines developed with international partners are already in use, fighting tuberculosis, AIDS and malaria. In the 1990s, the Company introduced the world’s first live Salmonella vaccine for chickens, making great advances in immunization programs at the time. In 2008, rabies was exterminated in Germany thanks to IDT’s rabies vaccine. They have achieved their status as an international leader in the field of biotechnology through their commitment to hiring highly qualified staff, using state-of-the-art technology and investing heavily in research and development. IDT’s philosophy is to carry strong traditions into the future through award-winning innovation and quality, providing biotechnology for people and animals.

Financials (September 2020)
Enterprise Value: $1.7 billion
Annual Revenue: $259.6 million
Siam Bioscience

Siam Biosciences is a state-owned biosimilar company based in Thailand. Founded in 2009, Siam currently manufactures and distributes biosimilar erythropoietin and filgrastim for the Thai population and a number of nearby countries. Siam Bioscience has four subsidiaries and three manufacturing facilities. The three plants consist of a bacteria fermentation facility with an annual capacity of 5 kilogrammes; a fill finished operation zone with annual capacity of 24 million pieces; and a cell culture production with annual capacity of 50kg. In 2017, Siam Bioscience formed a joint venture with CIMAB SA, a Cuban pharmaceutical maker, to produce medicines for complicated diseases. Siam’s products are available through all reimbursement schemes in Thailand. In 2017, Siam Bioscience Group established Inno Biocosmed Co., Ltd. for commercialization of biocosmeceuticals.

Financials (September 2020)

Enterprise Value: $1.7 billion
Annual Revenue: $169 million

JT Pharma / Torii

Tokyo-based company Japan Tobacco (JT) entered into the pharmaceutical industry in 1987, with the establishment of a R&D program that included collaborating with both domestic and international partners, under JT Pharma. The addition of Torii Pharmaceutical to the group in 1998 allowed JT Pharma to further specialize in R&D, while Torii took responsibility for the marketing, sales and manufacture of the Company’s products. The Central Pharmaceutical Research Institute, the Company’s main research facility, was opened in Takatsuki City, Japan in 1993. In 2000, the Company further expanded their research division by establishing a clinical base at Akros Pharma, the Company’s New Jersey-based US subsidiary. The Company’s portfolio is focused on therapies for metabolic diseases and viral infections as well as autoimmune and inflammatory diseases. Japan Tobacco went public in 1994.

Financials (September 2020)

Enterprise Value: $1.7 billion
Annual Revenue: $815 million
Theramex

VALUE RANK: **385**

Details
1 Holbein Place
London, SW1W 8NS
United Kingdom
+44 20 3962 5555
www.theramex.com

Notes
A company executive has publically disclosed revenue of £200mm. We multiplied this by the median branded revenue multiple to impute value.

Exch: Ticker: Private Company
Sector: Branded Pharma
Lead TA: Womens Health

Theramex was established in 1970 and is headquartered in London, United Kingdom. The Company’s first treatment was launched in 1975 and was for postmenopausal vaginal atrophy. Theramex was then acquired by Merck in 1999 and subsequently was acquired by Teva in 2011. In 2018 the new Theramex was born when Teva sold its women’s health business to CVC Partners. Today, the Theramex has more than 350 employees and more than 20 products. Aiming to support women through every stage of their lives, Theramex’s portfolio includes contraceptives, menopause products, as well as fertility and osteoporosis treatments. Theramex values passion, integrity, collaboration and agility and operates in 50 countries across the globe with a focus on the European market. The Company provides credible, innovative solutions and is ‘shaping the future in women’s health.’

Financials (September 2020)
Enterprise Value: $1.7 billion
Annual Revenue: $258 million

HIPRA

VALUE RANK: **386**

Details
135 Avenida la Selva
Amer, Girona 17170
Spain
+34 972 43 06 60
www.hipra.com

Notes
Laboratorios HIPRA had $256mm in 2019 revenue according to S&P. We multiplied this by the median revenue multiple for branded companies to impute a value estimate.

Exch: Ticker: Private Company
Sector: Animal Health
Lead TA: Animal Health

Headquartered in Amer, Spain, HIPRA was established in 1954. The Company is dedicated to the provision of animal vaccines, pharmaceuticals and diagnostic products as well as offering a number of animal health-related support services and applications. The Company develops, manufactures and markets its portfolio to both domestic and international markets. Through its subsidiaries and global distribution network, HIPRA is able to distribute its products to over 100 countries. Committed to the philosophy that innovation is of paramount importance to the continued growth of the business, HIPRA is focused on research into novel vaccines. By leveraging proprietary software, the Company offers a number of services to support the control, planning and analysis of animal vaccine programs. In addition to their range of software tools providing support to animal professionals, the CPD initiative HIPRA University offers educational activities in the field of disease prevention to veterinary practitioners working in the field of food animal production.

Financials (September 2020)
Enterprise Value: $1.7 billion
Annual Revenue: $256 million
Zhongsheng Pharma

Founded in 1979 and based in Dongguan, China, Zhongsheng Pharma focuses on research and development, as well as the manufacture and sales of traditional Chinese medicine, synthetic chemical materials and chemical medicines in addition to the cultivation, processing and marketing of raw Chinese herbs. Zhongsheng’s portfolio covers treatments and disease prevention in a wide range of areas including ophthalmology, cardiology, cerebrovascular medicine, respiratory medicine, gastroenterology, endocrinology, oncology, and geriatrics. Zhongsheng’s mission is to contribute to better human health and to be a first-class biomedical group. The Company has established a research and development center and strives to develop traditional Chinese medicine using modern technology. Zhongsheng’s IPO was in 2009.

Financials (September 2020)
Enterprise Value: $1.7 billion
Annual Revenue: $284.5 million

Quantum Hi-Tech

Quantum Hi-Tech was founded in 2000 and is headquartered in Guangdong, China. The Company conducts research and development, manufacture, and sales of probiotic products. Their portfolio covers different specifications of fructo-oligosaccharides and galacto-oligosaccharides as fortifiers and promoters of optimum gut health. Quantum seeks to improve and promote healthy gut micro-ecosystems. The Company boasts world-class production facilities and extensive warehousing facilities and has been recognized both nationally and internationally as a leading Asian enterprise. Quantum’s shares have been publicly traded since 2010.

Financials (September 2020)
Enterprise Value: $1.7 billion
Annual Revenue: $195.7 million
Biotest / Creat Group

**Value Rank:** 389

**Details**
5 Landsteinerstrasse
Dreieich, 63303
Germany
+49 61 03
www.biotest.de

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** DB:BIO3  
**Sector:** Branded Pharma  
**Lead TA:** Blood Products

Biotest was founded in Frankfurt in 1946, as the Biotest Serum-Institute, and today the Company is headquartered in Dreieich, Germany. Biotest supplies blood products and biotherapeutic drugs used primarily in the therapeutic areas of intensive care medicine, hematology and clinical immunology. Biotest is a full-service, international Company that has subsidiaries in seven European countries and in Brazil, as well as proprietary plasma collection centers across three European countries. The Company’s mission is to enable patients with serious blood or immune diseases to lead as normal lives as possible. Biotest’s business strategy consists of focus, coverage, R&D, internal expansion, strong partnerships and demand-based capacity expansion. The Company went public in 1987 and is 45% owned by Creat Group, a Chinese investor. Creat also acquired BPL, a British blood products company.

**Financials (September 2020)**
Enterprise Value: $1.7 billion  
Annual Revenue: $516.3 million

Sebela Pharma

**Value Rank:** 390

**Details**
645 Hembree Parkway
Roswell, Georgia 30076  
United States
+1 844 7323521
www.sebelapharma.com

**Notes**
Sebela’s revenue in 2019 was approximately $250 million. We multiplied this by the median revenue multiple for branded pharmaceutical companies to impute a value estimate.

**Exch:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Gastroenterology

Sebela Pharmaceuticals is a privately held branded pharmaceutical company based in Roswell, Georgia. Founded in 2014, Sebela develops, markets and sells to niche therapeutic markets. Their branded prescription pharmaceuticals focus on the areas of gastroenterology, dermatology and women’s health. It has significantly expanded its offerings through product and company acquisitions including the purchase of Braintree Pharmaceuticals in 2018. As a result of the latter deal Sebela is the largest marketer of colonoscopy preparation solutions in the United States. Sebela Pharma is committed to expanding their US infrastructure by in-licensing and acquiring late-stage drug candidates and marketed products that utilize and enhance their existing development and commercial capabilities. Sebela is almost entirely owned by Avego Healthcare Capital.

**Financials (September 2020)**
Enterprise Value: $1.7 billion  
Annual Revenue: $250 million
Tecnoquimicas

VALUE RANK: 391

Details
No.7-39 Calle 23
Santiago de Cali, Valle del Cauca 760044
Colombia
+57 2 882 5555
www.tqconfiable.com

Notes
D&B indicates Tecnoquimicas revenue in 2018 was $458mm (compare to a $600mm estimate provided a few years before). We multiplied this by the median revenue multiple for generic pharma companies to impute a value estimate.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

Founded in 1934, Tecnoquimicas is headquartered in Santiago de Cali, Colombia. The Company manufactures and commercializes a wide range of products and services within healthcare, personal care, household hygiene, industrial adhesives, as well as commercial, agricultural and veterinary products. The Company has offices and facilities across Latin America, and exports to more than 17 countries throughout North, Central and South America, as well as the Caribbean. Tecnoquimicas has established a number of research partnerships with research and educational organizations and industrial institutes to develop their product portfolio. The Company is committed to contributing towards research into health issues and the development of reliable, innovative treatments for the health and wellbeing of the Colombian population.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $458 million

Corcept Therapeutics

VALUE RANK: 392

Details
149 Commonwealth Drive
Menlo Park, California 94025
United States
+1 650 327 3270
www.corcept.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqCM:CORT
Sector: Branded Pharma
Lead TA: Rare Disease

Corcept is a publically-listed Bay Area based branded pharma company. Founded in 1998, Corcept is a commercial-stage company engaged in the discovery and development of drugs to treat severe metabolic, oncologic and psychiatric disorders by modulating the effects of the hormone cortisol. Korlym® was the first drug approved by the U.S. Food and Drug Administration for patients with Cushing’s syndrome. Corcept has discovered a large portfolio of proprietary compounds that selectively modulate the effects of cortisol. The Company owns extensive intellectual property for the US and internationally, covering the use of cortisol modulators. Corcept has received the CAP Recognition Award for their support as a corporate partner helping to facilitate the improvement of patient care in endocrinology, diabetes and metabolism.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $351.2 million

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $74.7 million

Towa was formed in 1951 and has been headquartered in Osaka, Japan since 1997. The Company is dedicated to the research, development, manufacture and commercialization of generic drugs. With offices, manufacturing and research facilities across Japan, as well as an extensive network of sales offices, Towa offers a portfolio of over 500 products for a diverse range of therapeutic areas. Towa has developed a proprietary RACTAB Technology to manufacture their exclusive orally disintegrating tablets. Towa acquired Esteve’s generic business in 2020 for a price of 320 million Euros, giving it a significant presence in both the U.S. and Europe in generics. The Company’s mission is to ‘contribute to people’s health.’ Towa went public in 1994.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $1.1 billion
Nichi-Iko Pharmaceuticals was founded in 1965, and has headquarters in both Toyama and Tokyo, Japan. Nichi-Iko’s portfolio consists of almost 1,000 products for export as well as distribution within Japan. These are manufactured across eight facilities. Treatments produced include those for circulatory, digestive, respiratory, central and peripheral nervous systems indications. In 1987, the Company developed their only proprietary drug, a central nervous system analgesic. Nichi-Iko is developing a significant portfolio of biosimilars. Nichi-Iko acquired Sagent Pharma in 2016 as part of a strategy to enter the U.S. market. In 2020, the company acquired a Japan JV of Takeda and Teva with Japanese generics. The Company’s goal is to provide, ‘more patient-friendly, more patient-choice, more high-quality’ products for their end users. Nichi-Iko went public in 1980.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $1.7 billion

Kolmar Korea Co. was founded in 2012 and markets cosmetics and health products in South Korea. In February 2018, Kolmar bought CJ Healthcare, the pharmaceutical business unit of CJ CheilJedang for $1.2 billion. We refer to this business as the Kolmar medicine unit (KMU). Kolmar is publicly-traded and indicates in its 2019 segment data that KMU delivered $567 million in revenue. KMU develops new drugs, biologicals, and generics in a range of therapy areas including oncology, gastroenterology, and immunology for sale in both domestic and international markets. The company’s top drug, K-Cab, is for acid indigestion. KMU boasts state-of-the-art manufacturing facilities that produce quality oral solid form and injectable oncology pharmaceuticals, and also seeks in and out-licensing opportunities to expand its business.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $567 million
Hugel

VALUE RANK: 397

Details
61-20, Sinbuk-ro Sinbuk-eup
Chuncheon-si, Gangwon-do, 24206
South Korea
+82 3 3255 3882
www.hugel.co.kr

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: KOSDAQ:A145020
Sector: Branded Pharma
Lead TA: Dermatology

Hugel is a South Korean branded pharmaceutical company. Founded in 2001, Hugel has become a leader in the field of aesthetic medicinal solutions including botulinum toxins, HA fillers, clinical dermacosmetics and medical devices for neuro-intervention. In 2019, Hugel topped the South Korean botulinum toxin market for the fourth consecutive year and also achieved the No. 1 position in the Korean HA filler market. Impressively led by Jihon Sohn, Hugel also has racked up excellent growth in Australia, Vietnam and other markets. Today, Hugel exports its products to more than 40 markets and is now focused on achieving approvals in China, Europe and the United States. Bain Capital acquired a large stake in Hugel in 2017 with an eye to helping to fund this company’s approvals of botulinum toxins for the US and EU markets. Hugel went public in 2015.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $162.3 million

Alphamab Oncology

VALUE RANK: 398

Details
Bldg. C23, 218 Xinghu StreetSIP
Suzhou, 215000
China
+86-512 6285 0800
www.alphamabonc.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SEHK:9966
Sector: Biotechnology
Lead TA: Oncology

Alphamab Oncology is a clinical-stage biopharmaceutical company dedicated to the discovery, development, manufacturing and commercialization of world-class innovative therapeutics for cancer treatment. Alphamab employs multiple in-house proprietary platforms of bispecifics, protein engineering and antibody screening, Alphamab Oncology has built a robust pipeline in oncology/immunology, and is striving to develop next generation and best-in-class medicines to address unmet medical needs globally. Drug candidate KN046 is a PD-L1/CTLA-4 bispecific antibody in multiple clinical trials. KN026 is an anti-HER2 bispecific antibody that can induce dual HER2 signal blockade. Alphamab completed an IPO on the Hong Kong Stock Exchange in 2019.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $1.4 million
Aurinia Pharma

VALUE RANK: 399

Details
#1203-4464 Markham Street
Victoria, British Columbia V8Z 7X8
Canada
+1 250 744 2487
www.auriniapharma.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: TSX:AUP
Sector: Biotechnology
Lead TA: Rheumatology

Aurinia was founded in 1993 and is headquartered in Victoria, Canada. It focuses on developing and commercializing therapies to treat targeted patient populations who are suffering from serious diseases with a high unmet medical need. Effectively led by Peter Greenleaf, Aurinia Pharmaceuticals is a late-stage clinical biopharmaceutical company focused on developing and commercializing therapies to treat targeted patient populations that are impacted by serious diseases. The Company is currently seeking FDA approval of voclosporin for the potential treatment of lupus nephritis. Voclosporin is an immunomodulating calcineurin inhibitor (CNI) with clinical data in over 2,600 patients across indications. Aurinia went public in 1996.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $0.3 million

AnGes

VALUE RANK: 400

Details
Saito Bio- Incubator 1st Floor 7-7-15, Saito-asagi
Ibaraki, Osaka, 567 085
Japan
+81 3 57302641
www.anges-mg.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: TSE:4563
Sector: Biotechnology
Lead TA: Rare Disease

AnGes, Inc. is a Japan branded pharma company founded in 1999. AnGes’ mission is to provide patients suffering from diseases for which no effective therapy has been available. AnGes focuses on the development of gene therapy, a next-generation biopharmaceutical. AnGes already went through the first stage of research and development and is now in the second stage of commercialization. Its lead product, HGF Plasmid (Collategene®, gene therapy) is for the treatment of critical limb ischemia, a serious impairment of blood circulation in the leg. AnGes is also developing NF-κB decoy oligonucleotide nucleic acid medicine that suppresses inflammation for diseases including lower back pain.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $1.5 million
USV

VALUE RANK: 401

Details
Arvind Vithal Gandhi Chowk, BSD Marg, Station Road
Mumbai, Maharashtra 400 088
India
+91 22 2556 4048
www.usvindia.com

Notes
EMIS indicates that revenues in 2019 were $446mm. We multiplied this by the median revenue multiple of generic pharma companies to impute value.

Exch: Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

USV was established in 1961 and is headquartered in Mumbai, India. The Company conducts the research, development, manufacture and commercialization of APIs, formulations, peptides, biosimilars and injectables. Offering its products primarily to the domestic market, the Company also exports APIs and finished formulations to over 70 countries. USV has an established portfolio of products covering therapeutic areas such as anti-diabetic, cardiovascular, dermatology and gastroenterology, as well as offering vitamins, minerals and nutrients. The Company’s research facility focuses on developing biosimilars, peptides, chemical processes and drug delivery. The Company’s mission is to provide superior value to their customers and stakeholders, through innovation, focus and specialization.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $446.4 million

Arkopharma

VALUE RANK: 402

Details
LID de Carros-le-Broc
Carros, Provence-Alpes-Côte d’Azur 6511
France
+33 4 93 29 11 28
www.arkopharma.com

Notes
Company disclosure of €205mm in revenue in 2016. We multiplied this by the average branded pharma revenue multiple to impute value.

Exch: Ticker: Private Company
Sector: Branded Pharma
Lead TA: ENT

Arkopharma was established in 1980, by Dr. Max Rombi, co-founder of Virbac veterinary labs, and today the Company is headquartered in Carros, France. Arkopharma specializes in natural medicine, phytotherapy and dietary supplements. The region in France where the Company is based is one of remarkable biodiversity, which is reflected in the diversity of its products. Arkopharma has a broad product range targeted at a variety of therapeutic areas including women’s health, dermatology, CNS and gastroenterology. The Company strives to transform plant wisdom into healthcare solutions and since the French Ministry of Health officially recognized phytotherapy as an independent branch of medicine in 1986, it has become part of daily life. Arkopharma is present in over 60 countries and has seven subsidiaries across Europe.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $241.9 million
Kimia Farma

VALUE RANK: 403

Details
No.9 Jalan Veteran
Jakarta, Jawa Barat 10110
Indonesia
+6221 3847709
www.kimiafarma.co.id

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: IDX:KAEF
Sector: Generics - Branded
Lead TA: Broad

An integrated health services company PT Kimia Farma is based in Jakarta, Indonesia and was founded in 1971. The Company operates five production facilities to manufacture almost 400 product items for its portfolio. This includes both ethical and generic drugs as well as cosmetic and body care, food supplement and OTC products amongst others. Kimia Farma’s R&D unit employs formulation laboratories and analysis laboratories, natural ingredient extraction facilities and experiment plantations to expand its portfolio for distribution both to the domestic market and internationally to over a dozen countries globally. Kimia Farma went public in 2001.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $662 million

Bavarian Nordic

VALUE RANK: 404

Details
Hejreskovej 10A
Kvistgaard, Hovedstaden 3490
Denmark
45 33 26 83 83
www.bavarian-nordic.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: CPSE:BAVA
Sector: Branded Pharma
Lead TA: Oncology

Bavarian Nordic was founded in Kvistgaard, Denmark in 1994 to develop innovative and safe therapies that address cancer and infectious diseases. The Company’s vaccine platform technology is centered on live vaccine development that can be used in various combinations for prime and booster applications in cancer and infectious diseases. The Company’s lead product is a liquid-frozen formulation smallpox vaccine which is sold commercially in the EU and Canada and is stockpiled by the US government. Bavarian Nordic has ongoing research and development relationships with the US government and global collaborations with leading pharmaceutical multinationals. Bavarian Nordic has a proven track record and through innovative science, using their validated platform technologies and industry collaboration they seek to find potential synergies for combining their immunotherapies with other immune-modulating agents, such as checkpoint inhibitors to further develop their portfolio.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $226.2 million
Dezhan Healthcare

VALUE RANK: 405

Details
Shuangqiao East Road Chaoyang District
Beijing, China
+86 10 8539 2752
www.jarlin.com.cn

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:000813
Sector: Generics - China
Lead TA: Broad

Beijing Jialin Pharmaceutical Co., Ltd. was established in December 1998 and is also known as Dezhan Healthcare. The company’s corporate mission is to continuously provide more effective drugs and continuously improve the quality of human life. Since its establishment, it has been diligent in innovating and courageous in exploring, and aspires to become the leader in China’s cardiovascular and cerebrovascular drug market as a highly respected market player. The Company’s main product is a branded generic of atorvastatin and accounts for one fifth of the China market with revenue of close to 4 billion CNY. Its R&D subsidiary, The Institute of Materia Medica, has gathered a group of highly educated, high-quality, high-level researchers and has now become the company’s technical backbone. Dezhan is also a major investor in ApolloBio which has been in-licensing Western innovation drugs for the China market.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $221.9 million

SpringWorks

VALUE RANK: 406

Details
100 Washington Boulevard
Stamford, Connecticut 06902
United States
+1-203-883-9490
www.springworkstx.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:SWTX
Sector: Biotechnology
Lead TA: Oncology

SpringWorks Therapeutics is a clinical-stage biopharmaceutical company that applies a precision medicine approach to acquiring, developing and commercializing life-changing medicines for underserved patient populations suffering from severe rare diseases and cancer. The Company and assets were spun out of Pfizer in 2017. Nirogacestat, a gamma secretase inhibitor, is in a Phase 3 clinical trial (the DeFi trial) for the treatment of desmoid tumors. Mirdametinib, a MEK inhibitor, is in a Phase 2b clinical trial (the ReNeu trial) for the treatment of adults and children with neurofibromatosis type 1-associated plexiform neurofibromas (NF1-PN). Led by Saqib Islam, SpringWorks aims to “ignite the power of promising science to unleash new possibilities for patients.” SpringWorks went public in 2019.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $0
Tonghua, China-based Zixin (pronounced “zee-shin”) Pharma was established in 1998. Specializing in traditional Chinese medicines, ginseng products and gene sequencing, the Company operates a fully-integrated business model, developing its products from initial discovery and research to commercialization of the assets. Zixin has also established an extensive range of ginseng products, developing over 500 products in the range, including nutritional supplements and cosmetics. Four separate plants have been built by the Company to process and manufacture the ginseng portfolio. Zixin has become a well-known brand name in China and the Company has gained local and national recognition for its products. Zixin has been named a National Top 100 Pharmaceutical Enterprise, and a National High-tech Enterprise amongst other titles and awards. Zixin became a publicly-traded company in 2007.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $65.5 million

HanAll was founded in 1973 and is headquartered in Seoul, South Korea. The Company specializes in cancer and auto-immune therapies and has developed a series of anti-cancer agents for cancer metabolism as well as an EMT inhibitor for fibrotic diseases. HanAll develops its products for a global market. The Company’s pipeline supports and extends on its existing products and includes treatments for hypertension and obesity. The Company has been recognized by the Minister of Knowledge Economy at the Korea Technology Awards and has also received awards from the Korean Minister of Health and Welfare for Healthcare Industry Technology. The Company aims to promote improved health and happiness. HanAll went public in 1989.

Financials (September 2020)
Enterprise Value: $1.6 billion
Annual Revenue: $82.3 million
Cytokinetics was established in 1997 and is located in San Francisco, California. The Company specializes in the discovery and development of treatments for conditions, such as spinal muscular atrophy and amyotrophic lateral sclerosis (ALS), that are characterized by muscle weakness, fatigue and compromised muscle function. Cytokinetics specifically engineers small molecule drugs to improve and increase muscle function. With a pipeline that includes the result of a research partnership aimed at developing a product to improve cardiac recovery following heart failure, as well as a novel therapy for ALS, Cytokinetics is in a strong position to dominate the global market within this specialty area. The Company is dedicated to seeking solutions to the unmet medical needs of patients with muscle function conditions and works closely with patient communities in order to address these issues. Cytokinetics went public in 2004.

**Financials (September 2020)**

Enterprise Value: $1.6 billion
Annual Revenue: $18.6 million

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Gebro Pharma is a privately-own leading Pharma Group founded in Austria in 1947 with total revenues of €185 million in 2018 and over 500 employees. The business was established by the Broschek family. Initially running a pharmacy in the interwar period, after the war they started producing local anesthetics in an old washhouse. Today the Company still produces the local anesthetic alongside OTC products, prescription medication, medical devices and natural food supplements, as well as offering contract manufacturing in these areas. Headquarters are located in Fieberbrunn (Austria), where Gebro is a top local leading player. Gebro also has significant commercial operations in Spain and Switzerland. The Company serves more than 25 countries in total. The therapeutic focus of the Group is pain with a strong franchise in Rheumatology. In Spain, Gebro is ranked nº1 in rheumatology and pain. Alongside, Gebro has also built a portfolio around urology, respiratory, GI, derma and CV depending on the territory.

**Financials (September 2020)**

Enterprise Value: $1.6 billion
Annual Revenue: $236 million
Clinigen

Founded in 2010, Burton-on-Trent, UK-based Clinigen Group was formed through a merger between Keats Healthcare, Clinigen Healthcare and Clinigen. The Group operates via its subsidiaries over three key areas: 1. Clinical trial services, 2. Global access programs for unlicensed medicines and 3. Specialty pharmaceuticals focused on licensed hospital-only medicines. Clinigen seeks strategic alliances and offers contract services from R&D to distribution, as well as consulting services. Clinigen operates branches and facilities across North America, Europe, Asia Pacific and Africa. The Company’s mission is to serve the right medicine to the right patient at the right time, addressing the low or non-existent access experienced by most of the world’s population to the medicines they need. Clinigen’s shares first went publicly traded in 2012.

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: $624.4 million

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: AIM:CLIN
Sector: Branded Pharma
Lead TA: Mature Products

Revolution Medicines

Revolution Medicines is a Bay Area based biotech company that develops targeted oncology therapies. Revolution possesses sophisticated structure-based drug discovery capabilities built upon deep chemical biology and understanding of relevant pharmacology to enable the creation of small molecules tailored to unconventional binding sites. Its most advanced product candidate is RMC-4630, a clinical-stage drug candidate that potently and selectively inhibits SHP2, a central node in the RAS signaling pathway. RMC-4630 is in a multi-cohort Phase 1/2 clinical program for a range of tumor types featuring specific oncogenic mutations. Revolution is also developing a portfolio of mutant-selective RAS inhibitors that we believe are the first potent, selective, cell-active inhibitors of the active, GTP-bound form of RAS.

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: $461 million

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: RVMD
Sector: Branded Pharma
Lead TA: Broad
Laboratorio Elea

**VALUE RANK: 413**

**Details**
Sanabria 2353
Buenos Aires, Capital Federal C1417AZE
Argentina
+54 11 4379 4300
www.elea.com

**Notes**
We multiplied 2016 revenue of $216 by the median revenue multiple of branded pharma companies to impute a value estimate.

**Exch:Ticker:** Private Company
**Sector:** Branded Pharma
**Lead TA:** Broad

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**Isdin**

**VALUE RANK: 414**

**Details**
33 Provençals
Barcelona, Catalonia 08019
Spain
+34 93 240 20 20
www.isdin.com

**Notes**
ISDIN’s revenue in 2018 was $232mm (S&P data). We multiplied this by the median branded pharma revenue multiple to impute a value estimate.

**Exch:Ticker:** Private Company
**Sector:** Branded Pharma
**Lead TA:** Dermatology

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Elea was founded in 1939 and is based in Buenos Aires, Argentina. The Company develops, manufactures and commercializes its own branded medicines in addition to holding licenses to distribute international products to the domestic market. The Company also utilizes its manufacturing capabilities to produce, market and export directly to international companies. Elea’s areas of development include women’s health, cardiology, neurosciences and oncology. Elea has an established pipeline of candidates developed internally as the result of strategic alliances with partners including international research and development centers. Internationally, Elea exports a portfolio of drugs for therapeutic areas including cardiovascular, CNS, anti-infectives and biosimilars, with products available in territories worldwide. The Company’s mission is focused on, ‘taking care of the health of people and the environment.’

**Financials (September 2020)**

**Enterprise Value:** $1.5 billion
**Annual Revenue:** $0 million

Isdin was born in 1975, from an alliance between a global leader in fragrances, cosmetics and a pharmaceutical company, and is based in Barcelona, Spain. The privately-held joint venture company researches, develops and distributes dermo-cosmetic products across Europe, Latin America and Asia. The Company’s mission is to be a worldwide benchmark for skin health, beauty and treatment. Isdin start each day with reflection, on what can be done different, and better in order to make a difference and win trust. The Company is committed to reducing environmental impact by extracting only the raw materials they need, using eco-packaging, having no animal testing, working optimally and with efficacy, and by being committed to recycling and sustainable distribution. Until a few years ago Yaws, a dermatological infectious disease affecting over 40 million people, was incurable but working with Dr. Oriol Motja, Isdin has found a cure.

**Financials (September 2020)**

**Enterprise Value:** $1.5 billion
**Annual Revenue:** $232 million
ALX Oncology

VALUE RANK: 415

Details
866 Malcolm Road, Suite 100
Burlingame, California 94010
United States
+1-650-466-7125
alxoncology.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:ALXO
Sector: Biotechnology
Lead TA: Oncology

ALX Oncology is a clinical-stage immuno-oncology company focused on helping patients fight cancer by developing therapies that block the CD47 checkpoint pathway and bridge the innate and adaptive immune system. ALX Oncology’s lead product candidate, ALX148, is a next generation CD47 blocking therapeutic that combines a high-affinity CD47 binding domain with an inactivated, proprietary Fc domain. ALX148 has demonstrated promising clinical responses across a range of hematologic and solid malignancies in combination with a number of leading anti-cancer agents. ALX Oncology intends to advance ALX148 into clinical development for the treatment of myelodysplastic syndromes and to continue clinical development for the treatment of a range of solid tumor indications. ALX went public in 2020.

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: $3.6 million

Forma Therapeutics

VALUE RANK: 416

Details
500 Arsenal Street Suite 100
Watertown, Massachusetts 02472
United States
+1-617 679 1970
www.formatherapeutics.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGM:FMTX
Sector: Biotechnology
Lead TA: Oncology

Forma Therapeutics is Boston area based biotech company founded in 2007. Forma is focused on the research, development and commercialization of novel therapeutics to transform the lives of patients with rare hematologic diseases and cancers. Its R&D engine combines deep biology insight, chemistry expertise and clinical development capabilities to create drug candidates with differentiated mechanisms of action focused on indications with high unmet need. Its work has generated a broad proprietary portfolio of programs with the potential to provide profound patient benefit. Key drug candidates include FT-4202, a potentially foundational, disease-modifying therapy for patients with sickle cell disease, and FT-7051, in development for mCRPC with the potential to address prostate cancer cell resistance related to molecular alterations in androgen receptors. Forma went public in 2020.

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: $10.8 million
Laboratorios Sanfer

VALUE RANK: 417

Sanfer is a leading Mexican pharmaceutical company with presence in over 25 countries across Latin America. For over 78 years, Sanfer has provided top quality and innovative pharmaceuticals to physicians and consumers by manufacturing and effectively promoting human and animal health products across over ten therapeutic fields. Sanfer maintains high growth potential through its product development, acquisitions and its strategic partnerships with global pharmaceutical companies. Over the last 20 years, Sanfer has closed over 100 brand acquisitions, acquired 8 pharmaceutical companies and launched over 100 new products across Mexico and Latin America. Sanfer raised $500mm from the Caisse de Depot in Canada to fund further growth initiatives.

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: NA

Notes
The Caisse de Depot made a $500mm investment in Sanfer in 2019. The deal press release indicated that CDPQ took a minority stake and that with GA which had a substantial piece and were collectively in the minority. Based on these facts, we estimate a company value (roughly, obviously) of $1.5bn.

Exch:Ticker: Private Company
Sector: Generics - Branded
Lead TA: Generics

FujiFilm Pharma

VALUE RANK: 418

FujiFilm Pharma has headquarters in Tokyo, Japan, and was established in 1968 as a joint venture between Daiichi Seiyaku and Mallinckrodt US. The Company became a wholly-owned subsidiary of the Fujifilm Corporation in 2006. Focusing on its competency in nuclear medicine, Fujifilm uses its in-house technology to research, develop, manufacture and sell diagnostic and therapeutic radiopharmaceuticals, as well as contrast media and other diagnostic aids. In 2008, the Company acquired Toyama Chemical to replenish its anti-infective pipeline. Fujifilm also has a significant presence in cell therapy medicines through its subsidiary CellularDynamics. Its holdings include Opsis, working on next generation treatments for retinal disease. FujiFilm’s mission is to contribute towards improving human health through nuclear medicine.

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: NA

Notes
We used segment revenue from the Company 2017 Integrated Report. We multiplied this by the median branded multiple to impute a value estimate.

Exch:Ticker: TSE:4901
Sector: Branded Pharma
Lead TA: Oncology
Sanovel

Privately financed company Sanovel was established in 1983, with headquarters in Istanbul, Turkey and operates as a subsidiary of Toksoz Holdings. The Company develops, manufactures and markets pharmaceutical products for both the human and veterinary markets. Sanovel’s portfolio covers the Turkish domestic market as well as international regions such as Iraq, Spain and CIS countries. In 2006, Sanovel opened a new manufacturing facility in Turkey. This plant was granted EU GMP approval in 2009 and contains a cephalosporin production plant as well as a bio-technology production plant in addition to the main production plant. The Company’s research and development programs include developing biosimilar-therapeutic protein products that use recombinant DNA technology. Sanovel is committed to ensuring that its products contribute to human health and provide ‘quality as a lifestyle.’

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: $227 million

Notes
According to Reuters, Toksoz sold a 30% interest in Sanovel to Yamma Investments for $200mm in January 2020. We used this to impute a value for the company.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Broad

SPIMACO

Saudi Joint–Stock company SPIMACO was established in 1986 and is headquartered in Riyadh, Saudi Arabia. With a commitment to ‘provide high quality pharmaceutical products of international standards’ the Company engages in the development, manufacturing and commercialization of both pharmaceutical products and medical appliances for the domestic and international markets. The Company’s domestic portfolio contains a variety of treatments for indications including: cardio-vascular, diabetes, musculoskeletal, psychiatric and respiratory. Additionally, SPIMACO exports a number of products to countries in the Middle East and Africa. The flexible, objective and versatile approach the company takes towards collaborations with multinational partnerships has led to a number of co-marketing, in and out licensing, co-promotion, contract manufacturing and distribution partnerships. The Company has been listed since 1993.

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: $417 million

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SASE:2070
Sector: Generics - Branded
Lead TA: Broad
Abiogen Pharma

VALUE RANK: 421

Details
36 Via Meucci
Pisa, Loc 56121
Italy
+39 050 31 54 101
www.abiogen.it

Notes
Abiogen reported 2018 turnover of €189mm. This was multiplied by the median branded pharma multiple to impute a value estimate.

Exch:Ticker: Private Company
Sector: Branded Pharma
Lead TA: Bone & Osteo

Abiogen was founded in 1917 and is a privately-held company headquartered in Pisa, Italy. The Company, initially known as Istituto Galenico was a manufacturer of prescription pharmaceuticals. The purchase of a predecessory company (Institute Gentili) by Merck Sharp & Dohme in 1997 facilitated the founding of Abiogen Pharma from the remaining business. Abiogen proceeded to expand from the established domestic into the international market. The Company’s portfolio offers products in therapeutic areas covering bone, metabolism, hypovitaminosis D, pain and viscosupplementation, dermatology, respiratory and diabetology. In 2001, Abiogen opened its manufacturing facility on the outskirts of Pisa, and the Company offers an integrated pharmaceutical development service to third parties worldwide. Abiogen’s goal is to ensure that its products are broadly available to allow as many to benefit from them as possible.

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: $223 million

Akcea Therapeutics

VALUE RANK: 422

Details
55 Cambridge Parkway
Cambridge, Massachusetts 02142
United States
+1 617 207 0202
www.akceatx.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:AKCA
Sector: Branded Pharma
Lead TA: Hematology

Akcea Therapeutics was established in 2015 and is headquartered in Cambridge, Massachusetts. The Company is on a mission to advance transformative treatments for patients with serious and rare cardiometabolic diseases. Akcea is committed to their mission and use RNA-targeted medicines to achieve it. The Company is ‘driven by the knowledge that patients’ are depending on them. Akcea is focused on developing and commercializing its product pipeline, both in the US and internationally. The Company made its initial public offering in 2017. Akcea has agreed to be acquired by Ionis in September 2020.

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: $336.5 million
### uniQure

**VALUE RANK:** 423

**Details**
25 a Paasheuvelweg
Amsterdam, Noord-Holland 1105 DA
Netherlands
+31 20 240 6000
www.uniqure.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** NasdaqGS:QURE  
**Sector:** Biotechnology  
**Lead TA:** Rare Disease

Uniqure is based in Amsterdam, the Netherlands and was established in 1998, initially operating under the name Amsterdam Molecular Therapeutics. The Company develops gene therapies based on the adeno-associated virus (AAV) through an innovative technology platform and proprietary manufacturing capabilities. The Company’s current lead indications are hemophilia B and Huntington’s disease. As a result of a number of collaborations and strategic partnerships, uniQure has been able to develop gene therapies for a greater variety of therapeutic areas. The Company values passion, integrity, ownership, collaboration, innovation and quality. UniQure went public in 2014.

**Financials (September 2020)**
Enterprise Value: $1.5 billion  
Annual Revenue: $5.3 million

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### Innocare

**VALUE RANK:** 424

**Details**
Sunlight Tower 40th Floor No. 248 Queen's Road East
Wanchai, Hong Kong
+86-10-66609999
www.innocarepharma.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** SEHK:9969  
**Sector:** Biotechnology  
**Lead TA:** Oncology

InnoCare was co-founded by Dr. Jisong Cui, an experienced enterprise manager in the biomedical industry, and Professor Yigong Shi, a world-renowned structural biologist. InnoCare focuses on the research and development of first-in-class and best-in-class drugs in the fields of oncology and autoimmune diseases, targeting diseases that are highly prevalent in China such as lymphoma, liver cancer, gastric cancer and autoimmune diseases. The company has three drug candidates and carries out clinical trials in both China and the United States. InnoCare has R&D centers in Beijing and Nanjing, project management centers in Shanghai, a drug manufacturing base in Guangzhou, and branches in New Jersey and Boston for business development and clinical trial management. Innocare went public in 2020.

**Financials (September 2020)**
Enterprise Value: $1.5 billion  
Annual Revenue: $0.1 million
Microgen

Microgen is a state-owned branded biologics company based in Moscow, Russia. Established in 2003, Microgen was formed through the merger of a number of the largest state-owned unitary producers of immunobiological products. The Company manufactures immunobiological preparations including vaccines, serums, specific immunoglobulins, growth media, allergens and probiotics for the domestic market. The Company’s primary area of business and expansion is in the production of vaccines for dangerous infectious diseases, including those listed on Russia’s National Calendar of Preventive Vaccination. Since 2014, the Company has established a number of co-operative international partnerships to promote the transfer of technologies and knowledge to develop innovative effective medicines in order to carry out the Company’s aim of ‘protecting the health of people around the world.’

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: $144.9 million

Notes
Company accounts indicate that revenue in 2019 was $145mm. We multiplied this by the median multiple for biosimilar companies to impute a value estimate.

Exch: Ticker: Private Company
Sector: Generics - Biosimilars
Lead TA: Vaccines

Intercept Pharma

Intercept Pharma, founded in 2002 and based in New York City, New York, specializes in the development and commercialization of novel therapeutics used to treat non-viral, progressive liver diseases. The Company’s mission is to build a healthier tomorrow for patients suffering from liver disease. Intercept Pharma has operations throughout North America and Europe. Intercept Pharma’s portfolio includes a treatment for primary biliary cholangitis that contains the active ingredient obeticholic acid (OCA). This product has been out-licensed, but Intercept owns the worldwide rights to OCA outside of Japan, China and Korea. The Company has also developed a robust pipeline of candidates in various stages of clinical and preclinical trials and both welcomes and supports unsolicited independent research relating to disease areas within the Company’s specialist area. Intercept Pharma became a publicly traded company in 2012.

Financials (September 2020)
Enterprise Value: $1.5 billion
Annual Revenue: $283.3 million

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: NasdaqGS:ICPT
Sector: Branded Pharma
Lead TA: Cardiometabolic
Zymeworks

**VALUE RANK: 427**

**Details**
1385 West 8th Avenue Suite 540
Vancouver, British Columbia V6H 3V9
Canada
+1-604-678-1388
www.zymeworks.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** TSX:ZYME  
**Sector:** Biotechnology  
**Lead TA:** Oncology

Zymeworks Inc. is a publicly listed biotech company based in Vancouver, Canada. Founded in 2003, Zymeworks is dedicated to the discovery, development and commercialization of next-generation multifunctional biotherapeutics, initially focused on the treatment of cancer. Zymeworks’ Zanidatamab, is a HER2-targeted bispecific antibody that is being evaluated in registration-enabling clinical trials as a treatment for patients with HER2-expressing cancers. Zymeworks’ second candidate, ZW49, is a HER2-targeted antibody-drug conjugate developed using Zymeworks’ proprietary Azymetric™ and ZymeLink™ platforms. ZW49 is currently being evaluated in a Phase 1 clinical trial as a treatment for patients with HER2-expressing cancers. In addition, Zymeworks’ therapeutic platforms have been further leveraged through strategic partnerships with a range of global biopharmaceutical companies. Zymeworks completed an IPO in 2017.

**Financials (September 2020)**
Enterprise Value: $1.4 billion  
Annual Revenue: $30.3 million

Sobhan Pharma

**VALUE RANK: 428**

**Details**
No.5 Aviz Alley 2nd Floor Alvand Steet
Tehran, Tehran Province 14185-565
Iran
+98 21 88797818
www.sobhanpharma.com

**Notes**
Data for FY ended March 2020. We multiplied revenue by the median revenue multiple for generic pharma companies to impute a value estimate.

**Exch:Ticker:** Private Company  
**Sector:** Generics - Branded  
**Lead TA:** Broad

Sobhan Pharma was established in 1976 and is headquartered in Tehran, Iran. Sobhan’s subsidiaries provide a broad range of pharmaceuticals in oncology, neuropathy and respiratory indications. Sobhan’s product portfolio includes generic and brand names that are commercialized in the Iranian domestic market. Through its subsidiaries, Sobhan imports vaccines as well as biological and plasma products for the public sector and has also established co-operative relationships with a number of international companies. Sobhan has been listed since 2003. In 2004 the Company decided to buy the majority of shares of the other pharmaceutical companies from Alborz Investment Company in order to be the main shareholder and changed its name to Sobhan Pharma Group.

**Financials (September 2020)**
Enterprise Value: $1.4 billion  
Annual Revenue: $397.9 million
Viela Bio

VALUE RANK: 429

Viela Bio is a Maryland based biotech company that was spun out of AstraZeneca in 2018. Viela is dedicated to the development and commercialization of novel, life-changing medicines for patients with a wide range of autoimmune and severe inflammatory diseases. Viela recently obtained FDA approval of UPLIZNA™ (inebilizumab-cdon) for the treatment of neuromyelitis optica spectrum disorder (NMOSD) in adult patients who are anti-aquaporin-4 (AQP4) antibody positive. In parallel to initiating the commercialization of UPLIZNA™, Viela continues to expand on the opportunity by advancing multiple clinical trials with inebilizumab in various indications including myasthenia gravis, IgG4-related disease and kidney transplant rejection. Its pipeline also includes novel candidates, VIB4920 and VIB7734, which we are pursuing for the treatment of a variety of serious and debilitating autoimmune diseases. Viela completed its IPO in 2019.

Financials (September 2020)

Enterprise Value: $1.4 billion
Annual Revenue: $30 million

Details
One MedImmune Way First Floor Area Two
Gaithersburg, Maryland 20878
United States
+1-240 558 0038
www.vielabio.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:VIE
Sector: Biotechnology
Lead TA: Immunology

Bimeda Animal Health

VALUE RANK: 430

Bimeda was founded in Dublin, Ireland, in the mid-1960s. The Company’s headquarters remain in Ireland, although Bimeda’s market has now expanded to 75 countries, across six continents. Bimeda has a well-established global presence in the animal health industry. The Company develops and manufactures a wide range of veterinary pharmaceuticals and animal health products. Bimeda is committed to the development and delivery of high quality products to treat and prevent disease and parasite infestation in livestock, poultry, equine and companion animals. Bimeda operates 10 manufacturing facilities in seven countries, all operating to the highest regulatory standards. They manufacture numerous dose forms, with the capacity for sterile and non-sterile production. Continued investment in five state-of-the-art laboratories across four continents demonstrate the Company’s commitment to serving the future needs of the global health market.

Financials (September 2020)

Enterprise Value: $1.4 billion
Annual Revenue: $216.2 million

Details
Broomhill Road
Dublin, Co. Dublin 24
Ireland
+353 1 451 5011
www.bimeda.com

Notes
We multiplied disclosed revenue by the median revenue multiple for branded pharma companies to impute a value estimate for Bimeda.

Exch:Ticker: Private Company
Sector: Animal Health
Lead TA: Animal Health
Y-mAbs Therapeutics

VALUE RANK: 431

Details
230 Park Avenue, 32nd Floor
New York, New York 10169
United States
+1-646-885-8505
www.ymabs.com

Notes
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:YMAB
Sector: Biotechnology
Lead TA: Oncology

Y-mAbs Therapeutics, Inc., a clinical-stage biopharmaceutical company, focuses on the development and commercialization of novel antibody therapeutic products for cancer treatment in the United States. It is developing naxitamab for the treatment of pediatric patients with relapsed or refractory, high-risk neuroblastoma, as well as other GD2 positive tumors; and omburtamab for the treatment of pediatric patients with central nervous system/leptomeningeal metastases, desmoplastic small round cell tumors, diffuse intrinsic pontine glioma and other B7-H3 positive tumors. The Company has a license and research collaboration agreement with Memorial Sloan-Kettering Cancer Center. Y-mAbs Therapeutics, Inc. was founded in 2015 and is headquartered in New York, New York.

Financials (September 2020)
Enterprise Value: $1.4 billion
Annual Revenue: $0

Northeast Pharma

VALUE RANK: 432

Details
19th Floor, Block B, Chamber of Commerce Headquarter Mansion, No.51 Youth Street, Shenhe District
Shenyang, 110014
China
+86 24 2580 7970
www.nepharm.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SZSE:000597
Sector: Generics - China
Lead TA: Broad

Northeast Pharma was founded in 1946 and has its headquarters in Shenyang, China. Through its subsidiaries, the Company engages in the import and export of medicine and nutritional products, offering finished preparations in therapeutic areas including gynecology, obstetrics, anti-HIV, cardiovascular and gastrointestinal as well as preparations such as Vitamin C, L-Carnitine and γ-Aminobutyric Acid. Many of these products are exported to international markets including North America, South America, Europe and Asia. Northeast Pharma also produces APIs for its domestic market. The Company went public in 1995.

Financials (September 2020)
Enterprise Value: $1.4 billion
Annual Revenue: $1.1 billion
**Sunflower Pharma**

**VALUE RANK: 433**

**Details**
No. 18 Hengshan Road
Harbin, Heilongjiang Province 150036
China
+86 451 8230 2840
www.kuihuayaoye.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** SZSE: 002737
**Sector:** Generics - China
**Lead TA:** Broad

Headquartered in Harbin, China, and founded in 2005, Sunflower Pharma is a fully-integrated company with a focus on developing and producing pharmaceuticals, biologicals and a range of supplements. The Company’s extensive portfolio features over 1,100 products in six therapeutic fields including: pediatrics, gynecology, gastroenterology, respiratory medicine, osteology, and cardiovascular medicine. The company has had to deal with news reports regarding its former chairman. Sunflower’s mission is to develop superior products and contribute to improving and maximizing human lives. The Company supports a variety of community and public welfare projects, sponsoring the First National Children’s Safety Drug Use and Development Conference in addition to other large-scale public welfare activities. Sunflower also promotes education in healthcare issues and safety, particularly in relation to children. The Company went public in 2014.

**Financials (September 2020)**
Enterprise Value: $1.4 billion
Annual Revenue: $507.4 million

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**Biological E.**

**VALUE RANK: 434**

**Details**
18/163, Azamabad
Hyderabad, Andhra Pradesh 500 020
India
+91 40 3021 3999
www.biologicale.com

**Notes**
We multiplied the company’s reported revenue for 2019 of 100085 Lakhs by the median biosimilar market multiple to impute a value estimate.

**Exch:Ticker:** Private Company
**Sector:** Generics - Biosimilars
**Lead TA:** Vaccines

Biological E. is a privately-held vaccine company based in Hyderabad, India. Founded in 1953, the Company was mass-producing vaccines for the Indian market by the early 1960s. BE’s product portfolio includes vaccines and a range of pharmaceuticals, from preventative to therapeutic, for the Indian market. As a supplier for India’s National Immunization Program, the Company has produced over 300 million vaccine doses for the Ministry of Health & Family Welfare. Internationally, they supply APIs, finished formulations and biologics to markets in Europe, South America, Africa and Asia, as well as supplying UN Agencies with vaccines and pharmaceuticals. The Company is committed to improving the quality of human life by enabling people to do more, feel better and live longer.

**Financials (September 2020)**
Enterprise Value: $1.4 billion
Annual Revenue: $140.1 million
**Editas Medicine**

**VALUE RANK: 435**

**Details**
11 Hurley Street  
Cambridge, Massachusetts 02141  
United States  
+1 617 401 9000  
[www.editasmedicine.com](http://www.editasmedicine.com)

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** NasdaqGS:EDIT  
**Sector:** Biotechnology  
**Lead TA:** Rare Disease

Established in 2013 Editas Medicine is based in Cambridge, Massachusetts. The Company is dedicated to building a leading genome editing company, treating patients with rare genetic diseases. The increase in understanding of the human genome over recent years has enabled further comprehension of genetically defined diseases. The development of Cluster Regularly Interspaced Short Palindromic Repeats, also known as CRISPR, technology has the potential to help treat these diseases at the DNA level. The Company’s values are viewed through community, resilience, ingenuity, science, passion and revolution and are critical to the Company’s culture, reflecting what they think of patients, their science, company operations and even hiring. Editas Medicine went public in 2016.

**Financials (September 2020)**

- Enterprise Value: $1.4 billion
- Annual Revenue: $32.6 million

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**Cortexyme**

**VALUE RANK: 436**

**Details**
269 East Grand Avenue  
South San Francisco, 94080  
United States  
+1-415 910 5717  
[www.cortexyme.com](http://www.cortexyme.com)

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** CRTX  
**Sector:** Biotechnology  
**Lead TA:** Neurology

Cortexyme is a Bay Area based publicly-traded biotech company that was founded in 2012. Cortexyme is a clinical stage biopharmaceutical company pioneering upstream therapeutic approaches designed to improve the lives of patients diagnosed with Alzheimer’s and other degenerative diseases. Cortexyme is currently advancing its lead therapeutic candidate, atuzaginstat (COR388), in the GAIN Trial, an ongoing Phase 2/3 clinical trial in patients with mild to moderate Alzheimer’s disease. Atuzaginstat is a lysine gingipain inhibitor which impacts a specific, infectious pathogen (p. gingivalis) associated with inflammation of the gums that is found in the brain of Alzheimer’s patients. The ongoing clinical trial is well on its way to full enrollment. Additional programs are progressing in preclinical development. Cortexyme went public in 2019.

**Financials (September 2020)**

- Enterprise Value: $1.4 billion
- Annual Revenue: $0
Yungjin Pharm

VALUE RANK: 437

Details
No.13 Olympic-ro 35da-gil Shincheon-dong
Seoul, Gyeonggi-do 134-020
South Korea
+82 2 2041 8220
www.yungjin.co.kr

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: KOSE:A003520
Sector: Generics - Branded
Lead TA: Broad

Yungjin Pharm was founded in 1952 and is headquartered in Seoul. This publicly traded branded generic pharmaceutical company initially imported medicines from Japan and the US. The Company has established a number of partnerships with globally-renowned companies in order to collaborate in research and product development. Yungjin Pharm is focused on contributing to the, ‘improvement of world health advances through globalization and partnerships.’ In 1974, they were the first API plant to introduce penicillin to the domestic market. The Company has a vast range of products within the areas of infection, neurology, cardiology, respiratory, nutrition, urology, and cosmetics. The Company’s mission statement is to, ‘relieve the suffering of mankind,’ tackling disease through the development of safe, effective, and innovative pharmaceutical products. Yungjin has received a total of 25 awards including the President Award for Superior Product Development, the Prime Minister Award, Industry Award.

Financials (September 2020)
Enterprise Value: $1.4 billion
Annual Revenue: $147.6 million

Kymera

VALUE RANK: 438

Details
200 Arsenal Yards Boulevard Suite 230
Watertown, Massachusetts 02472
United States
+1-857-285-5300
www.kymeratx.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: KYMR
Sector: Biotechnology
Lead TA: Immunology

Kymera Therapeutics is a publicly-traded biotech company based in the Boston Area. Founded in 2015, Kymera is focused on a transformative new approach to address previously intractable disease targets. Kymera’s Pegasus targeted protein degradation platform harnesses the body’s natural protein recycling machinery to degrade disease-causing proteins, with a focus on un-drugged nodes in validated pathways currently inaccessible with conventional therapeutics. Kymera is accelerating drug discovery with an unmatched ability to target and degrade the most intractable of proteins, and advance new treatment options for patients. Kymera’s initial programs target IRAK4, IRAKIMiD and STAT3 within the IL-1R/TLR or JAK/STAT pathways, providing the opportunity to treat a broad range of immune-inflammatory diseases, hematologic malignancies and solid tumors. Kymera went public in August 2020.

Financials (September 2020)
Enterprise Value: $1.4 billion
Annual Revenue: $
Lukang Pharma

VALUE RANK: 439

Details
173 West Taibailou Road
Jining, Shandong Province 272021
China
+86 53 7298 3357
www.lkpc.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SHSE:600789
Sector: Generics - China
Lead TA: Broad

Lukang Pharma is based in Jining, China and its roots date back to 1966 and the construction of the 3rd branch of the Shandong Xinhua Pharmaceutical Factory. The Company develops and markets antibiotics, amino acid drugs, cardio-cerebrovascular drugs, semi-synthetic antibiotic APIs, biopharmaceuticals, infusion supplies, traditional Chinese medicine, pharmaceutical intermediates and animal healthcare products. Covering various therapeutic areas including infectious diseases, endocrinology, virology, neurology and rheumatology, Lukang’s products are sold both nationally and internationally. The Company aims to, ‘Develop biomedicine and serve human health.’ The Company went public in 1997.

Financials (September 2020)
Enterprise Value: $1.4 billion
Annual Revenue: $549 million

AlloVir

VALUE RANK: 440

Details
139 Main Street, Suite 500
Cambridge, Massachusetts 02142
United States
1-617-433-2605
www.allovir.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: ALVR
Sector: Biotechnology
Lead TA: Virology

AlloVir is a Boston-based cell therapy biotech company with a focus on restoring natural immunity against life-threatening viral diseases in patients with severely weakened immune systems. The Company’s innovative and proprietary technology platforms leverage off-the-shelf, allogeneic, multi-virus specific T cells targeting devastating viruses for patients with T cell deficiencies who are at risk from the life-threatening consequences of viral diseases. Its lead asset, ALVR105, is progressing well in the clinic for virus-associated hemorrhagic-cystitis. AlloVir’s technology and manufacturing process enables the potential for the treatment and prevention of a spectrum of devastating viruses with each single allogeneic cell therapy. The Company is advancing multiple mid- and late-stage clinical trials across its product portfolio. AlloVir went public in August 2020.

Financials (September 2020)
Enterprise Value: $1.4 billion
Annual Revenue: $0 million
Hybio Pharma

**VALUE RANK:** 441

**Details**
No.37 Keji C.2nd
Shenzhen, Guangdong Province 518057
China
+86 755 2658 8000
www.hybio.com.cn

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker: SZSE:300199
Sector: Generics - China
Lead TA: Broad

Hybio was founded in 1998 and is based in Shenzhen, China. Hybio is a publicly-traded, fully-integrated peptide pharmaceutical specialist, involved in all aspects of product delivery from R&D to sales and distribution. Producing a diverse array of peptide products, including finished dose generic products and APIs, as well as offering full-service contract research and manufacturing, Hybio supplies both the domestic and international markets. The Company’s products cover a range of therapeutic areas such as endocrinology, immunology, hematology and virology. Hybio has developed innovative methods for manufacturing polypeptides on a large scale. The Company has established a number of cooperative alliances with academic institutions worldwide to further the development of innovative peptide drugs. Hybio became a publicly traded company in 2011.

**Financials (September 2020)**
Enterprise Value: $1.4 billion
Annual Revenue: $85.4 million

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URSAPHARM

**VALUE RANK:** 442

**Details**
35 Industriestraße
Saarbrücken, Saarland 66129
Germany
+49 6805 9292 0
www.ursapharm.de

**Notes**
According to an article in the press, 2018 turnover was €175mm. We multiplied this by the median branded revenue multiple to impute value.

**Exch:**Ticker: Private Company
Sector: Branded Pharma
Lead TA: ophthalmology

Headquartered in Saarbrücken, Germany, Ursapharm was established in 1974 initially to distribute ophthalmologicals to the domestic market. The privately held branded pharmaceutical company still specializes in providing ophthalmological treatments but has expanded to include an international network that encompasses sales offices across European and Asia, with additional partnership agreements to distribute Ursapharm products in a number of other countries. In addition to manufacturing their own products, Ursapharm also offers contract manufacturing, with the ability to produce both solid and liquid dosage forms as well as offering primary and secondary packaging. The Company is built on the principle that, ‘Ideas are the foundation stones of all progress.’

**Financials (September 2020)**
Enterprise Value: $1.4 billion
Annual Revenue: $206.5 million
Headquartered in São Paulo, Brazil, União Química was established in 1936. The Company operates under two divisions: Animal Health and Human Health. The Animal Health division focuses on home pets, farm animals and animal husbandry. Whereas the Human Health division has three main areas of business: hospital, genom (ophthalmology and general medicine) and pharma (OTC, brands and generics). The Company aims to promote health to as many people as possible and since their inception, the Company has always ‘looked forward to the future’ and the ‘pursuit of excellence, quality and entrepreneurship’ drives their vision of ‘sustainable growth expanding [their] portfolio of value-added products.’

**Financials (September 2020)**

Enterprise Value: $1.4 billion  
Annual Revenue: $376 million

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**HEC Pharma**

Headquartered in Dongguan, China. The Company specializes in the research and development, manufacture and sales of pharmaceutical products in their domestic market. Their portfolio covers a variety of therapeutic areas, including virology, endocrinology and cardiology. In 2006, HEC was granted a license from Roche to produce oseltamivir in China. HEC Pharm, now is the largest manufacturer in China of oseltamivir, and its trade name, Kewei. In 2008, HEC Pharm became the largest and most advanced manufacturing base for the highest quality macrolides production in the world. The Company has established cooperative partnerships with other organizations to license and develop further products to bolster its product portfolio and extend its market reach. HEC’s mission is to develop good medicine and to contribute to the community. The Company went public in 2015.

**Financials (September 2020)**

Enterprise Value: $1.4 billion  
Annual Revenue: $741.2 million
Zhongxin Pharma

VALUE RANK: 445

Details
No.17 Baidi Road
Tianjin, Tianjin Province 300193
China
+86 22 2702 0892
website not available

Notes
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.
Exch:Ticker: SGX:T14
Sector: Generics - China
Lead TA: Broad

Zhongxin Pharma is a fully-integrated pharmaceutical company headquartered in Tianjin, China and was founded in 1992. The Company conducts research and development as well as manufacturing and commercialization of traditional Chinese medicines, western pharmaceuticals and raw chemical materials. The Company's portfolio covers a wide range of therapeutic fields such as reproductive medicine and microbiology, as well as veterinary medicine and animal feeds. Zhongxin first became a publicly-traded company listed on the Stock Exchange in 2001.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: $955.5 million

MacroGenics

VALUE RANK: 446

Details
9640 Medical Center Drive
Rockville, Maryland 20850
United States
+1 301 251 5172
www.macrogenics.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.
Exch:Ticker: NasdaqGS:MGNX
Sector: Biotechnology
Lead TA: Oncology

Founded in 2000 and headquartered in Rockville, Maryland, MacroGenics is a publicly traded biotech companies working on antibody-based therapeutics for cancer autoimmune disorders and infectious disease. Leveraging the Company’s experience in protein engineering, MacroGenics has developed a number of technology platforms, utilizing them to produce an extensive pipeline of candidates undergoing clinical trials. A number of candidates have been developed in partnership with international third parties, crucial to the Company’s growth strategy. Lead drug candidate Margetuximab is an anti-HER2 mAb engineered to enhance activity of the immune system. BLA submitted for this agent was submitted in December 2019 for the treatment of HER2+ metastatic breast cancer (mBC). MacroGenics strives to 'provide life-changing medicines,' and went public in 2013.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: $77.8 million
Kern Pharma

**VALUE RANK: 447**

**Details**
Venus 72, Pol. Ind. Colom II
Barcelona, Catalonia 08228
Spain
+34 937 002 525
www.kernpharma.com

**Notes**
Kern Pharma delivered $314mm in revenue in 2019 according to S&P. We multiplied this by the median revenue multiple in the generic sector to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Generics - Branded  
**Lead TA:** Broad

Part of the Indukern Group since 1999, Kern Pharma is headquartered in Barcelona, Spain. Kern Pharma develops, manufactures and commercializes generic medicinal products, healthcare products, biosimilar medicinal products and women's health products, as well as health and sports nutrition products. The Company also undertakes manufacturing generic and branded medicinal products for third parties across Europe, Latin America, Asia and Australia. The Company's own portfolio is distributed throughout the world via their subsidiaries in Europe and the US.

**Financials (September 2020)**
Enterprise Value: $1.3 billion  
Annual Revenue: $368.1 million

Medison

**VALUE RANK: 448**

**Details**
10 Hashiloach St. P.O.B 7090  
Petach Tikva, 4917002  
Israel  
+972.3.925.0250  
www.medison.co.il

**Notes**
Medison disclosed $200mm in revenue in 2019. We multiplied this by the median multiple for branded pharma companies to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Broad

Medison is a privately held branded pharmaceutical company based in Israel. Founded in 1937, Medison is a well-regarded marketer of pharmaceuticals with a presence in Israel, Canada and Eastern Europe. Examples of companies that have chosen to partner their product marketing with Medison include Biogen, Amgen, Shire and Ipsen. Medison led a recent proxy fight at Knight Therapeutics. Controlled by Meir Jakobsohn, Medison runs a corporate venture arm with a dedicated research and evaluation team boasting deep scientific and commercial backgrounds. Medison also operates a scouting program to cater its partners and is an active investor in life science projects around drug development and digital health.

**Financials (September 2020)**
Enterprise Value: $1.3 billion  
Annual Revenue: $200 million
Theravance Biopharma was founded in 1996 and is headquartered in the Cayman Islands, with corporate offices in the Bay Area. Theravance’s core purpose is to create medicines to help improve the lives of patients suffering from serious illness. The Company focuses its research in the therapeutic areas of inflammation and immunology. Theravance leverages years of experience in developing lung-selective medicines to treat respiratory disease, including FDA-approved YUPELRI® (revefenacin) inhalation suspension. Theravance has an economic interest in potential future payments from GSK’s TRELEGY ELLIPTA® program. The Company has entered a number of strategic collaborations with other pharmaceutical companies including Mylan and Janssen. Theravance went public in 2004.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: $76.7 million

Cosmo Pharmaceuticals is headquartered in Dublin, Ireland and was founded in 1997. The Company offers products for the treatment of inflammatory bowel diseases, colon infections and other colon diseases. Cosmo also develops devices and diagnostic drugs, with their proprietary Multi Matrix MMX® technology at the core of their product pipeline, designed to deliver active ingredients in a targeted fashion to where it is needed in the colon. Offering a range of prescription products, Cosmo actively seeks licensing opportunities and aims to extend their distribution network. Cosmo are continuously looking to expand their manufacturing by identifying opportunities in each segment. They are an international company with alliances in Japan and the US as well as worldwide licenses with global partners. In 2013 Cosmo was awarded the European Mediscience Award for best technology.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: $75.2 million
Nestlé Pharma Ops

VALUE RANK: 451

Details
Avenue Reller 14
Vevey, Vaud 1800
Switzerland
+41 21 924 11 11
www.nestlehealthscience.com

Notes
In May 2020, Nestlé acquired Zenpep. According to its half year report, the fair value of Zenpep is 1184mm CHF. We use this value as our estimate of the worth of Nestlé’s pharma operations.

Exch:Ticker: Public Segment
Sector: Branded Pharma
Lead TA: Gastroenterology

Founded in 2011, Nestlé Health Science is based in Vevey, Switzerland and focuses on the development and manufacture of nutritional therapy. The Company is a key player in developing this new field of consumer and medical nutrition, using science-backed methods to produce new and innovative therapies to address a wide-ranging array of health conditions including geriatric malnutrition and pediatric nutritional hypersensitivity. Nestlé’s goal is to enhance quality of life by exploring and harnessing the power of nutrition to influence health and wellness. Nestlé has some pharma operations including Zenpep® and CM&D Pharma. Soon, it will add in Aimmune Therapeutics. For now we are valuing the Zenpep business.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: $288 million

Cerevel Therapeutics

VALUE RANK: 452

Details
131 Dartmouth Street Suite 502
Boston, MA 02116
United States
+1-857-576-3369
www.cerevel.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: Private Company
Sector: Biotechnology
Lead TA: Neurology

Founded in late 2018 through a partnership with Pfizer and Bain Capital, Cerevel Therapeutics is a clinical-stage biopharmaceutical company that combines a deep understanding of the biology and neurocircuitry of the brain with advanced chemistry and central nervous system (CNS) receptor pharmacology to discover and develop new therapies. Cerevel has a pipeline comprising five clinical-stage investigational therapies and several preclinical compounds with the potential to treat a range of neuroscience diseases. Lead compound Tavapadon is a partial D1/D5 agonist for the treatment Parkinson’s Disease. Headquartered in Boston, Cerevel Therapeutics is advancing its current research and development programs while exploring new modalities through internal research efforts, external collaborations or potential acquisitions. Cerevel is in the process of going public in 2020 by merging into a SPAC.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: $0
Atnahs

**VALUE RANK: 453**

**Details**
Sovereign House, Miles Gray Road
Basildon, SS14 3FR
United Kingdom
+44 1268 943700
atnahs.com

**Notes**
Atnah's did $190mm in revenue in 2019. We then added an estimated $172mm in revenue acquired via three deals in 2020. We then multiplied this by the median multiple of branded companies to impute value.

**Exch:Ticker:** Private Company  
**Sector:** Generics - Branded  
**Lead TA:** Cardiovascular

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Compugen

**VALUE RANK: 454**

**Details**
Azrieli Center, 26 Haroknim St.
Holon, Tel Aviv 69512
Israel
972 3 765 8585  
www.cgen.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** NasdaqGM:CGEN  
**Sector:** Biotechnology  
**Lead TA:** Oncology

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Atnahs Pharma Uk Limited is a UK based privately-held specialty pharmaceutical company. Founded in 2013, Atnahs is a specialty pharmaceutical business, focused on acquiring mature branded medicines out of large cap and specialty pharma companies globally and developing its own niche medicines. Atnahs operates a portfolio of 21 brands with over 1,900 SKUs across more than 144 markets, with a focus on therapeutic areas such as Cardiovascular, Women’s Health & Endocrinology, Neurology & Pain, and Gastroenterology & Oncology. Recent transactions include the March 2020 acquisition of Rocaltrol® from Roche and the March 2020 acquisition of Inderal®, Tenormin®, Tenoretic®, Zestril® and Zestoretic® from AstraZeneca for $350 million upfront. Atnah’s 120+ employees share a common purpose which is to deliver medicines that patients and other stakeholders value.

**Financials (September 2020)**
Enterprise Value: $1.3 billion  
Annual Revenue: $360.8 million

Compugen is a publicly-traded biotech company headquartered in Israel. Compugen is a clinical-stage therapeutic discovery and development company applying its broadly applicable, predictive computational discovery platforms to identify novel drug targets and develop therapeutics in the field of cancer immunotherapy. The Company’s lead product candidate, COM701, a first-in-class anti-PVRIG antibody, for the treatment of solid tumors, is undergoing a Phase 1 clinical study. In addition, COM902, Compugen’s antibody targeting TIGIT, is in a Phase 1 clinical study. Capably led by Anat Cohen-Dayag, Compugen’s therapeutic pipeline also includes early stage immuno-oncology programs focused largely on myeloid targets. Compugen went public in 2000.

**Financials (September 2020)**
Enterprise Value: $1.3 billion  
Annual Revenue: $0
Coherus was founded in 2010 in Redwood, California, as a biosimilar therapeutics developer and commercializer. Led by Denny Lanfear, Coherus is focused on developing therapeutics in the areas of autoimmune diseases, ophthalmology and oncology. Coherus has commercialized UDENYCA® (pegfilgrastim-cbqv) in the United States and received regulatory approval for UDENYCA® in the European Union. Coherus is advancing late-stage clinical products CHS-1420, a Humira® (adalimumab) biosimilar, Bioeq’s Lucentis® (ranibizumab) biosimilar and Innovent’s Avastin® (bevacizumab) biosimilar towards commercialization. With scientific and commercial goals grounded in expertise from within and supported by top-tier partners externally, the leadership team at Coherus helped to move biotech from niche into mainstream medicine. This is why Coherus is about “Choice without compromise.” Coherus went public in 2014.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: $487.3 million

Mersana is a Boston based publicly-traded biotechnology company specializing in the discovery and development of antibody-drug conjugate (ADC) therapies to treat patients fighting cancer. Skillfully led by Anna Protopapas, Mersana has developed a proprietary and differentiated ADC platform and expertise to rapidly design and test novel ADCs and identify those with optimal efficacy, safety and tolerability. Using this strategy, Mersana is building a robust pipeline of ADC candidates with the potential to make a life-changing difference for people living with cancer. Its lead candidate, XMT-1536, is a first-in-class Dolaflexin ADC in a Phase 1 proof-of-concept clinical trial in patients with tumors likely to express NaPi2b, including ovarian cancer and non-small cell lung cancer (NSCLC) adenocarcinoma. Mersana went public in 2017.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: $1.6 million
Il-Yang Pharm.

VALUE RANK: 457

Details
110 Hagal-ro
Yongin-si, Gyeonggi-do
South Korea
+82 2570 37007
www.ilyang.co.kr

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: KOSE:A007570
Sector: Generics - Branded
Lead TA: Broad

Il-Yang Pharm., headquartered in Yong-Si, South Korea, was founded in 1946 and produces a broad portfolio of medicines, health foods and cosmetics for the domestic and international markets. Marketed in over 30 countries worldwide, including the US and Europe, the Company’s product range covers vaccinations, bio medication and anti-virals. Collaborative partnerships with a variety of key international organizations in the US, Russia and Columbia has further expanded Il-Yang’s remit. The Company seeks to, ‘do our best for the health and welfare of humankind.’ Il-Yang was listed in 1974.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: $270.2 million

Kura Oncology

VALUE RANK: 458

Details
3033 Science Park Road
San Diego, California 92121
United States
+1 858 500 8800
www.kuraoncology.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGS:KURA
Sector: Biotechnology
Lead TA: Oncology

Kura Oncology is a publicly-traded biotech company based in San Diego, California. Founded in 2014, Kura is committed to realizing the promise of precision medicines for the treatment of cancer. The Company’s pipeline consists of two drug candidates that target cancer signaling pathways where there is a strong scientific and clinical rationale to improve outcomes by identifying those patients most likely to benefit from treatment. Kura’s most advanced drug candidate is tipifarnib, a potent, selective and orally bioavailable farnesyl transferase inhibitor currently in a registration-directed trial (AIM-HN) in patients with recurrent or metastatic HRAS mutant HNSCC. The Company's pipeline is also highlighted by KO-539, a potent and selective inhibitor of the menin-KMT2A(MLL) protein-protein interaction currently in a Phase 1/2A clinical trial (KOMET-001) in patients with relapsed/refractory AML. Kura Oncology went public in 2015.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: NA
Madrigal Pharmaceuticals is a publicly-traded biotech company based in West Conshohocken, Pennsylvania. Founded in 2011, Madrigal is pursuing novel therapeutics that target a specific thyroid hormone receptor pathway in the liver, which is a key regulatory mechanism common to a spectrum of cardio-metabolic and fatty liver diseases with high unmet medical need. Madrigal’s lead candidate, resmetirom, is a first-in-class, orally administered, small-molecule, liver-directed, thyroid hormone receptor (THR)-β selective agonist that is in currently in two Phase 3 clinical studies, MAESTRO-NASH and MAESTRO-NAGLD-1, designed to demonstrate multiple benefits across a broad spectrum of NASH (non-alcoholic steatohepatitis) and NAFLD (non-alcoholic fatty liver disease) patients. Madrigal went public in 2016 as a result of a merger with Synta Pharmaceuticals.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: NA

GNI Group Ltd. is a publicly-traded pharmaceutical company that was founded in 2001. GNI’s drug development focuses on orphan diseases where the patient needs are most urgent. While traded on the Tokyo Stock Exchange Mothers Market, GNI is more of a Chinese company. The Company’s base of operations is in China, enabling it to leverage that country’s comparative cost advantage in clinical trials to develop Class 1 “First to Market” drug products for the Chinese domestic market. GNI discovers, develops and markets pharmaceuticals and traditional Chinese medicines. A key asset is F351 in development for liver fibrosis. A phase 2 randomized, double-blind, placebo-controlled, multi-center, dose escalation study assessing the safety and efficacy of F351 for Hepatic Fibrosis in Chronic Viral Hepatitis B patients in China reported out positive results in August 2020. GNI went public in 2007 on the Tokyo Mothers Exchange.

Financials (September 2020)
Enterprise Value: $1.3 billion
Annual Revenue: $77.9 million
Korea United Pharm, Inc. manufactures, markets, distributes and sells branded generic pharmaceuticals and other healthcare products in South Korea and internationally. The Company offers pharmaceutical products in various categories, including gastrointestinal, cardiovascular and hematopoietic, respiratory, central nervous, musculo-skeletal, endocrine and metabolic, allergy and immune system, anti-infectives, obstetrical and gynecological agents, vitamins and minerals, nutrition supplements and anticancer products. It also provides over-the-counter drugs, including vitamins and Korean ginseng products, APIs, healthcare supplements and food products. The Company offers its products in the forms of tablets, capsules and injections. Korea United Pharm, Inc. was founded in 1987 and is headquartered in Seoul, South Korea.

**Financials (September 2020)**

- Enterprise Value: $1.2 billion
- Annual Revenue: $136.3 million

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Shenzhen Weiguang Biological Products is a publicly-traded Chinese blood products manufacturer and marketer. This state-owned enterprise was founded in 1985 by a joint venture between Shenzhen Guangming Group Co., Ltd. and Sinopharm Zhongsheng Wuhan Biological Products Research Institute Co., Ltd.. Key products include human albumin, intravenous human immunoglobulin (pH4), freeze-dried intravenous human immunoglobulin (pH4), human immunoglobulin, hepatitis B human immunoglobulin, rabies immunoglobulin, tetanus Human immunoglobulin, histamine human immunoglobulin and human fibrinogen, a total of 9 varieties and 21 specifications. The Company has successively won "National High-tech Enterprise", "Guangdong Province Independent Innovation Demonstration Enterprise" and "Shenzhen Science and Technology Innovation Award".

**Financials (September 2020)**

- Enterprise Value: $1.2 billion
- Annual Revenue: $122.9 million
Changshan Bio was established in 2000 and is headquartered in Zhengding, China. The Company primarily undertakes the research, development, manufacture and commercialization of heparin products for both the domestic and international markets. Changshan was declared a ‘State-Level Hi-Tech Enterprise in Biochemical Pharmaceuticals’ in 2009 and has been awarded a number of other honors and prizes throughout its history. In addition to API production, the Company’s manufacturing facilities also provide small volume injectables, tablets and hard capsules. Changshan Pharm’s research focuses on further developing heparin, specifically low molecular and ultra-low molecular products with parallel research into anti-neoplastic, anti-inflammatory and anti-ulcer drugs. The Company went public in 2011.

**Financials (September 2020)**

Enterprise Value: $1.2 billion
Annual Revenue: $308.3 million

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Nordic Group is an independent pharmaceutical company with a pan-European selling, marketing and regulatory platform and capability. The Company boasts a presence in 17 EU countries, with a high growth product portfolio, focused on Rheumatology, Gynaecology, Gastroenterology, Haematology and Oncology. The top products by revenue include iMeth® and Nordimet® (Rheumatology), Mifegyne® (Gynaecology), MisoOne® (Gynaecology), Trasylol® (Haematology), Hyalobarrier® (Gynaecology) and Teysuno® (Oncology). Revenues for 2019 were €155M. For the period 2009-2019, Nordic Group grew revenues by a CAGR of 9%. The Company has one manufacturing site, one R&D laboratory and approximately 400 FTEs across Europe. Nordic Pharma is owned by Frederik Paulsen Jr, who is also owner of Ferring Pharma.

**Financials (September 2020)**

Enterprise Value: $1.2 billion
Annual Revenue: $182.9 million
Tianjin, China-based Ringpu Biotech was founded in 1998 and specializes in the development and commercialization of veterinary and animal vaccines and pharmaceuticals. The Company’s portfolio includes over 280 therapeutic products for poultry, livestock, pets, and aquatic animals. Ringpu is committed to improving the health of animals and human beings, and to promoting the harmonious cooperation of humans with nature and society. Their corporate philosophy focuses on integrity, innovation and sharing; believing that their human capital are their number one resource. Using advanced detection and diagnosis technology for large-scale farms the Company also offers animal disease monitoring and diagnosis services, established in partnership with agricultural institutions and research institutes both in China and the US. Ringpu went public in 2010.

**Financials (September 2020)**

Enterprise Value: $1.2 billion
Annual Revenue: $245.9 million

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Founded in 1972 as a subsidiary of Pfizer, Renata was established as an independent company in 1993 and is headquartered in Mirpur, Bangladesh. Renata manufactures and commercializes pharmaceutical and animal health products for the domestic and international markets. Renata offers an extensive portfolio branded generic therapeutics manufactured at its facilities across Bangladesh, with distribution undertaken by one of the Company’s network of depots across the country. Skillfully guided by Kaiser Kabir, Renata products are exported to countries worldwide. The Company operates a number of subsidiaries that engage in the manufacture of oncological medicines. Renata is 51% owned by the SAJIDA Foundation which has the remit to look after the poorest people of Bangladesh. Renata has been listed since 1979.

**Financials (September 2020)**

Enterprise Value: $1.2 billion
Annual Revenue: $310.6 million
Gloria Pharmaceuticals

Value Rank: 467

Details
No.29 Beijing Road
Harbin, Heilongjiang Province 150025
China
+86 10680 02437
www.gloria.cc

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exchange: Ticker: SZSE:002437
Sector: Generics - China
Lead TA: Broad

Gloria was founded in 2000 and is headquartered in Harbin, China. Harbin Gloria Pharmaceuticals’ portfolio includes treatments in the areas of orthopedics, rheumatology, antineoplastic, gastroenterology, respiratory, cardiovascular and cerebrovascular. The Company has entered into a number of joint collaborative projects and acquired a number of licenses for the production and commercialization of new drugs in addition to the setting up of subsidiaries and the acquisition of interests in other pharmaceutical companies. Innovation is a key part of the Company’s corporate philosophy and in 2015, the Company made the strategic decision to ‘build a brand and … provide a series of high-quality and reliable chronic disease products and services.’ Harbin Gloria has developed its own PD-1 antibody with WuXi Biologics and licensed it to Arcus. The Company went public in 2010.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $527.2 million

Zealand Pharma

Value Rank: 468

Details
Smedeland 36
Copenhagen, Capital Region of Denmark 2600
Denmark
+45 88 77 36 00
www.zealandpharma.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exchange: Ticker: CPSE:ZEAL
Sector: Biotechnology
Lead TA: Cardiometabolic

Zealand Pharma A/S is a Denmark-based branded pharma company that was founded in 1998. Zealand is developing next generation peptide-based medicines to change the lives of people living with metabolic and gastrointestinal diseases. The Company has one FDA-approved product, V-Go®, an all-in-one basal-bolus insulin delivery option for people with diabetes and is using its peptide platform to develop a diverse pipeline of drug candidates. Its lead candidate in the metabolic franchise, the dasiglucagon HypoPal Rescue Pen, is under review by the U.S. FDA, with potential commercialization in 2021. Dasiglucagon is also in development for three additional metabolic indications, with one late stage program for congenital hyperinsulinism. Zealand is also developing glepaglutide in a Phase 3 study for patients with short bowel syndrome. Zealand Pharma completed an IPO in 2017.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $38.4 million
Medy-Tox was founded in 2000 and is headquartered in Seoul, South Korea. The Company is a R&D-led firm whose principal activity is the development, manufacture and commercialization of botulinum toxin and hyaluronic acid dermal filler products. Medy-Tox operates two R&D facilities and three manufacturing facilities in South Korea and has international offices in Japan and the US. Medy-Tox’s portfolio includes medical devices in addition to its pharmaceutical products as well as a toxin detection kit and antitoxin therapeutics. Internationally, Medy-Tox exports its products to in excess of 60 countries, including Brazil, Iran, Japan and Thailand. Medy-Tox went public in 2009.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $151.8 million

Beam Therapeutics is a publicly-traded biotechnology company founded in 2017. Beam develops precision genetic medicines through the use of base editing of nucleic acids. Beam’s proprietary base editors create precise, predictable and efficient single base changes, at targeted genomic sequences, without making double-stranded breaks in the DNA. The company’s technology was developed by Alexis Komor and Nicole Gaudelli in David Liu’s Harvard Lab. BEAM-101 is an adenine base editor that reproduces single base changes observed in individuals with hereditary persistence of fetal hemoglobin, or HPFH, in which elevated levels of fetal hemoglobin protect these individuals from the effects of sickle cell disease or beta-thalassemia. BEAM-102 also protects individuals with sickle cell disease. Beam is a values-driven organization committed to its people, cutting-edge science and a vision of providing life-long cures to patients suffering from serious diseases. Beam Therapeutics went public in 2020.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: NA
Ligand was founded in 1987 and is headquartered in San Diego, California. Ligand’s market knowledge and experience enables them to create significant value from collecting pharmaceutical royalties and by acquiring technologies that can be licensed to other parties in exchange for royalty interests and other consideration. With over 60 partnered programs, Ligand receives a substantial and rapidly growing set of royalties. Ligand utilizes technologies including LTP Technology™, HepDirect™, SUREtechnology Platform™, OmniAb® therapeutic antibody platforms and Captisol® to develop its products. The Company’s portfolio of products includes those for blood disorders, oncology and infectious diseases. Ligand has been actively building its technology base in 2020 with the recent acquisitions of xCella Biosciences, Taurus Biosciences and Pfenex. Ligand is experiencing rapid revenue growth from this approach and is guiding to more than $150 million in revenue for 2020.

**Financials (September 2020)**

Enterprise Value: $1.2 billion  
Annual Revenue: $126.3 million

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Leadiant Biosciences, formerly known as Sigma-Tau Rare Disease, is a privately-held Italy-based pharmaceutical company dedicated to the development and commercialization of novel therapies that address the needs of patients suffering from rare diseases. Founded in Italy in 1957, Leadiant’s team combines experience, passion and commitment to delivering treatments to patients who need them. Led by Dr. Marco Brughera. Leadiant Biosciences operates as Leadiant Biosciences, Inc. in the United States and Canada and as Leadiant Biosciences, Ltd. in the UK (acting as a hub for the international business with direct subsidiaries in Germany and France) and a distribution network in Europe for the rest of the world. Key marketed products include Ablecet® (infectious disease), Carnitor® (nephrology), Matulane® (cancer) and Natulan® (cancer).

**Financials (September 2020)**

Enterprise Value: $1.2 billion  
Annual Revenue: $180.5 million
Zhenghai Biotech

VALUE RANK: 473

Details
No. 10 Hengshan Road Economic and Technological Development Zone
Yantai, Shandong Province 264006
China
+86 40 0688 6808
www.zhbio.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: SZSE:300653
Sector: Generics - Biosimilars
Lead TA: Bone & Osteo

Yantai Zhenghai Biotechnology Co., Ltd. engages in the research and development, production and marketing of tissue regeneration and wound repair products primarily in China. It offers bone repair material, a partially deproteinised bone prepared from cancellous bones of calves after a series of treatment, such as decellularization and degreasing; oral cavity repair membrane line of products, which are used to treat defects of shallow oral cavity’s soft tissue; and bio-membrane line of products that are used in neurosurgery to repair cerebral dura mater defect under the Heal-All brand name. The Company also provides skin repair membrane line of products to repair wounds in dermal layer under the Heal-Full brand name. Yantai Zhenghai Biotechnology Co., Ltd. was founded in 2003 and is based in Yantai, China.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $39.8 million

Reliance Life Sciences

VALUE RANK: 474

Details
of MIDC, R-282, Thane - Belapur Rd, T.T.C. Industrial Area, Rabale
Mumbai, 400701
India
+91 22 4067 8000
www.relife.com

Notes
We multiplied the company’s disclosed revenue for 2019 by the median revenue for biosimilar companies to impute a value estimate.

Exch: Ticker: Private Company
Sector: Generics - Biosimilars
Lead TA: Broad

Reliance Life Sciences is a privately-held India based developer and producer of biosimilars and other proteins. It is also involved with oncology generics, clinical research services, regenerative medicine (stem cells therapies) and molecular medicine. Reliance Life Sciences is part of the Reliance Industries Limited. The Reliance Group is India’s largest private sector enterprise, with annual revenues of $86 billion. Reliance Life Sciences has launched five of the world’s first biosimilars, has the largest number of biosimilars in the market in India and the highest number of biosimilars under development globally. It has the distinction of being the first integrated manufacturer of plasma proteins in India and has regenerative medicine in India. Its flagship facility is the Dhirubhai Ambani Life Sciences Centre (DALC) in Navi Mumbai, India. Spread over 20 acres, DALC is among the most diverse and integrated life sciences campuses in the world housing world-scale and world-class manufacturing facilities approved by Indian and international regulatory agencies.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $116.9 million
Nkarta

VALUE RANK: 475

Details
6000 Shoreline Court, Suite 102
South San Francisco, California 94080
United States
+1-415-582-4923
www.nkarta.com

Notes
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: NKTX
Sector: Biotechnology
Lead TA: Oncology

Nkarta is a clinical-stage biotechnology company advancing the development of allogeneic natural killer (NK) cell therapies for cancer. By combining its cell expansion and cryopreservation platform with proprietary cell engineering technologies, led by Paul Hastings, Nkarta is building a pipeline of cell therapy candidates generated by efficient manufacturing processes, and engineered to enhance tumor targeting and improve persistence for sustained activity in the body. NKX101 is an investigational NK cell therapy engineered to target NKG2D ligands. In 4Q 2020, Nkarta plans to begin dosing in a Phase 1 clinical trial of NKX101 for the treatment of relapsed or refractory (r/r) acute myeloid leukemia (AML) and r/r higher risk myelodysplastic syndrome (MDS). Nkarta recently completed the construction of its cGMP manufacturing facility in South San Francisco, California. Nkarta went public in 2020, pulling off a remarkable IPO amidst the COVID-19 pandemic.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $0 million

GuangYuYuang

VALUE RANK: 476

Details
Liren Technology Park, 6th Floor, Tower A
Xi’an, Shaanxi Province 710065
China
+86 29 8833 2288
www.guangyuyuan.cn

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: SHSE:600771
Sector: Generics - China
Lead TA: Broad

GuangYuYuang CHM (GYY) was founded in 1541 and is headquartered in Zhaanxi, China. This venerable Company integrates end-to-end product development of an extensive range of generic Chinese medicine therapies, traditional Chinese medicines and medicinal wine. Aimed at redressing the lost balance within the different systems in the body, GYY’s products cover many therapeutic areas and targets aging and low energy. The Company’s mission is to further research into traditional Chinese medicine nationally, and GYY has received many local and national awards for its work. GYY went public in 1999.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $156.8 million
Mayinglong Pharma

VALUE RANK: 477

Details
No.100 Zhoujiawan, Nanhu
Wuhan, Hubei Province 430064
China
+86 27 8738 9583
www.mylguoji.com

Notes
We used the Company’s enterprise value
as of September 15, 2020 as our
estimate of value.

Exch:Ticker: SHSE:600993
Sector: Generics - China
Lead TA: Broad

Mayinglong Pharma was founded in 1582 and is based in Wuhan, China. The Company focuses on the research and development, manufacture and sales of traditional Chinese medicine and western pharmaceuticals. Mayinglong’s products come in many dosage forms such as tablets, suppositories, pastes and granules. Mayinglong’s portfolio includes specialty pharmaceuticals, hemorrhoid products, health foods as well as cough and cold medications. Additionally, the Company manufactures and distributes eye care products in cream form under the brand name Mayinglong BaBao. The Company became a publicly-traded company in 2004.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $341.3 million

Zeria Pharma

VALUE RANK: 478

Details
10 -11 Nihonbashi Kobuna-cho
Tokyo, 103-8351
Japan
+81 3 3663 2351
www.zeria.co.jp

Notes
We used the Company’s enterprise value
as of September 15, 2020 as our
estimate of value.

Exch:Ticker: TSE:4559
Sector: Branded Pharma
Lead TA: Gastroenterology

Established in 1955 and based in Tokyo, Japan, Zeria Pharma manufactures and markets a range of pharmaceutical products, including OTC, for both the domestic and international markets. Their portfolio consists of both ethical pharmaceuticals and a consumer healthcare businesses. The Company’s pipeline for ethical pharmaceuticals focuses on gastrointestinal and oncology candidates. Their consumer healthcare business focuses on self-medication and self-care targeting issues faced by an ageing society. Through global business development M&A alliances, Zeria Pharma is entering a new stage of development, beyond Japan. A key move was the acquisition of Tillots in 2009. They believe that making health leads to making happiness and they hope to contribute to fighting disease and providing health and beauty through the provision of high quality, unique products. Zeria went public in 1998.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $543.9 million
Laboratoire Aguettant

**Value Rank:** 479

**Details**
1 Rue Alexander Fleming  
Lyon, Rhône-Alpes 69007  
France  
+33 478 615141  
www.aguettant.com

**Notes**
Aguettant disclosed €150mm Eur in revenue in 2020. We multiplied this by the median branded revenue multiple to impute a value estimate.

**Exch:** Private Company  
**Sector:** Branded Pharma  
**Lead TA:** Hospital

Founded in 1903, Laboratoire Aguettant retains its headquarters in Lyon, where the Company began. Privately-held, its primary business is the development, manufacture and commercialization of essential hospital medicines. With sales in over 60 countries worldwide, the Company remains family owned and continues to consider research and development the core of its business, particularly in its specialist field of injectable medicines. As of 2017, Laboratoire Aguettant owns 15 patents for delivery systems. In 2015 Aguettant entered into a key agreement with Baxter to license access to trace elements for parenteral nutrition. The Company remains proud of its core business in emergency medicine and has saved lives for over 100 years.

**Financials (September 2020)**
- Enterprise Value: $1.2 billion
- Annual Revenue: $177 million

Adaptimmune

**Value Rank:** 480

**Details**
60 Jubilee Avenue  
Abingdon, Oxfordshire OX14 4RX  
United Kingdom  
+44 12 3543 0000  
www.adaptimmune.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:** NasdaqGS:ADAP  
**Sector:** Biotechnology  
**Lead TA:** Oncology

Adaptimmune in based in Abingdon, England and was created in 2008 as a spin-off from Avidex, after their acquisition by Medigene in 2006. Adaptimmune’s activities are based upon T-cell receptor (TCR) technology that was developed by Oxford University between 1993 and 1999. The Company focuses on developing novel immuno-oncology products, using the body’s own defense mechanism to destroy cancer cells. Adaptimmune is developing an industry-leading T-cell therapy pipeline in solid tumors, and has a deep pipeline of identified and proprietary targets for further product development. SPEAR® T-cell therapies targeting MAGE-A4, and AFP are progressing through clinical studies in multiple solid tumors. They have an exclusive license for their technology platform with a leading pharmaceutical company. Together, they are ‘Enhancing the affinity of T-cells to fight cancer’. Adaptimmune was listed in 2015.

**Financials (September 2020)**
- Enterprise Value: $1.2 billion
- Annual Revenue: $2.2 million
Duchesnay

VALUE RANK: 481

Details
950 Boulevard Michèle-Bohec
Blainville, Quebec J7C 5E2
Canada
+1 450 433 7734
www.duchesnay.com

Notes
We multiplied a revenue estimate from 2016 (obtained from industry sources) by the median branded pharmaceutical revenue multiple to impute value.

Exch: Ticker: Private Company
Sector: Branded Pharma
Lead TA: Womens Health

Headquartered in Quebec, Canada, privately-held Duchesnay was formed in 1970, primarily to supply OTC and prescription medications to the domestic market. By the early 1990s, the Company had altered its focus to dedicate its research and the majority of its portfolio to providing therapeutics for pregnant women and their babies and now markets a product range that covers obstetrics and gynecology, proctology, urology and bacterial vaginosis. Key products include Diclegis® for morning sickness and Osphena® for dyspareunia. The Company also operates a Health and Pregnancy information portal through which it makes available current, evidence-based data. Duchesnay was the first pharmaceutical company dedicated to safeguarding the health of pregnant women and their babies.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $175 million

Mezzion

VALUE RANK: 482

Details
C&H Building 3rd Floor 154-8 Samseong-dong
Seoul, Gyeonggi-do 06288
South Korea
+82 2 560 8000
www.mezzion.co.kr

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: KOSDAQ:A140410
Sector: Biotechnology
Lead TA: Rare Disease

Mezzion Pharma Co., Ltd. is a publicly-traded South Korean biotech company founded in 2002. Capably led by CEO Dean Park, Mezzion Pharma is an innovation-driven pharmaceutical company that is focused on discovering, developing and commercializing novel therapeutics in the field of rare pediatric diseases. The Company is focused on developing and commercializing udenafil for the treatment of single ventricle heart defect in adolescents who have received the Fontan palliation surgery. Mezzion is seeking FDA approval for this product based on the FUEL trial, a 400-subject study in which udenafil displayed an improvement in cardiac performance (e.g., ventilatory anaerobic threshold). The Company was formerly known as Dong-A Pharmtech Co., Ltd. and changed its name to Mezzion Pharma Co., Ltd. in April 2013.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $17.8 million
Rocket Pharmaceuticals is a publicly-traded biotech company based in New York City and was founded in 2015. The Company seeks cures through gene therapy for patients with rare diseases. Rocket’s lead clinical program is a LVV-based gene therapy for the treatment of Fanconi Anemia (FA), a difficult to treat genetic disease that leads to bone marrow failure and potentially cancer. Preclinical studies of additional bone marrow-derived disorders are ongoing and target Pyruvate Kinase Deficiency (PKD), Leukocyte Adhesion Deficiency-I (LAD-I) and Infantile Malignant Osteopetrosis (IMO). The Company’s primary goal is to be patient focused and their four values that drive this are trust, expertise, courage and action. The Company went public in 2018.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $0

Akero is a publicly-traded biotech company based in the Bay Area. Founded in 2017, Akero Therapeutics is focused on treating liver disease including NASH. Akero’s lead drug candidate, efruxifermin, is designed to mimic the biological profile of native human FGF21 and offers once weekly dosing. Efruxifermin has been evaluated in the 16-week Phase 2a BALANCED trial in NASH patients, generating quite promising efficacy results. Akero reported the results of the primary endpoint and multiple secondary endpoints in mid-2020. All three dose groups treated with AKR-001 saw highly statistically significant absolute reductions in liver fat (12-15%, compared to 0% for placebo), relative reductions in liver fat (63-72%, compared to 0% for placebo) and reduction in the liver enzyme ALT (24-32 U/L, compared to 6U/L for placebo). Akero completed an IPO in 2019.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: NA
Alvotech was founded in 2013 by Robert Wessman. Based in Reykjavik, Iceland, Alvotech is a privately-held international company focused on the development and manufacture of high quality biosimilar drugs. Alvotech’s pipeline contains a number of monoclonal-antibody and fusion-protein biosimilar candidates aimed at treating autoimmunity, oncology and inflammatory conditions to improve quality of life for patients around the world. Alvotech boasts excellent in house cell line development, process development capabilities and a state-of-the-art biomanufacturing facility in Iceland. Robust manufacturing processes such as single use-technology allow flexibility and multiproduct manufacturing. Alvotech has recently entered into commercialization partnerships with STADA for Europe and Teva for the US market. Alvotech’s vision is to build a leading global biopharmaceutical company, while focusing on the development and commercialization of biosimilar medicines for the treatment of disease around the world.

Financials (September 2020)
Enterprise Value: $1.2 billion
Annual Revenue: $0

Kanion Pharmaceutical is a large-scale, Lianyungang, China-based organization that was originally founded in 1975. Integrating R&D as well as manufacturing, sales and distribution of traditional Chinese medicine, the Company is dedicated to pursuing continuous innovation and improvements in the quality of its products. Kanion’s extensive portfolio covers a variety of products in therapeutic areas including orthopedics, gynecology, cardiovascular medicine, oncology and infectious diseases. Leveraging the Company’s nationwide distribution network, Kanion’s products are available in more than 6,000 national hospitals, 30,000 community clinics and almost 10,000 pharmacy stores. The Company went publicly listed in 2002.

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: $545 million
Hansa BioPharma

**VALUE RANK: 487**

**Details**
22 Scheelevägen
Lund, Skåne County SE-220 07
Sweden
+46 46 16 56 70
www.hansamedical.com

**Notes**
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

**Exch:Ticker:** OM:HNSA
**Sector:** Biotechnology
**Lead TA:** Rare Disease

Hansa Medical AB was founded in 2001 and is headquartered in Lund, Sweden. This privately-held biotechnology company is pursuing approval of imlifidase, an antibody-degrading enzyme, for use in transplantation and rare autoimmune diseases. Hansa has also developed a 2nd generation drug candidate for the recurring treatment of autoimmune diseases, as well as an HBP-assay, for use as a diagnostic method for predicting severe sepsis in emergency clinics. The Company is also involved in developing a secreted enzyme from Streptococcus pyogenes for a range of autoimmune models, such as rheumatoid arthritis, immune thrombocytopenic purpura, autoimmune hemolysis, multiple sclerosis and autoimmune blistering skin disorder. Hansa was listed publicly in 2015.

**Financials (September 2020)**
Enterprise Value: $1.1 billion
Annual Revenue: $0.3 million

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Synthon

**VALUE RANK: 488**

**Details**
Microweg 22
Nijmegen, 6545
Netherlands
+31 24 372 77 00
synthon.com

**Notes**
Synthon disclosed revenue of €268mm Euros in late 2019. We multiplied this by the median revenue multiple for generic pharmaceutical companies to impute a value estimate.

**Exch:Ticker:**
**Sector:** Generics - INN
**Lead TA:** Generics

Synthon is a privately-held European generic pharmaceutical company. Headquartered in the Netherlands, the Company has around 1,600 employees and operates four research laboratories and manufacturing sites located in the Czech Republic, Spain, Chile and Argentina. Synthon is focused on developing, manufacturing and out-licensing high quality complex generics for patients around the world. Founded in 1991 by Dr. Jacques Lemmens, the Company has since developed a diversified base of over 200 customers serving around 100 countries. In April 2020, Byondis was spun out of Synthon. Based on proprietary technology, Byondis will create new precision drugs with a broad development pipeline, including anti-HER2 ADC [vic-] trastuzumab duocarmazine (SYD985) for breast cancer. This follows the November 2019 acquisition of a majority stake in Synthon by BC Partners. BC Partners values their stake at €750mm.

**Financials (September 2020)**
Enterprise Value: $1.1 billion
Annual Revenue: $316.2 million
Innoviva

Innoviva was split from Theravance in 2013 and is a royalty receiving company headquartered in Brisbane, California. Specifically, Innoviva collects royalties from GSK on RELVAR/BREO ELLIPTA® and ANORO ELLIPTA®. A separate royalty on TRELEGY ELLIPTA is shared with Theravance through a subsidiary company. The current run rate of royalties is around $300 million a year. Capably led by Pavel Raifield, Innoviva has made investments in 2020 in two publicly-traded infectious disease-focused companies. These are Armata Pharmaceuticals and Entasis Therapeutics. In April 2020, Innoviva purchased an interest in 91% of Pulmoquine Therapeutics. Pulmoquine is a biotechnology company focused on the research and development of an aerosolized formulation of hydroxychloroquine to treat respiratory infections, such as the novel coronavirus.

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: $299.3 million

Heron Therapeutics

Heron Therapeutics was established in 1983 and is headquartered in San Diego, California. The Company specializes in pharmaceuticals for cancer and post-operative pain. Heron’s mission is to, ‘improve the lives of patients by developing novel, best-in-class treatments to address some of the most important unmet patient needs.’ The Company is dedicated to developing more effective, safer drugs with new mechanisms of action and reduced side effects. Key products include Sustol® for chemotherapy induced nausea and vomiting (CINV) and CINVANTI® for the prevention of CINV. Heron is results driven, work respectfully and communicate transparently to put the needs of their patients first. Heron Therapeutics went public in 2013.

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: $125.7 million
Athenex

VALUE RANK: 491

Details
1001 Main Street
Buffalo, New York 14203
United States
+1 716 427 2950
www.athenex.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch: Ticker: NasdaqGS:ATNX
Sector: Biotechnology
Lead TA: Oncology

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: $140.8 million

SAIDAL

VALUE RANK: 492

Details
Route de wilaya N°11
Algiers, 16000
Algeria
+213 23 92 01 76
www.saidalgroup.dz

Notes
Revenue estimate for 2019 from S&P. We multiplied this by the median revenue multiple for generic companies to impute a value estimate.

Exch: Ticker: Private Company
Sector: Generics - Branded
Lead TA: Broad

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: $313 million
Faes Farma

**VALUE RANK: 493**

**Details**
3 Calle Via de los Poblados
Madrid, 28033
Spain
+34 900 460 153
www.faes.es

**Notes**
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker: BME:FAE
**Sector:** Branded Pharma
**Lead TA:** Allergy

Founded in Bilbao in 1933, Faes Farma is headquartered in Madrid, Spain. The Company researches, develops, manufactures and commercializes both final pharmaceutical products as well as raw materials for pharmaceutical use. Faes Farma exports its products to more than 60 countries globally, and boasts a product portfolio that includes generic, OTC and prescription drugs as well as food supplements, personal care products and animal nutrition. Faes Farma's focus for research is in the development of novel drugs for the treatment of allergy, venous insufficiency and irritable bowel syndrome. Faes' motto is 'a lifetime taking care of your health.'

**Financials (September 2020)**
Enterprise Value: $1.1 billion
Annual Revenue: $458 million

VTR Bio-tech

**VALUE RANK: 494**

**Details**
No.8 Pingbei First Road
Zhuhai, Guangdong Province 519060
China
+86 75 6867 6888
www.yiduoli.com

**Notes**
We used the Company's enterprise value as of September 15, 2020 as our estimate of value.

**Exch:**Ticker: SZSE:300381
**Sector:** Generics - China
**Lead TA:** Broad

Headquartered in Zhuhai, China and founded in 1991, VTR Bio-Tech specializes in the R&D, manufacture and commercialization of biological pharmacy, bio-enzyme preparation, microbe preparation, functional additives and green bio-manufacturing engineering. The Company’s products are distributed both domestically and internationally with sales networks established in over 60 countries across Europe, the US and Asia. The Company strives to, ‘provide heartfelt service every day,’ as part of their dedication to customer satisfaction. The Company went public in 2014.

**Financials (September 2020)**
Enterprise Value: $1.1 billion
Annual Revenue: $298.7 million
Helixsmith

VALUE RANK: 495

Details
Building 203, 5th Floor, Seoul National University, 1 Gwanak-ro
Seoul, Gyeonggi-do 151-742
South Korea
+82 22102 7298
www.viromed.co.kr

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: KOSDAQ:A084990
Sector: Biotechnology
Lead TA: Pain

Headquartered in Seoul, South Korea, Helixsmith was founded in 1996. The Company produces novel biologics and herbal remedies for the therapeutic areas of cardiovascular disease, immune disorders and cancer. Formerly known as ViroMed, Helixsmith develops medicines of the future and this is embedded in their mission to ‘discover and develop innovative biopharmaceuticals for human diseases.’ The Company is highly active in R&D and differentiates itself for other companies through its core technology and specialized management. As well as ties with other Korean companies, Helixsmith has established an international presence by forming partnerships and co-development agreements with companies from Asia, Europe and the US. Additionally, the Company has a direct presence in the US through a subsidiary. The Company went public in 2005.

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: $4.4 million

Amarin

VALUE RANK: 496

Details
2 Pembroke House, 28-32 Upper Pembroke Street
Dublin, 2
Ireland
+353 1 669 9020
www.amarincorp.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGM:AMRN
Sector: Branded Pharma
Lead TA: Cardiology

Amarin was founded in 1993 and is headquartered in Dublin, Ireland. The Company’s primary focus is on the treatment of cardiovascular diseases. Amarin’s greatest asset is VASCEPA®, its first FDA-approved product, an ultra-pure, EPA-only omega-3 fatty acid product available on prescription. The US launch of this product has been impressive with Amarin chalking up $470 million in revenue in 2019 and $290 million in the first half of 2020 despite COVID-19 headwinds. Amarin is appealing a district court patent litigation decision from March 2020 which found the VASCEPA® patents at issue to be invalid due to obviousness. Amarin’s success is built upon a foundation of attitude, effort and ingenuity. Amarin is also committed to supporting research and education in cardiovascular disease.

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: $545.9 million
Haw Par Corporation

VALUE RANK: 497

Details
401 Commonwealth Drive
Singapore, Central Region 149598
Singapore
+65 6337 9102
www.hawpar.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: SGX:H02
Sector: Generics - Branded
Lead TA: CNS

Singapore-based Haw Par was formally incorporated in 1969 when it was also publicly floated. However, the Company traces its roots back to the 1800s, when founder Aw Chu Kin established his physician practice and apothecary shop in Rangoon, Burma. Aw’s two sons, Boon Haw and Boon Par developed a new salve – the famous Tiger Balm – and expanded their father’s business into a multi-national healthcare business. With representation in over 100 countries worldwide, the Company has an impressive global footprint. Haw Par also has interests in the leisure industry as well as securities and property. The Company’s healthcare portfolio is shaped around their flagship founding product, and it has since developed many product extensions to this popular analgesic. Haw Par drives growth and expands its portfolio through acquisitions and astute establishment of key partnerships with international organizations.

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: $130.1 million

Sam Chun Dang Pharm

VALUE RANK: 498

Details
351 Hyoryeong-ro Seocho_gu
Seoul, 137-877
South Korea
+82 2 2046 1100
www.scd.co.kr

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: KOSDAQ:A000250
Sector: Generics - Branded
Lead TA: Broad

Sam Chun Dang Pharm. Co., Ltd is a publicly-traded Korean pharmaceutical company. SCD Pharm manufactures, distributes, imports and exports pharmaceuticals in South Korea. The Company offers ophthalmology, cardiovascular, endocrinology, antibacterial, anti-fungal, antiviral, respiratory, anti-inflammatory, antihistamine and musculoskeletal products, as well as GI products and vitamins. Sam Chun Dang Pharm. Co., Ltd was founded in 1943 and is headquartered in Seoul, South Korea.

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: $152.7 million
Rhythm Pharma

VALUE RANK: 499

Details
500 Boylston Street
Boston, Massachusetts 02116
United States
+1 857 264 4280
www.rhythmtx.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: NasdaqGM:RYTM
Sector: Biotechnology
Lead TA: Rare Disease

Rhythm is a publicly-traded Boston area biotech company. Founded in 2008, Rhythm Pharmaceuticals is focused on the development and commercialization of therapies for the treatment of rare genetic disorders of obesity. The FDA has accepted for filing an NDA for setmelanotide, a melanocortin-4 agonist, for the treatment of obesity associated with POMC and LEPR deficiency. Rhythm is also evaluating setmelanotide for reduction in body weight in a pivotal Phase 3 trial in people living with Bardet-Biedl and Alström syndromes. Rhythm is leveraging the Rhythm Engine - comprised of its Phase 2 basket study, TEMPO Registry, GO-ID genotyping study and Uncovering Rare Obesity program -- to improve the understanding, diagnosis and potentially the treatment of rare genetic disorders of obesity. Rhythm Pharma completed an IPO in 2017.

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: $0

iTeos Therapeutics

VALUE RANK: 500

Details
139 Main Street
Cambridge, Massachusetts 02142
United States
+1-339 217 0162
www.iteostherapeutics.com

Notes
We used the Company’s enterprise value as of September 15, 2020 as our estimate of value.

Exch:Ticker: ITOS
Sector: Biotechnology
Lead TA: Oncology

iTeos Therapeutics is a publicly-traded Boston area biotech company. Founded in 2011, iTeos is pioneering the discovery and development of a new generation of highly differentiated immuno-oncology therapeutics for patients. Its most advanced product candidate, EOS-850, is a highly selective small molecule antagonist of the adenosine A2a receptor. EOS-850 is being investigated in an open-label Phase 1/2a clinical trial in adult patients with advanced solid tumors and encouraging single-agent activity were observed in the dose escalation portion of the trial. The lead antibody product candidate, EOS-448, is an antagonist of TIGIT, or T-cell immunoreceptor with Ig and ITIM domains, a checkpoint that has a role in both inhibitory and stimulatory pathways in the immune system. An open-label Phase 1/2a clinical trial of EOS-448 was recently initiated in adult patients with advanced solid tumors. iTeos went public in 2020.

Financials (September 2020)
Enterprise Value: $1.1 billion
Annual Revenue: NA
About Torreya

Torreya is a global investment banking boutique serving companies in the healthcare industry. Since our inception in 2007, we have advised clients on more than $100 billion worth of deals for biotechnology, branded pharmaceutical, generic pharmaceutical, and life sciences companies.

Our partners are senior industry bankers and executives, with deep experience, knowledge, and networks. We are a partner of choice for companies seeking discreet, conflict-free, and knowledgeable advice on M&A, pharmaceutical asset sale, capital markets, and licensing transactions.

Torreya is differentiated from most other life sciences advisory practices by the breadth of its global presence. Over half the transactions on which we advise are cross-border.

Torreya has offices in London, Mumbai, and New York, and affiliate offices on six continents.
We are known for:

- **Deep Relationships**
  We have strong personal relationships across the pharmaceutical and healthcare sectors.

- **Operating Perspective**
  Many of our senior colleagues come from industry and bring decades of experience.

- **Deal Excellence**
  We are known as a firm that gets tough deals done. Our team is skilled in highly structured transactions.

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**Mergers & Acquisitions**

Torreya is a leading strategic M&A advisor to global life sciences companies.

We advise clients on:

- Corporate sales
- Acquisitions
- Divestitures
- Structured transactions
- Defense strategies
- Fairness opinions

Known for dedicated, highly focused support on transactions, Torreya’s M&A team is especially strong in complex, cross-border transactions requiring unique structures.

**Representative M&A transactions**
Asset Level Transactions

Torreyra is also a leading advisor on pre-commercial and commercial-stage licensing deals and related asset sales and joint ventures. We bring value to all stages of licensing transactions, from sourcing through closing.

Our industry relationships are valuable in securing favorable licensing agreements for our clients. Many potential in-licensing companies are considering so many products, and have so many constituencies needing to sign off on a potential transaction that getting an idea through the “noise” is the greatest hurdle to a deal. We help our clients surmount this hurdle through our strong relationships inside potential partnering companies. We often bring value to even an experienced business development team at a client company.

Representative License and Asset Sale Transactions

<table>
<thead>
<tr>
<th>Company</th>
<th>Transaction Description</th>
<th>Amount</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenex Pharmaceuticals AI</td>
<td>Sale of FXR program to GILEAD</td>
<td>Up to $470 million</td>
<td>January 2015</td>
</tr>
<tr>
<td>Mallinckrodt Pharmaceuticals</td>
<td>Sale of Intrathcal business to Piramal</td>
<td>$203 million</td>
<td>March 2017</td>
</tr>
<tr>
<td>NOVALIQ</td>
<td>License of NOV03 in North America to BAUSCH Health</td>
<td>Up to $306 million</td>
<td>January 2020</td>
</tr>
<tr>
<td>Mereo BioPharma</td>
<td>License of Navicixizumab to Oncology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aurobindo</td>
<td>JV partnership in China with</td>
<td>$50 million</td>
<td>December 2018</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Asset Sale / Biotech | Divestiture / Specialty Pharma | Licensing / Biotech | Licensing / Biotech | Joint Venture / Specialty Pharma

Capital Raises

Torreyra’s Capital Markets team arranges debt financings, royalty monetizations, IPOs, and private equity deals. Since 2007, through uneven market conditions, we have raised almost $2 billion in private capital for public and private companies, institutions, and inventors seeking growth, liquidity, or acquisition financing.

We are a leader in the rapidly expanding royalty monetization market. Royalty monetizations have become a mainstream source of non-recourse, non-dilutive growth capital that gives corporate developers, academic institutions, and inventors unique structuring flexibility and the potential to share in the future upside of products in all development stages.
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