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Pharmaceutical Outsourcing & Services

Large Pharma Deep Dive: The State of the Union Is Not Good; Downgrading Charles River Laboratories to Market Perform

			Stock Rating
Avid Bioservices, Inc.	CDMO (NASDAQ)	$12.46	Market Perform
Certara, Inc.	CERT (NASDAQ)	$12.61	Market Perform
Charles River Laboratories International, Inc.	CRL (NYSE)	$169.81	Market Perform
Fortrea Holdings Inc.	FTRE (NASDAQ)	$18.70	Market Perform
ICON plc	ICLR (NASDAQ)	$205.07	Outperform
IQVIA Holdings Inc.	IQV (NYSE)	$205.69	Outperform
Lonza Group AG	LONN-SWX (SWX)	CHF573.76	Outperform
Medpace Holdings, Inc.	MEDP (NASDAQ)	$347.52	Outperform
Simulations Plus, Inc.	SLP (NASDAQ)	$31.66	Outperform

Summary: We overestimated the health of the large pharma space in 2024 and, consequently, failed to predict several notable CRO blow-ups in the second half of the year. As a result, we made it our mission to become more familiar with this key customer segment and the major headwinds for growth and investor sentiment. In this report, we provide detailed analysis on the outlooks for 15 leading drug developers, which collectively account for over 75% of total pharma revenue and 50% of total pharma R&D spend. These company profiles (which start on page 25) serve as the foundation for the consolidated data discussed at the front of the report, which include detail on historical and projected revenue and R&D spend and longitudinal pipeline data. This report also provides context for the major factors expected to weigh on the outlook for the large pharma space—specifically, the loss of exclusivity for key drugs, the Inflation Reduction Act (IRA), and Robert F. Kennedy Jr.'s potential confirmation as secretary of the U.S. Department of Health and Human Services. The detailed results of our groundwork are presented in slide format for easier reading, but we summarize the key points below.

- **Valuations:** On a simple average basis, large pharma is trading at 14.0x 2025 EPS estimates, 1.6 turns below its 20-year average forward P/E multiple. Excluding Eli Lilly and Novo Nordisk, the group is at 12.0x 2025 EPS, 2.7 turns and roughly one standard deviation below its 20-year average forward P/E multiple. This subset of companies briefly traded around this level in the fall of 2022, but this is otherwise the lowest the group has traded at since mid-2012. As we detail later in this report, we believe 2011 was the last time large pharma faced a loss of exclusivity headwind comparable to the one bearing down on the industry in 2025. Ahead of this headwind, the group's average forward P/E multiple bottomed in May 2010, remained depressed until August 2011, and then gradually recovered toward historical levels, ultimately hitting its long-term average forward P/E multiple in early 2013. In our view, this suggests the group's average forward P/E multiple may be near a bottom but is unlikely to improve until the back half of 2025, at earliest.
- **Revenue:** Large pharma revenue is expected to increase 6.1% in 2025, led by 27.9% growth from Eli Lilly and 20.3% growth from Novo Nordisk. Excluding these GLP-1 winners, revenue is expected to grow by a more modest 3.7% in 2025, although this would still be comfortably above the 2.7% revenue CAGR posted by these 13 companies in the five years leading up to the pandemic. From 2024 through 2029, large pharma revenue is projected to increase at a 5.0% compound annual rate, with a good portion of this growth unsurprisingly coming from Eli Lilly and Novo Nordisk. Excluding these two outliers, total revenue CAGR is projected at 3.2% over this period, modestly above the 2.7% revenue CAGR recorded by these companies in the five years leading up to the pandemic. Given the industry headwinds discussed in this report, it will not surprise us if projections for this subset of companies end up being too optimistic.

- **Research and development:** Surprisingly, large pharma R&D spend increased 9.7% in 2024. According to Visible Alpha, in 2025, spend is expected to grow by a more modest 3.6%, led by 16.8% growth from Eli Lilly and 8.7% growth from Novo Nordisk. These GLP-1 winners played a large part in driving robust growth in 2024, but total R&D spend from the other companies in this report also grew by a healthy 7.8% last year. However, R&D spend from these 13 companies is expected to increase by a meager 2.2% in 2025, well below the 4.4% R&D spending CAGR recorded by this subset in the five years leading up to the pandemic. From 2024 through 2029, large pharma R&D spend is projected to increase at a 3.6% compound annual rate, modestly below the 4.3% R&D spending CAGR observed in the five years leading up to the pandemic. Excluding Eli Lilly and Novo Nordisk, the outlook looks much worse, with R&D spend from the other 13 companies in this report forecast to grow by an underwhelming 2.4% compound annual rate over the next five years.
- **Pipeline:** We consolidated longitudinal pipeline data for the large pharma companies featured in this report to evaluate whether pipeline reprioritization activities have peaked. The data show that there was a significant decrease in early-stage programs in 2023 as drug developers put more emphasis on later-stage assets that may help offset the looming headwinds from loss of exclusivity and the IRA in the near term. However, the number of Phase I programs increased slightly in 2024, which, in our view, suggests that early-stage cuts may have peaked as we head into 2025. The state of late-stage pipeline reprioritization activities is less clear, with the data showing that late-stage pipeline reprioritization activities accelerated in 2024, but not supporting or disproving the notion that these cuts have peaked.
- **Loss of exclusivity:** We believe the biggest headwind to large pharma revenue growth over the next five years is loss of exclusivity. Among the 15 large pharma companies included in this report, a total of 46 key drugs either lost exclusivity in 2023 or 2024 or are set to lose exclusivity over the next three years, including 16 key products losing patent protection in 2025. According to Visible Alpha, collective sales of these 46 drugs are projected to decrease at a 16.3% compound annual rate over the next five years, declining from $162.8 billion in 2024 (22.2% of large pharma revenue) to $67.0 billion in 2029 (7.2% of large pharma revenue). Of the 15 companies featured in this report, eight are facing a significant headwind from loss of exclusivity over the next five years. Based on each company's percentage of 2024 revenue derived from products that either lost exclusivity in 2023 or 2024 or are set to lose exclusivity over the next three years, we divided these eight companies into three groups: extreme headwind (greater than 40% of 2024 revenue; includes Regeneron, Bristol Myers, and Pfizer), major headwind (greater than 30% of 2024 revenue; includes AstraZeneca and Novartis), and significant headwind (greater than 20% of 2024 revenue; includes Amgen, Johnson & Johnson, and AbbVie).
- **Inflation Reduction Act (IRA):** On August 15, 2024, the Centers for Medicare & Medicaid Services (CMS) disclosed the final negotiated maximum fair prices (MFPs) for the first 10 negotiated drugs covered under Medicare Part D, with pricing going into effect on January 1, 2026. Total sales of these drugs are projected to decline at a 20.4% compound annual rate from $62.3 billion in 2024 (8.5% of large pharma revenue) to $19.9 billion in 2029 (2.1% of large pharma revenue). However, while the IRA has gotten a lot of attention as a driver of the pipeline reprioritization activities at large pharma discussed above, the bigger issue for this set of drugs is loss of exclusivity, with 9 of the 10 drugs losing patent protection around the time IRA pricing goes into effect. Among the 15 companies discussed in this report, five generated more than 10% of their respective 2024 revenue from the first 10 negotiated drugs under the IRA—Johnson & Johnson (17.5%), Bristol Myers (27.7%), AstraZeneca (14.4%), Novartis (15.3%), and Pfizer (11.3%).
- **Vaccine exposure:** If confirmed as secretary of the U.S. Department of Health and Human Services, Robert F. Kennedy Jr. will oversee several important operating agencies, including the Food and Drug Administration (FDA), National Institutes of Health (NIH), and CMS. While Kennedy has stated that he does not plan to take away vaccines, his appointment has the potential to lead to future policies that negatively impact uptake of approved vaccines or result in a higher bar for future vaccine approvals. In our view, this would at worst be a minor headwind to large pharma's top line, as the 15 companies featured in this report only generated $45.1 billion of revenue from vaccines in 2024 (6.7% of total revenue). In our view, the bigger risk associated with RFK Jr.'s appointment is if he follows through on his promise to fire staffers at the FDA or there is a mass exodus of seasoned FDA staffers who leave the agency if he is confirmed. These cuts and/or departures could lead to longer review timelines for new drug approvals, ultimately creating a more challenging environment for the large pharma companies included in this report, as well as for the pharma space as a whole.

- **M&A history:** After a strong year for M&A in 2023, total deal value across the 15 large pharma companies included in this report declined to $34.9 billion in 2024, the lowest deal value observed for this subset of companies since 2016. The slowdown was caused by a significant step-down in average deal value, with last year representing the first year in more than two decades without a $5.0 billion or larger biopharma deal. Despite large pharma's collective need to address the upcoming revenue shortfall from the loss of exclusivity headwind discussed previously, these companies surprisingly erred on the side of caution and primarily acquired early-stage private biotechs in 2024. On the back of a more pro-business stance from the incoming Trump administration and a more amenable Federal Trade Commission, investors seem to be anticipating a step-up in M&A activity in 2025. In our view, a significant rebound in M&A activity this year would be a welcome tailwind for sentiment around the large pharma space, particularly if these transactions help offset declining revenue from key products due to loss of exclusivity over the next few years. In addition to potentially providing larger innovators with more flexibility to spend on R&D, we believe it could also help end the biotech slump that weighed on demand for pharmaceutical outsourcing and services companies in 2024.

Stock Thoughts and Recommendations

Within the CRO space, our analysis is most relevant for ICON (ICLR) and IQVIA (IQV), which each generate roughly 60% of revenue from large pharma, as well as for Fortrea (FTRE), which derives roughly half of its revenue from large pharma. It is also relevant for Charles River (CRL), albeit to a lesser extent given only about 30% of its revenue comes from these innovators. The only CRO without material large pharma exposure is Medpace (MEDP), which generates over 95% of its revenue from small and midsize biopharma companies.

In terms of what our analysis means for the CROs, at the end of 2024, the consistent refrain from the group was that large pharma pipeline reprioritization activities had peaked, with forward-demand indicators pointing to a healthier demand environment in 2025. Based on our large pharma deep dive, as well as recent updates from ICON and Charles River at a competitor conference last week, we believe the first half of this claim may be true, but we have a hard time seeing spend accelerate in 2025, with a more likely outcome being that large pharma demand this year looks a lot like it has over the last couple quarters. This view is now appropriately reflected in ICON's outlook for next year, and on the back of the company's recent cut to numbers, we think investors have already priced in a cut to IQVIA's recently provided initial outlook for 2025. While we acknowledge that the outlook for IQVIA's research and development solutions (R&DS) in particular now looks aggressive in light of ICON's latest update, there are some customer-specific factors for ICON that lead us to be relatively more constructive on IQVIA this year, specifically ICON's outsized exposure to two of the main large pharma laggards detailed in this report (we believe this is Pfizer and Johnson & Johnson). However, with ICON now trading at 14.5x 2025 EPS (versus its long-term average of 19.0x) and IQVIA currently trading at 16.6x 2025 EPS (versus its long-term average of 20.2x), this seems to be the consensus view heading into fourth-quarter earnings. Ultimately, we continue to believe that large pharma is resilient and that this will prove to be an attractive long-term entry point for both ICON and IQVIA, but without possible upside to numbers in 2025 and based on our view that large pharma sentiment is likely to remain depressed until investors get more clarity around how these innovators will address the looming headwind from loss of exclusivity, it is hard to see what makes either stock work until we get closer to a potential step-up in top-line growth in 2026. While Fortrea is now trading at an extremely discounted 11.9x 2025 EPS, we remain at Market Perform due to our concerns around the company's competitive positioning and path forward in this more challenging demand environment.

We are more concerned about the near-term outlook for Charles River given our view that in light of the looming headwind from loss of exclusivity, large pharma will continue to prioritize products closer to approval that have the potential to contribute revenue in the near term. On the back of sequential improvement in both gross bookings and cancellations from large pharma during the third quarter, we were optimistic that these customers would begin to reinvigorate their investments in early-stage R&D toward the end of 2025, setting the stage for healthy growth in Charles River's discovery and safety assessment (DSA) business in 2026. Based on the company's recent update, as well as our large pharma deep dive, this now seems unlikely. Taken together with softer pricing and the incremental uncertainty for its DSA business due to a recently issued recommendation from the Convention on International Trade in Endangered Species (CITES) to suspend the shipments of long-tailed macaques from Cambodia, as well as headwinds in its CDMO business, which was supposed to be a key driver of margin expansion moving forward, there is simply too much working against Charles River in the near term to make the stock interesting. As a result, we are downgrading the stock to Market Perform.

Lastly, Medpace is the only company in the group trading above its long-term average, but we believe its lack of large pharma exposure makes it the most compelling name in the CRO group at present. We are somewhat hesitant to call a near-term inflection in small biotech demand despite the better funding environment observed in 2024 due to issues with breadth of funding and the material slowdown in new biotech companies formed in 2024 (263 versus 376 in 2023 according to PitchBook), but the company saw cancellations improve sequentially in the third quarter, and in our view, expectations for book-to-bill to remain below 1.15x until the second half of 2025 look conservative. In addition, during third-quarter earnings, management noted that the demand environment seems relatively normal beyond the elevated cancellations tied to work that was awarded during the COVID high and that the company's win rate remains healthy, alleviating some fears that share loss has contributed to the underwhelming bookings observed so far this year. Lastly, pricing among small biotech seems to be much more constructive than it is for large pharma, and Medpace is also not dealing with a headwind to margins from the ongoing shift toward FSP work among large pharma that is set to weigh on margins for ICON and IQVIA in particular in 2025.

Within the tech-enabled services space, our analysis is relevant for both Certara (CERT) and Simulations Plus (SLP), which each generate roughly half of their revenue from large pharma. Our thoughts on these names is similar to what we outlined for ICON and IQVIA above—while both companies have seen software demand remain healthy despite the more constrained large pharma spending environment, demand for services has weighed on shares over the last several quarters, and we think it will be hard for either stock to work in the near term until we see an inflection in biopharma spending pattens or signs of improved visibility into services. We continue to prefer Simulations Plus to Certara given its more attractive mix (roughly 60% software/40% services versus 40% software/60% services for Certara) and more realistic expectations for 2025, although we note the former issue could be resolved if Certara ultimately elects to divest its regulatory services business on the back of its ongoing review process, which it expects to conclude in the first quarter of 2025.

On the back of our analysis, Lonza remains our top pick for 2025, despite the company generating roughly half of its revenue from large pharma. This view is based on four key points: 1) a healthy outlook for commercial demand, with total drug sales expected to grow at an 8% compound annual rate from 2024 through 2029 according to Evaluate Pharma, comfortably above the 6% compound annual rate observed from 2019 through 2024; 2) attractive outsourcing trends as biopharma companies increasingly look to leverage CDMOs as an effective way to limit internal manufacturing capital investments, with Lonza recently highlighting its expectations for the total CDMO share of installed manufacturing capacity for mammalian drug substance (Lonza's largest business) to reach 55% by 2029, representing an impressive 20-point increase over 2019; 3) a compelling long-term tailwind from the Biosecure Act, which we believe is already on its way to achieving its intended goal, which is to force drug manufacturing out of China; and 4) an achievable outlook for midteens-plus adjusted EBITDA growth annually through 2028. Lonza currently trades at 19.3x our 2025 adjusted EBITDA estimate, nearly a turn below the average for its most comparable CDMO peer group. Moving forward, we expect shares at least move in line with midteens-plus adjusted EBITDA growth, with additional upside from multiple expansion given the company's leading position in the CDMO space and its best-in-class outlook for growth.

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Large Pharma Deep Dive

Background – Large Pharma Comp Table

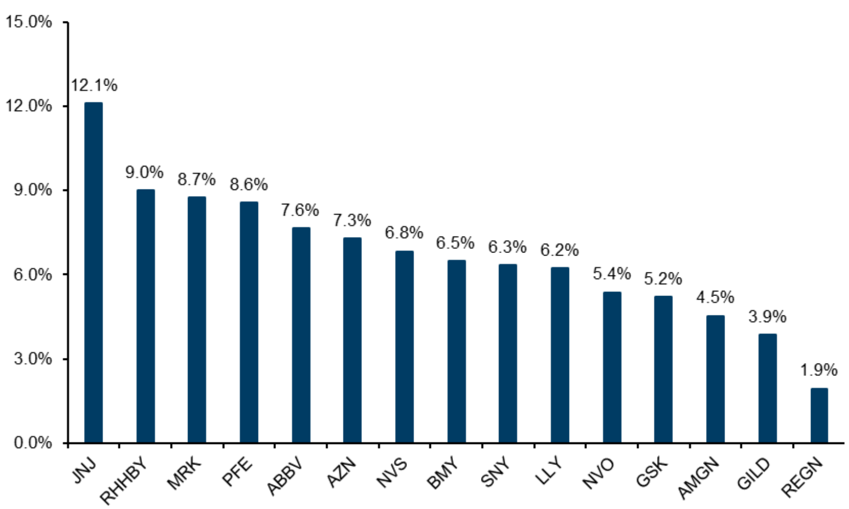
Company	Ticker	Price	Market Cap ($Bs)	Ent. Value ($Bs)	EPS				CAGR	P/E			
					2024E	2025E	2026E	2027E	'25-'27	2024E	2025E	2026E	2027E
Eli Lilly	LLY	$ 757.60	$ 720	$ 747	$ 13.01	$ 22.56	$ 29.30	$ 34.40	23.5%	NM	33.6x	25.9x	22.0x
Novo Nordisk	NVO	83.07	369	366	3.17	3.89	4.66	5.23	15.9%	26.2x	21.4x	17.8x	15.9x
Johnson & Johnson	JNJ	147.77	359	374	9.96	10.59	11.07	11.31	3.3%	14.8x	14.0x	13.3x	13.1x
AbbVie	ABBV	173.70	310	374	10.94	12.20	13.69	15.05	11.1%	15.9x	14.2x	12.7x	11.5x
Merck	MRK	100.70	257	280	7.70	9.28	10.19	10.94	8.6%	13.1x	10.8x	9.9x	9.2x
Roche	RHHBY	36.67	238	275	2.61	2.88	3.08	3.31	7.2%	14.1x	12.7x	11.9x	11.1x
AstraZeneca	AZN	66.91	204	230	4.12	4.68	5.18	5.73	10.7%	16.2x	14.3x	12.9x	11.7x
Novartis	NVS	97.86	197	212	7.59	8.23	8.56	8.96	4.3%	12.9x	11.9x	11.4x	10.9x
Pfizer	PFE	26.49	154	204	2.92	2.89	3.00	2.97	1.3%	9.1x	9.2x	8.8x	8.9x
Amgen	AMGN	269.43	147	198	19.62	20.84	21.34	22.26	3.4%	13.7x	12.9x	12.6x	12.1x
Sanofi	SNY	50.74	126	145	3.95	4.41	4.86	5.36	10.2%	12.8x	11.5x	10.4x	9.5x
Bristol Myers Squibb	BMY	56.38	117	158	0.90	7.00	6.25	6.34	-4.9%	NM	8.1x	9.0x	8.9x
Gilead	GILD	91.65	117	133	4.38	7.56	7.94	8.46	5.8%	20.9x	12.1x	11.5x	10.8x
Regeneron	REGN	693.23	80	72	44.95	44.79	48.66	56.80	12.6%	15.4x	15.5x	14.2x	12.2x
GSK	GSK	33.44	68	85	3.91	4.09	4.60	5.04	11.0%	8.6x	8.2x	7.3x	6.6x
Mean									**8.3%**	**14.9x**	**14.0x**	**12.7x**	**11.6x**
Median									**8.6%**	**14.1x**	**12.7x**	**11.9x**	**11.1x**
Mean - excluding LLY & NVO									**6.5%**	**14.0x**	**12.0x**	**11.2x**	**10.5x**
Median - excluding LLY & NVO									**7.2%**	**13.9x**	**12.1x**	**11.5x**	**10.9x**

* Values as of January 16, 2025
Sources: Company filings, FactSet, and William Blair Equity Research

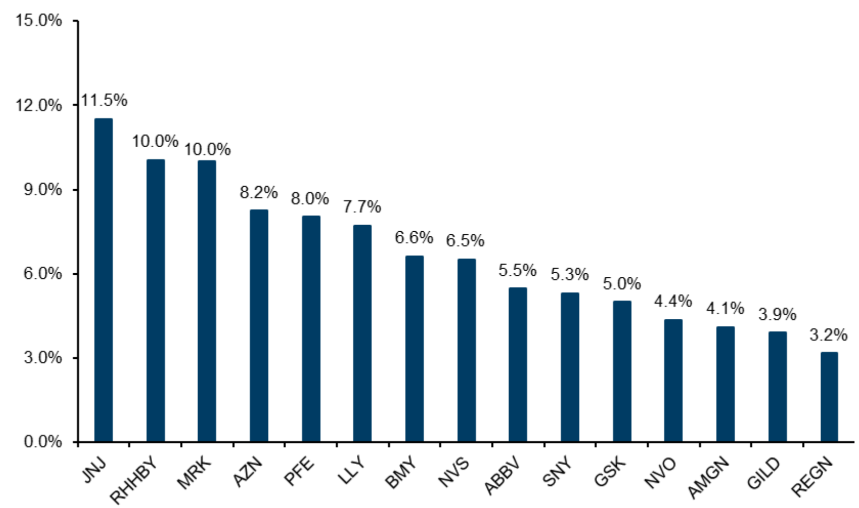
Background

- **Revenue:** According to Evaluate Pharma, total drugs sales are forecast to increase at a 7.9% compound annual rate from $944 billion in 2024 to $1,383 billion in 2029. Over the same five-year period, VisibleAlpha projects that drugs sales from the 15 companies in this report will increase at a 5.0% compound annual rate from $734 billion (77.7% of total 2024 pharma revenue) to $935 billion (67.6% of total 2029 pharma revenue). Among these 15 companies, Eli Lilly and Novo Nordisk are expected to be the biggest share gainers over the next five years, with their collective portion of group sales growing from 11.6% in 2024 to 18.8% in 2029. Pfizer and Bristol Myers are projected to be the biggest share losers, with their collective portion of group sales declining from 15.0% in 2024 to 10.4% in 2029. Beyond Eli Lilly and Novo Nordisk, only four companies (AbbVie, AstraZeneca, Sanofi, Regeneron) are expected to grow faster than the group average over the next five years.
- **Research and development:** According to Evaluate Pharma, total pharma R&D spend is forecast to increase at a 3.5% compound annual rate from $283 billion in 2024 to $336 billion in 2029. Over the same five-year period, VisibleAlpha projects that R&D spend from the 15 companies in this report will increase at a 3.6% compound annual rate from $144 billion (50.8% of total 2024 pharma R&D spend) to $171 billion (51.0% of total 2024 pharma R&D spend). Like revenue, Eli Lilly's and Novo Nordisk's collective share of group R&D spend is expected to increase from 12.1% in 2024 to 17.2% in 2029, while Pfizer's and Bristol Myer's collective share of R&D spend is forecast to decrease from 14.7% in 2024 to 11.7% in 2029. Other than Eli Lilly and Novo Nordisk, only three companies (AbbVie, AstraZeneca, and Regeneron) are expected to spend faster than the group average over the next five years.

Company Detail - % of Total Large Pharma 2024 Revenue



Company Detail - % of Total Large Pharma 2024 R&D Spend

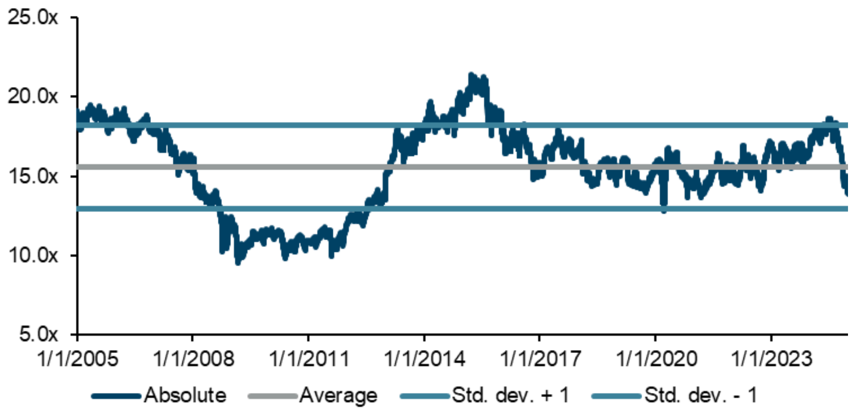


Sources: Company filings, Visible Alpha, FactSet, and William Blair Equity Research

Large Pharma Deep Dive

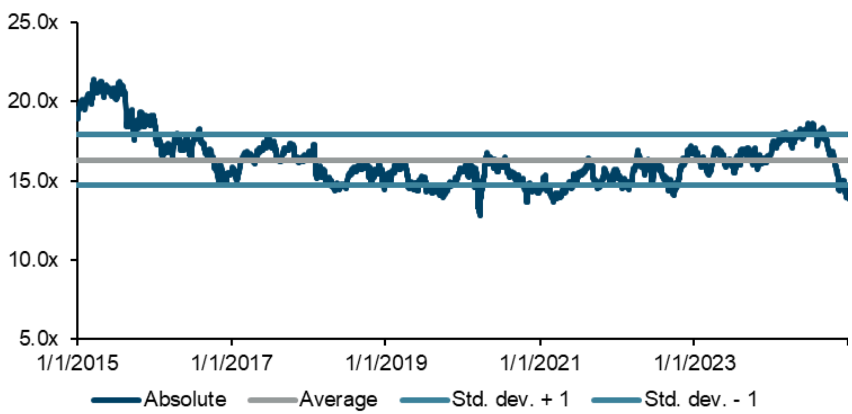
Valuations

Large Pharma – Avg. NTM P/E (20-Years)

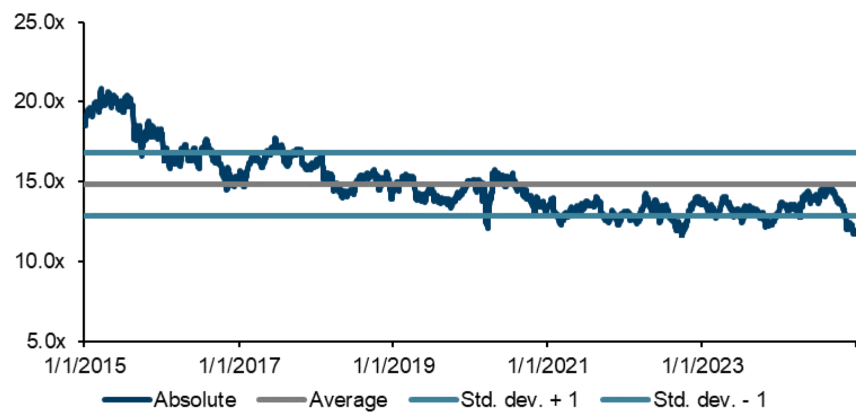


Large Pharma (Excluding LLY & NVO) – Avg. NTM P/E (20-Years)

Large Pharma – Avg. NTM P/E (10-Years)



Large Pharma (Excluding LLY & NVO) – Avg. NTM P/E (10-Years)



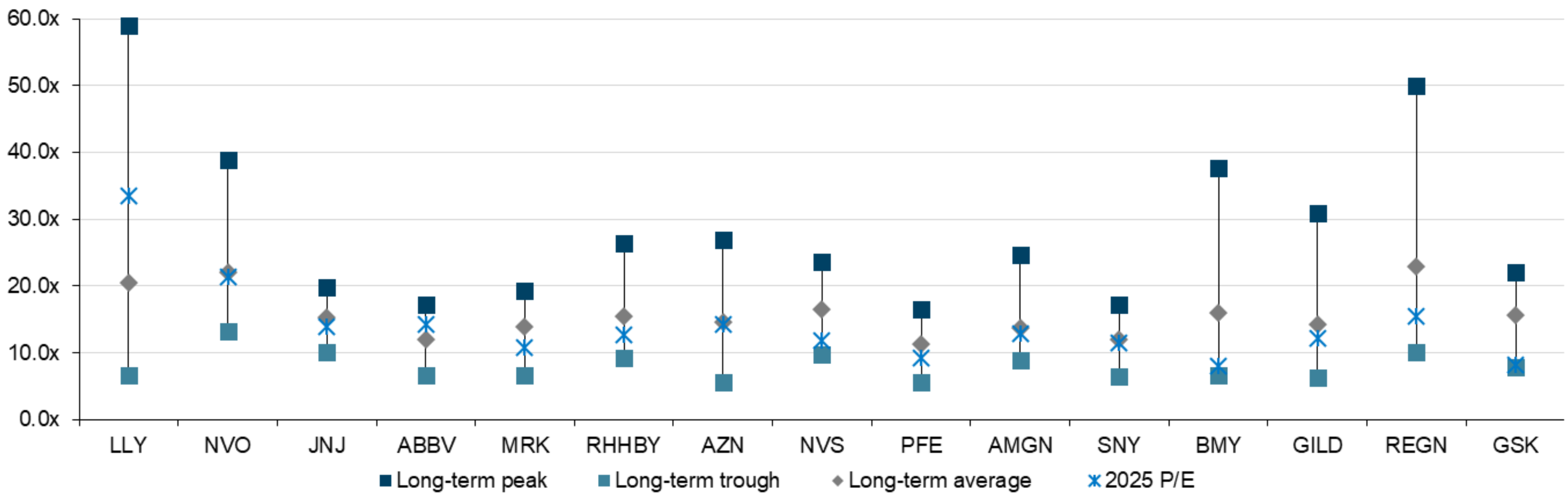
Sources: Company filings, FactSet, and William Blair Equity Research

Large Pharma Deep Dive

Valuations

- On a simple average basis, large pharma is currently trading at 14.0x 2025 EPS, 1.6 turns below its 20-year average forward P/E multiple. Excluding Eli Lilly and Novo Nordisk, the group is trading at 12.0x 2025 EPS, 2.7 turns and roughly one standard deviation below its 20-year average forward P/E multiple. This latter subset of companies briefly traded around this level in the fall of 2022, but other than in that period, this is the lowest the group has traded at since mid-2012.
- As we discuss in more detail later in this report, we believe 2011 was the last time large pharma faced a loss of exclusivity headwind comparable to the one currently bearing down on the industry in 2025. Ahead of this headwind, the group's average forward P/E multiple bottomed in May 2010, remained depressed until August 2011, and then started to gradually recover towards historical levels, ultimately hitting its long-term average forward P/E multiple in early 2013. In our view, this suggests the group's average forward P/E multiple may be near a bottom but is unlikely to start improving until the back-half of 2025, at earliest.
- **Company detail:** Beyond Eli Lilly, the only company from the group trading above its long-term average forward P/E multiple is AbbVie, which has managed to virtually sidestep the industry headwinds discussed in this report. Nine of the 15 companies included in this report are trading more than one turn below their respective long-term average forward P/E multiple. Four of these nine companies (Merck, Novartis, Bristol Myers, and GSK) are trading more than one standard deviation below their long-term average forward P/E multiple. Of these four companies, Novartis and Bristol Myers are only a couple of turns above their respective long-term trough forward P/E multiples, while GSK is essentially trading in line with its long-term trough P/E multiple.

Company Valuations (Ranked by Market Cap)

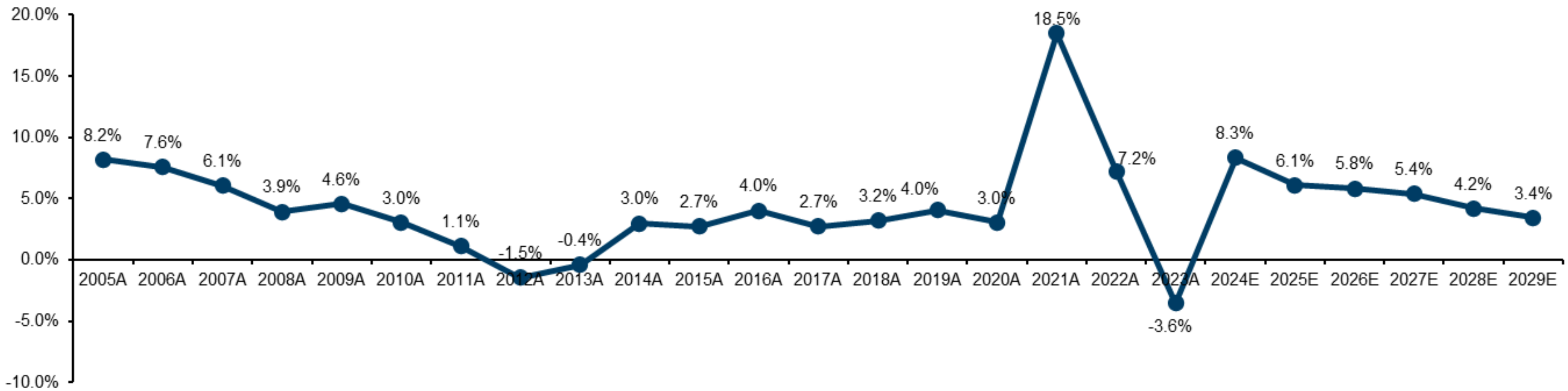


* Values as of January 16, 2025

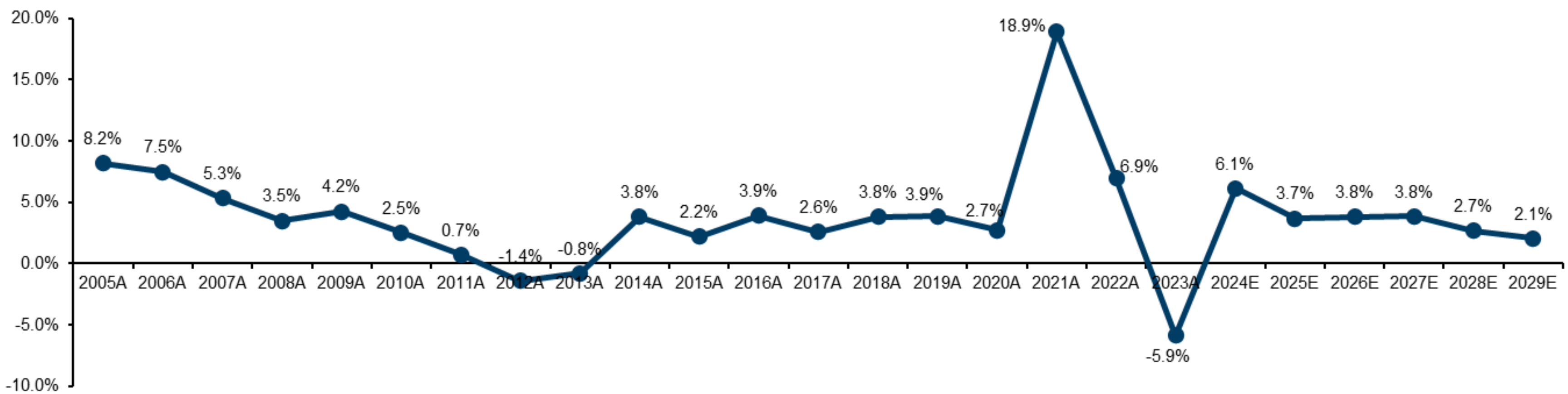
Sources: Company filings, FactSet, and William Blair Equity Research

Large Pharma Deep Dive

Large Pharma Revenue – Historical and Forecast Revenue Growth*



Large Pharma Revenue (Excluding LLY & NVO) – Historical and Forecast Revenue Growth*



*Adjusted for the estimated impact of major M&A

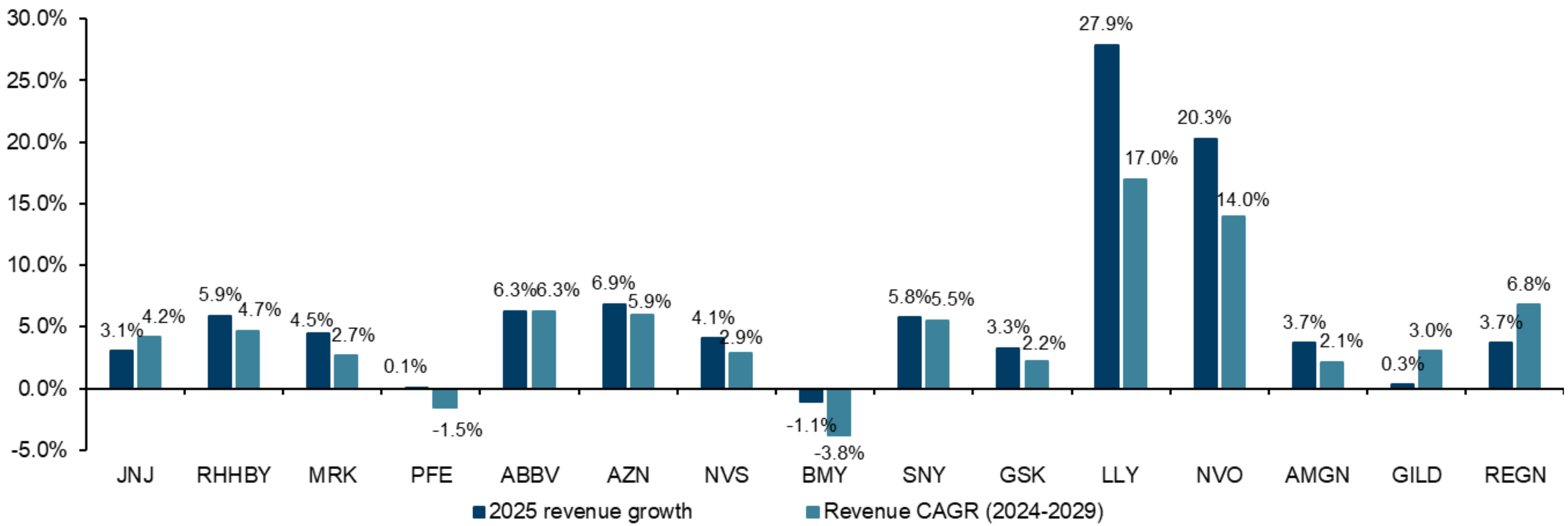
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Large Pharma Deep Dive

Revenue

- **2025 revenue:** After growing a robust 8.3% in 2024, large pharma revenue is expected to increase 6.1% in 2025, led by 27.9% growth from Eli Lilly and 20.3% growth from Novo Nordisk. Excluding these GLP-1 winners, revenue increased by a strong 6.1% in 2024 and is expected to grow by a modest 3.7% in 2025, although this would still be comfortably above the 2.7% revenue CAGR posted by these 13 companies in the five years leading up to the pandemic.
- **2024-2029 revenue CAGR:** Large pharma revenue is projected to increase at a 5.0% compound annual rate from 2024 through 2029. Unsurprisingly, a good portion of this growth is expected to come from Eli Lilly and Novo Nordisk, which are forecast to post revenue CAGRs of 17.0% and 14.0%, respectively. Excluding these two outliers, total revenue is projected to grow at a 3.2% compound annual rate over the same five-year period, modestly above the 2.7% revenue CAGR recorded by these companies in the five years leading up to the pandemic.
- Given the industry headwinds discussed in this report, most notably the loss of exclusivity headwind that is expected to meaningfully weigh on sales beginning in 2026, it will not surprise us if these revenue projections end up being too optimistic. As noted previously, we believe 2011 was the last time large pharma faced a loss of exclusivity headwind comparable to the one currently bearing down on the industry in 2025. On the back of this headwind, large pharma revenue grew by a meager 1.1% in 2011 and then declined by 1.5% in 2012. Based on where the space is currently trading relative to where it traded in the five years leading up to the pandemic (14.0x 2025 EPS versus 16.8x average for 2015 through 2019), we suspect we are not the only ones who feel this way.

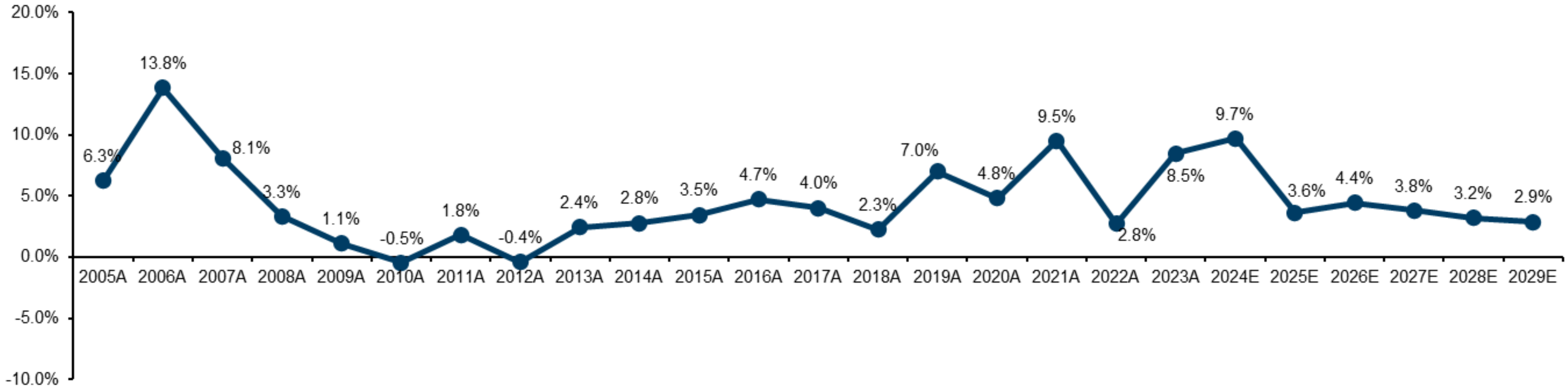
Company Revenue Detail (Ranked by % of Total Large Pharma 2024 Revenue)



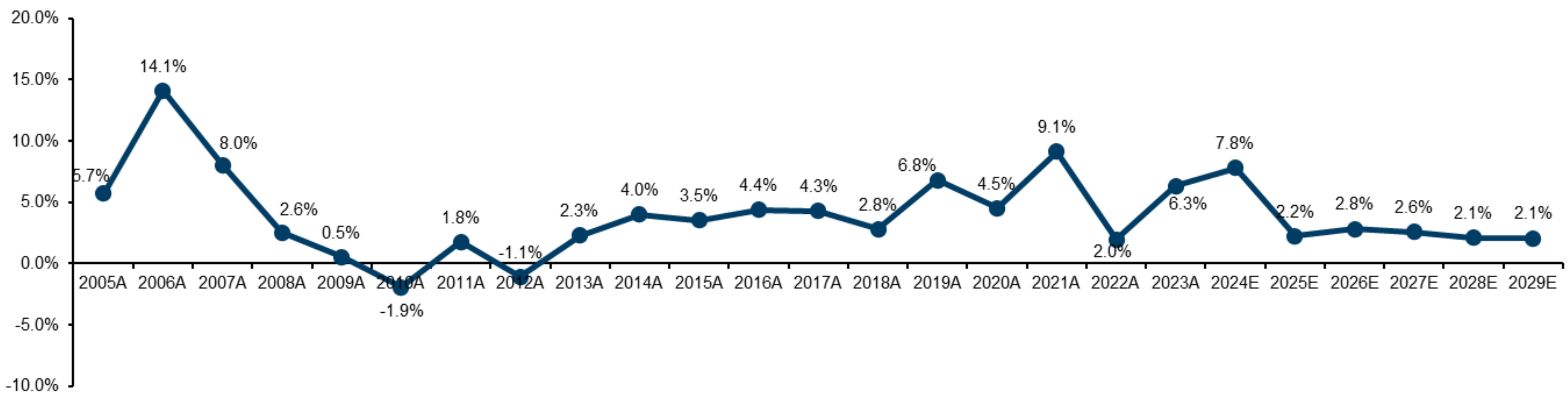
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Large Pharma Deep Dive

Large Pharma R&D – Historical and Forecast Research and Development Spending Growth*



Large Pharma R&D (Excluding LLY & NVO) – Historical and Forecast Research and Development Spending Growth*



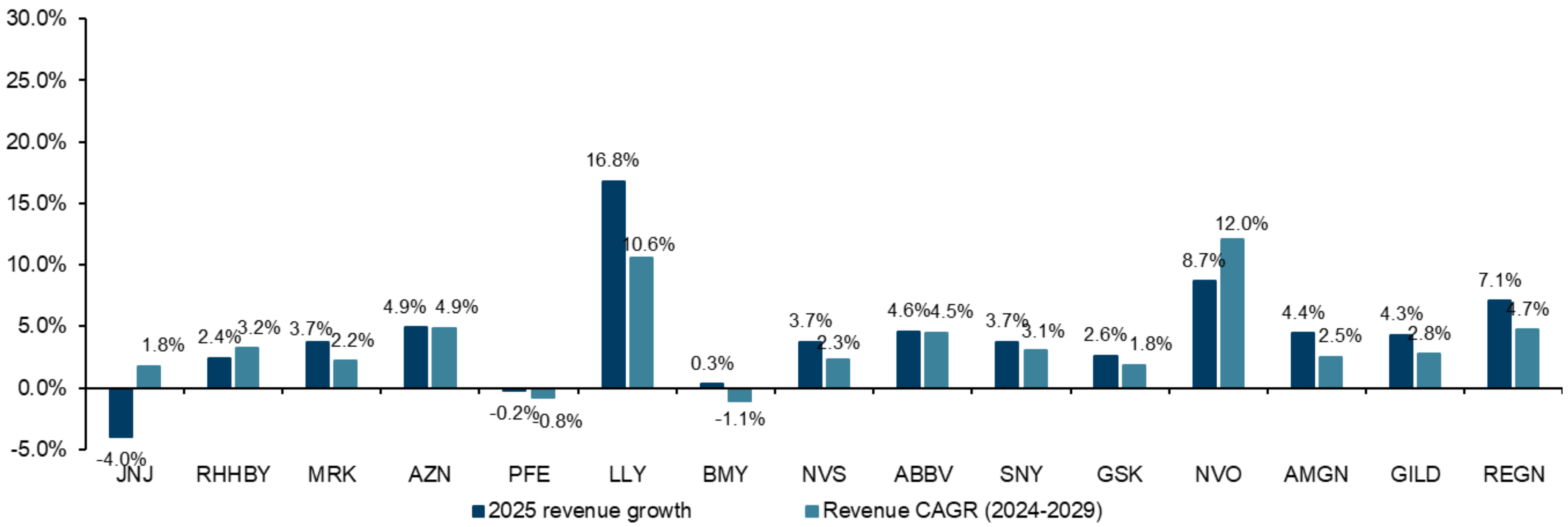
*Adjusted for the estimated impact of major M&A
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Large Pharma Deep Dive

Research and Development

- **2025 R&D spend:** Large pharma R&D spend increased 9.7% in 2024 and is expected to grow by a more modest 3.6% in 2025, led by 16.8% growth from Eli Lilly and 8.7% growth from Novo Nordisk. These GLP-1 winners played a large part in driving robust growth in 2024, but total R&D spend from the other companies in this report also grew by a healthy 7.8% last year. However, R&D spend from these 13 companies is expected to increase by a meager 2.2% in 2025, well below the 4.4% R&D spending CAGR recorded by this subset in the five years leading up to the pandemic. The three main drags on R&D growth next year—Bristol Myers, Pfizer, and J&J—are each facing major headwinds from loss of exclusivity and the IRA. Of these three companies, Bristol Myers and Pfizer have announced major cost-savings initiatives over the last couple of years, but J&J is projected to be the biggest headwind to R&D spending growth in 2025.
- **2024–2029 R&D CAGR:** Large pharma R&D spend is projected to increase at a 3.6% compound annual rate from 2024 through 2029, modestly below the 4.3% R&D spending CAGR observed in the five years leading up to the pandemic. Unsurprisingly, excluding Eli Lilly and Novo Nordisk, the outlook seems to be much worse, with R&D spend from the other 13 companies in this report forecast to grow by an underwhelming 2.4% compound annual rate over the next five years (versus 4.4% for this subsegment from 2014 through 2019). In addition to the major drags on 2025 R&D spend discussed above (i.e., Bristol Myers, Pfizer, and J&J), other notable companies with more muted outlooks for R&D spend over the next five years include GSK, Merck, Novartis, Amgen, and Gilead.

Company Research and Development Detail (Ordered by % of Total Large Pharma 2024 R&D Spend)



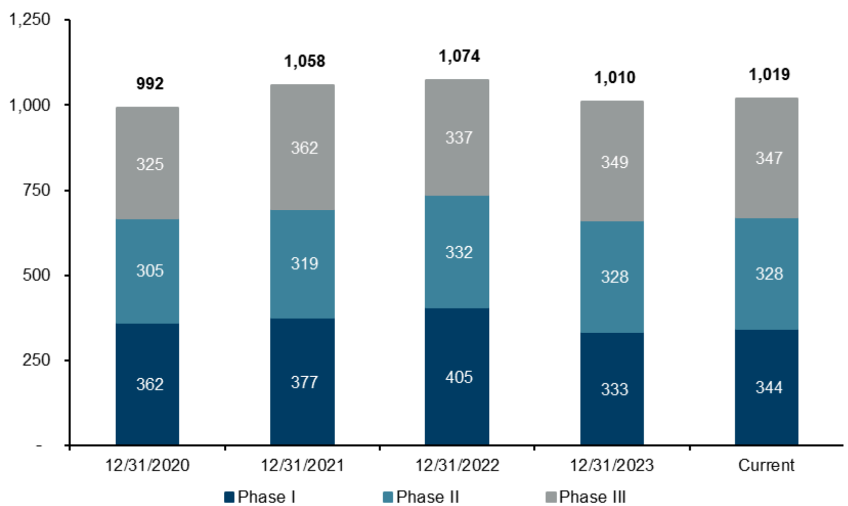
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Large Pharma Deep Dive

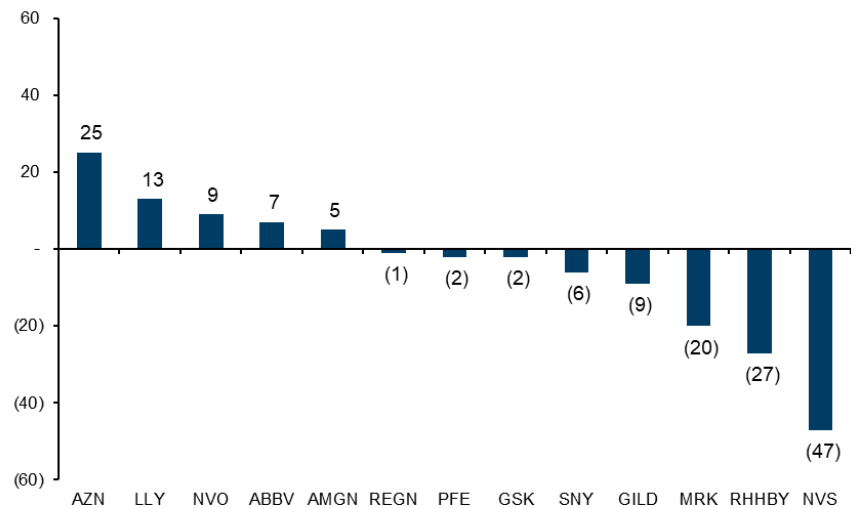
Pipeline

- Large pharma pipeline reprioritization activities have been a meaningful headwind to revenue growth for companies in the pharmaceutical outsourcing and services space over the last year-plus, but there is an expectation that these cuts have peaked as we head into 2025. To evaluate whether that is the case, we pulled together longitudinal pipeline data for the large pharma companies featured in this report.
- **Early-stage (Phase I):** As shown below, the number of Phase I programs decreased meaningfully in 2023 as drug developers put more emphasis on later-stage assets that may help offset the looming headwinds from loss of exclusivity and the IRA in the near term. Of the 12 large pharma companies that provide longitudinal Phase I pipeline data, eight pulled back on their number of Phase I programs in development in 2023, with the most significant cuts coming from Merck, Novartis, GSK, and Amgen. In our view, the slight step-up in Phase I programs year-over-year in 2024 and the fact that only 6 of the 12 companies cut early-stage programs last year (versus eight in 2023) suggest that early-stage cuts may have peaked as we head into 2025.
- **Late-stage (Phase II/Phase III):** Interestingly, the number of total late-stage programs peaked in 2021 and declined slightly in 2022 on the back of cuts from 6 of the 13 large pharma companies that provide longitudinal late-stage pipeline data. In 2023, only 4 of these 13 companies pulled back on late-stage programs, and as a result the total number of Phase II and Phase III programs increased slightly year-over-year. In 2024, 6 of these 13 companies saw their late-stage pipelines shrink, while Merck's number of late-stage programs was unchanged year-over-year. In our view, this shows that late-stage pipeline reprioritization activities accelerated in 2024, but it does not support or disprove the notion that late-stage pipeline reprioritization activities have peaked.

Large Pharma Clinical Programs*



Change in Number of Clinical Programs Since End of 2022*



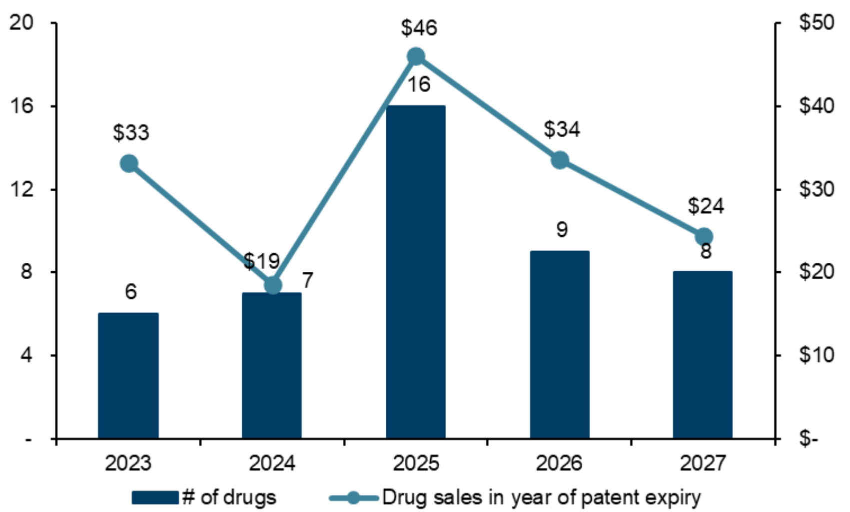
* Excludes Bristol Myers and J&J due to a lack of longitudinal data; also missing longitudinal Phase I data for Eli Lilly
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Large Pharma Deep Dive

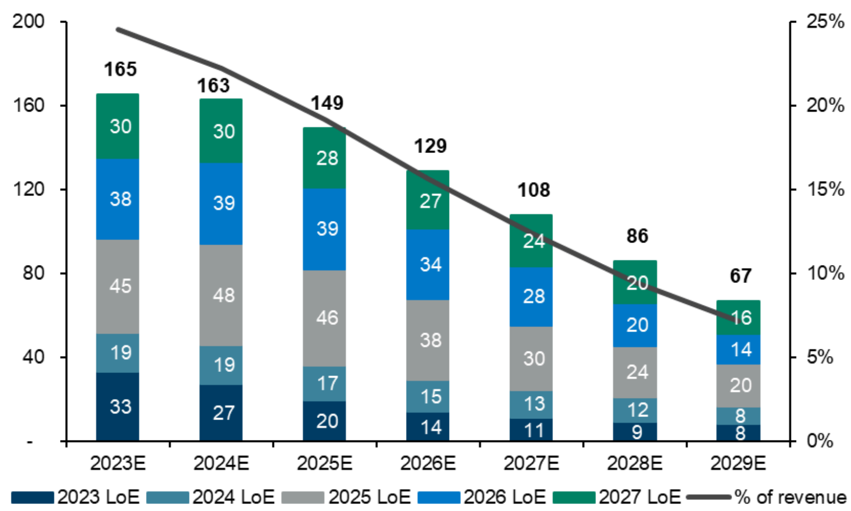
Loss of Exclusivity

- The biggest headwind to large pharma revenue growth over the next five years is undoubtably loss of exclusivity. Among the 15 large pharma companies included in this report, there are a total of 46 key drugs that either lost exclusivity in 2023 or 2024 or are set to lose exclusivity over the next three years. Collectively, sales of these 46 drugs are projected to decrease at a 16.3% compound annual rate over the next five years, declining from $162.8 billion in 2024 (22.2% of large pharma revenue) to $67.0 billion in 2029 (7.2% of large pharma revenue).
- While it is difficult to compare the looming patent cliff to historical loss of exclusivity headwinds faced by the drug development industry, we believe 2011 was the last time large pharma faced a loss of exclusivity headwind comparable to the one currently bearing down on the industry in 2025. According to the New York Times, in 2011 alone, the drug industry lost control over move than 10 blockbusters whose combined annual sales neared $50.0 billion. As shown below, in 2025, there are 16 key drugs losing patent protection, with combined annual revenue from these products expected to decrease at an 18.6% compound annual rate from $46.1 billion in 2025 (6.3% of large pharma revenue) to $20.3 billion in 2029 (2.2% of large pharma revenue).
- There does not seem to be much reprieve for the large pharma space beyond 2025, with another 9 key drugs losing patent protection in 2026. Sales of these 9 products are expected to decrease at a 25.3% compound annual rate from $33.6 billion (4.3% of large pharma revenue) to $14.0 billion in 2029 (1.5% of large pharma revenue). The majority of the impact is projected to come from Pfizer's and Bristol Myers' Eliquis, with sales of the drug forecast to shrink at a 39.2% compound annual rate from $18.2 billion in 2026 to $4.1 billion in 2029.

Drugs Facing Loss of Exclusivity ($s in Billions)



Sales of Drugs Facing Loss of Exclusivity ($s in Billions)



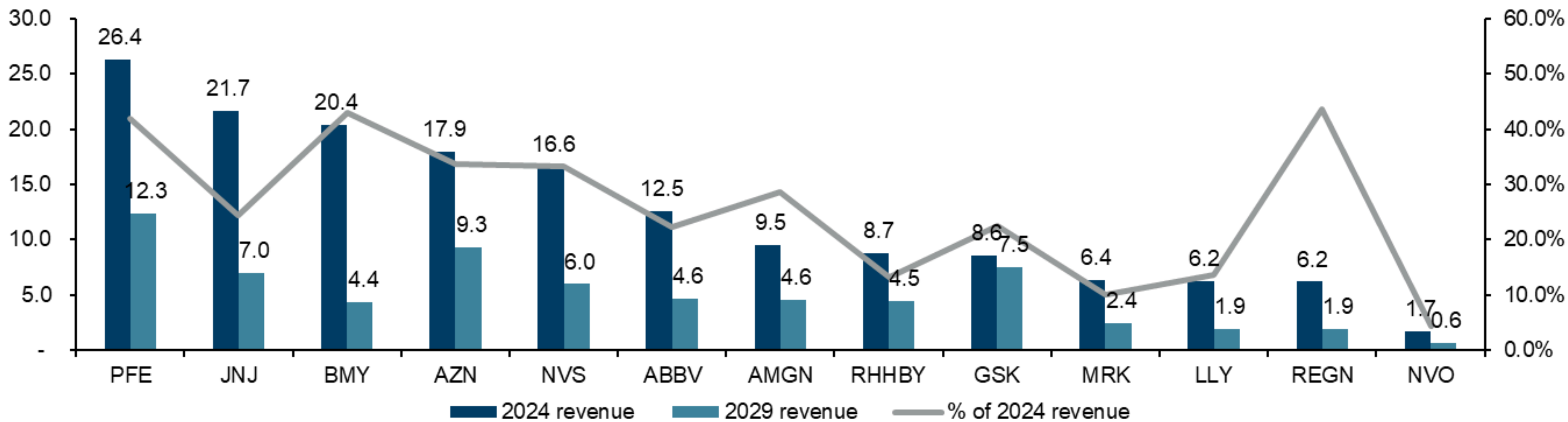
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Large Pharma Deep Dive

Loss of Exclusivity

- Of the 15 companies featured in this report, eight are facing a significant headwind from loss of exclusivity over the next five years. These eight companies are Regeneron, Bristol Myers, Pfizer, AstraZeneca, Novartis, Amgen, J&J, and AbbVie. Based on each company's percentage of 2024 revenue derived from products that either lost exclusivity in 2023 or 2024 or are set to lose exclusivity over the next three years, we divided these companies into three groups: extreme headwind (greater than 40% of 2024 revenue), major headwind (greater than 30% of 2024 revenue), and significant headwind (greater than 20% of 2024 revenue).
- **Extreme headwind:** Regeneron leads this group with 43.6% of its revenue tied to one product, Eylea, that lost patent protection in 2024. The common denominator for the other two companies in this bucket, Bristol Myers (43,0% of 2024 revenue) and Pfizer (42.0% of 2024 revenue), is loss of exclusivity for Eliquis in 2026. This is a bigger issue for Bristol Myers than it is for Pfizer (accounted for 27.7% of Bristol Myers' 2024 revenue versus 11.3% for Pfizer), but the difference is essentially offset by the fact that Pfizer has six key products dealing with loss of exclusivity to Bristol Myer's four.
- **Major headwind**: This bucket features AstraZeneca (33.6% of 2024 revenue) and Novartis (33.2% of 2024 revenue), which have five and six products, respectively, facing declining sales over the next five years due to loss of exclusivity. Both companies are losing patent protection for their respective key product in 2025 — Farxiga for AstraZeneca (14.4% of company's 2024 revenue) and Entresto for Novartis (15.3% of company's 2024 revenue).
- **Significant headwind:** In this final bucket, we have Amgen (28.6% of 2024 revenue), J&J (24.4% of 2024 revenue), and AbbVie (22.4% of 2024 revenue), which collectively have 12 products facing declining sales over the next five years due to loss of exclusivity (four for Amgen, six for J&J, and two for AbbVie). We elected to exclude GSK from this bucket despite it fitting the criteria (22.5% of 2024 revenue) since sales of its four drugs losing exclusivity are projected to decrease at a more manageable 2.6% compound annual rate over the next five years.

Loss of Exclusivity Headwind by Company ($s in Billions)



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Large Pharma Deep Dive

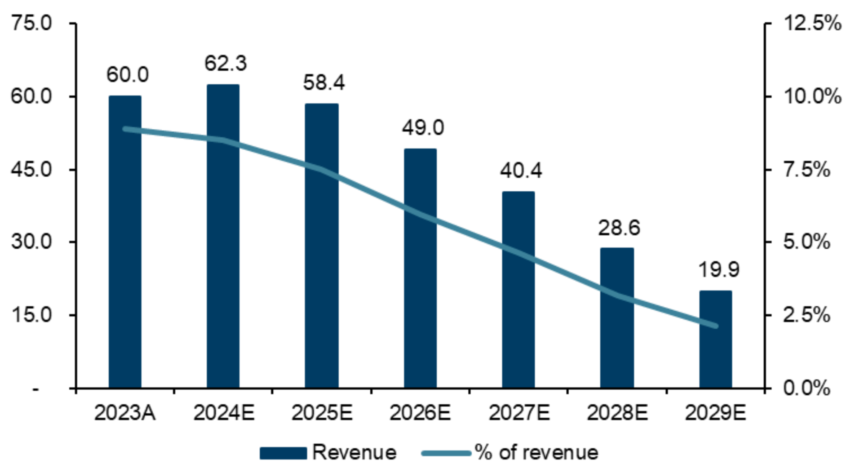
Inflation Reduction Act (IRA)

- On August 15, 2024, CMS disclosed the final negotiated maximum fair prices (MFPs) for the first 10 negotiated drugs covered under Medicare Part D. These prices will go into effect on January 1, 2026.
- Total sales of these first 10 negotiated drugs are projected to decline at a 20.4% compound annual rate from $62.3 billion in 2024 (8.5% of large pharma revenue) to $19.9 billion in 2029 (2.1% of large pharma revenue). However, while the IRA has gained a lot of attention as a driver of the pipeline reprioritization activities at large pharma discussed earlier in this report, the bigger issue for this set of drugs seems to be loss of exclusivity.
- Among the 15 companies included in this report, 5 generated more than 10% of their respective 2024 revenue from the first 10 negotiated drugs under the IRA – J&J (17.5%), Bristol Myers (27.7%), AstraZeneca (14.4%), Novartis (15.3%), and Pfizer (11.3%).

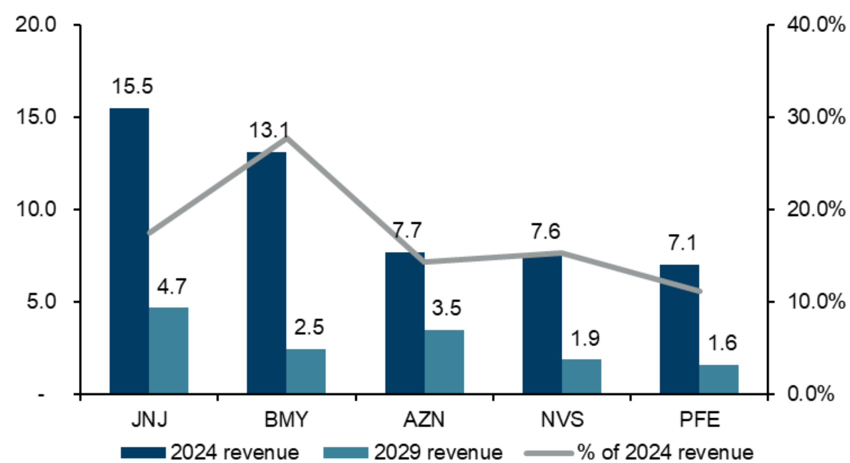
CMS Negotiated Prices for First 10 Negotiated Drugs

Drug	Company	CMS neg. price	Est. net price	Discount to est. net price	2024E rev.	Est. CAGR - '24-'29
Januvia	MRK	$ 113	$ 196	42.2%	$ 1,444	-24.2%
Fiasp	NVO	119	168	29.3%	296	5.2%
Farxiga	AZN	179	194	7.9%	7,699	-14.6%
Enbrel	AMGN	2,355	3,572	34.1%	3,167	-14.7%
Jardiance	LLY	197	252	21.7%	3,016	-8.6%
Stelara*	JNJ	4,695	7,860	40.3%	10,368	-25.0%
Xarelto	JNJ	197	261	24.6%	2,140	-22.7%
Eliquis	BMY/PFE	231	309	25.2%	20,207	-27.3%
Entresto	NVS	295	458	35.6%	7,646	-24.4%
Imbruvica	ABBV/JNJ	9,319	11,571	19.5%	6,300	-12.3%

IRA Revenue Headwind ($s in Billions)



IRA Headwind by Company ($s in Billions)



* Estimated net price for use in Crohn's disease and ulcerative colitis

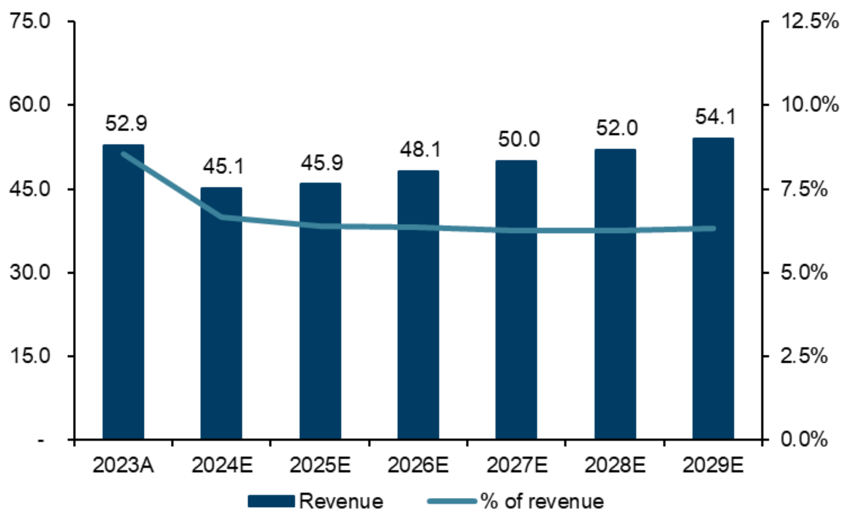
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Large Pharma Deep Dive

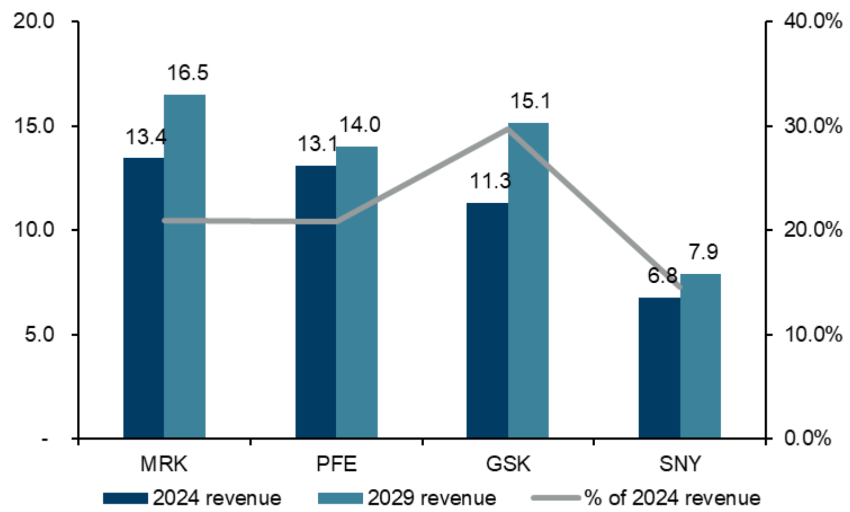
Vaccine Exposure

- Last November, President-elect Trump nominated Robert F. Kennedy Jr. to become the secretary of the U.S. Department of Health and Human Services. If confirmed, Kennedy will oversee several important operating agencies, including the FDA, NIH, and CMS. RFK Jr. is best known for his vaccine skepticism and for spreading misinformation about the safety of vaccines, as well as for being a critic of the pharma industry. The date of his confirmation hearing for HHS secretary has not been set, but Axios recently reported that it could take place the last week of January.
- While RFK Jr. has stated that he does not plan to take away vaccines, his appointment has the potential to lead to future policies that negatively impact uptake of approved vaccines or result in a higher bar for future vaccine approvals. In our view, this would at worst be a minor headwind to large pharma's top line, as the 15 companies featured in this report only generated $45.1 billion of revenue from vaccines in 2024 (6.7% of total revenue). That said, these policies would be more significant for the four large companies that generated more than 10.0% of revenue from vaccines last year, specifically Merck (21.0% of 2024 revenue), Pfizer (20.9% of 2023 revenue), GSK (29.7% of 2024 revenue), and Sanofi (14.6% of 2024 revenue).
- In our view, the bigger risk associated with RFK Jr.'s appointment is that he follows through on his promise to fire staffers at the FDA or that there is a mass exodus of seasoned FDA staffers who leave the agency if he is confirmed. These cuts and/or departures could lead to longer review timelines for new drug approvals, ultimately creating a more challenging environment for the large pharma companies included in this report, as well as for the pharma space as a whole.

Vaccine Revenue ($s in Billions)



Vaccine Revenue by Company ($s in Billions)



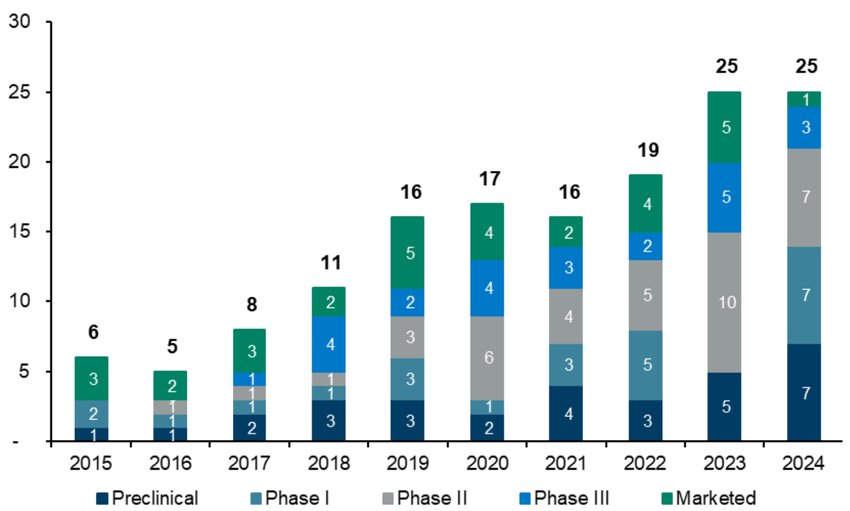
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Large Pharma Deep Dive

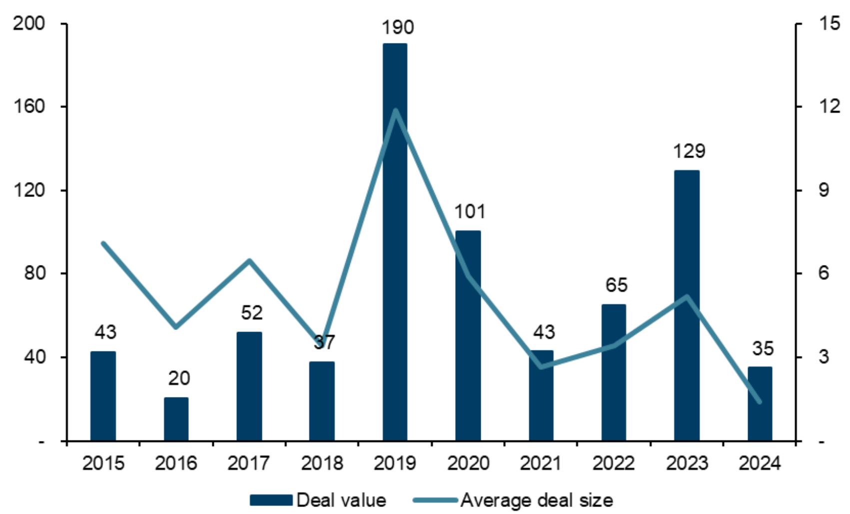
M&A History

- After a strong year for M&A in 2023, total deal value across the 15 large pharma companies included in this report declined to $34.9 billion in 2024, the lowest deal value observed for this subset of companies since 2016. The slowdown was caused by a significant step-down in average deal value from $5.2 billion in 2023 to $1.4 billion in 2024, with last year representing the first year in more than two decades without a $5.0 billion or larger biopharma deal. According to our investment banking team, 2024 was also the first year without a $10.0 billion deal since 2012.
- Despite the need to address the upcoming revenue shortfall from the loss of exclusivity headwind discussed previously, the large pharma companies featured in this report surprisingly erred on the side of caution and primarily acquired early-stage private biotechs in 2024. As shown below, of the 25 acquisitions made by these large pharma companies in 2024, 14 were of companies that were either in preclinical or Phase I, while 10 were of companies in either Phase II or Phase III. Gilead's acquisition of CymaBay Therapeutics was the only acquisition that featured an acquiree with a marketed product.
- On the back of a more pro-business stance from the incoming Trump administration and a more amenable FTC, investors seem to anticipate a step-up in M&A activity in 2025. In our view, a significant uptick in M&A this year would be a welcome tailwind for sentiment around the large pharma space, particularly if these transactions help offset future declining revenue from key products due to loss of exclusivity over the next few years. In addition to potentially providing larger innovators with more flexibility to spend on R&D, it could also help end the biotech slump that weighed on demand for pharmaceutical outsourcing and services companies in 2024.

Number of Acquisitions by Stage of Development



Total Deal Value and Average Deal Size ($s in Billions)



Sources: Cortellis, BCIQ, Pitchbook, Mergermarket, William Blair internal deal analysis, and William Blair Equity Research

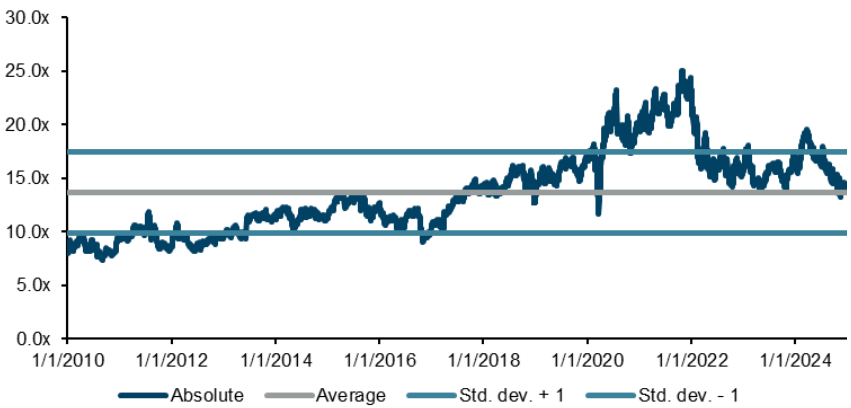
Large Pharma Deep Dive

CRO Valuations

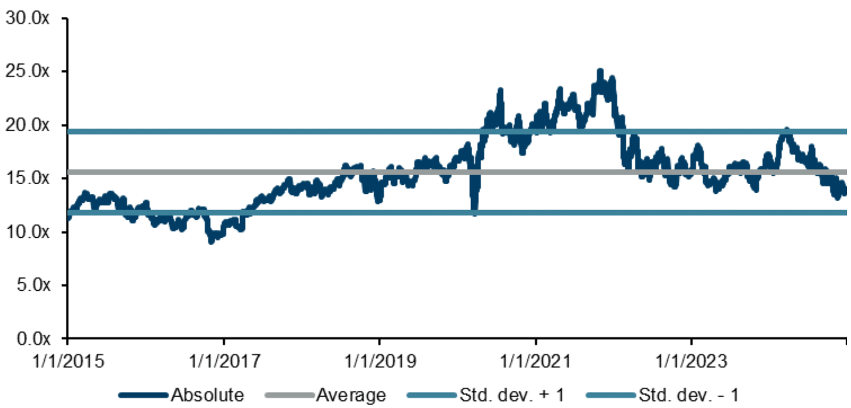
CRO Comp Table

Company	Ticker	Price	Market Cap ($Ms)	Ent. Value ($Ms)	EBITDA ($Ms) 2024E	EBITDA ($Ms) 2025E	EBITDA ($Ms) 2026E	EPS 2024E	EPS 2025E	EPS 2026E	EV/EBITDA 2024E	EV/EBITDA 2025E	EV/EBITDA 2026E	P/E 2024E	P/E 2025E	P/E 2026E
Charles River	CRL	$ 165.80	$ 8,613	$ 10,642	$ 987	$ 935	$ 1,002	$ 10.12	$ 9.40	$ 10.43	10.8x	11.4x	10.6x	16.4x	17.6x	15.9x
ICON	ICLR	202.47	16,896	19,633	1,733	1,683	1,813	14.01	13.94	15.95	11.3x	11.7x	10.8x	14.5x	14.5x	12.7x
IQVIA	IQV	197.66	36,442	48,133	3,684	3,868	4,178	11.10	11.88	13.08	13.1x	12.4x	11.5x	17.8x	16.6x	15.1x
Medpace	MEDP	336.82	10,856	10,199	460	467	526	11.83	12.35	14.29	22.2x	21.9x	19.4x	28.5x	27.3x	23.6x
Fortrea	FTRE	17.81	1,671	2,691	222	296	347	0.55	1.50	1.86	12.1x	9.1x	7.7x	32.5x	11.9x	9.6x
Mean											**13.9x**	**13.3x**	**12.0x**	**21.9x**	**17.6x**	**15.4x**
Median											**12.1x**	**11.7x**	**10.8x**	**17.8x**	**16.6x**	**15.1x**

CROs – Average NTM EV/EBITDA (15 Years)



CROs – Average NTM EV/EBITDA (10 Years)

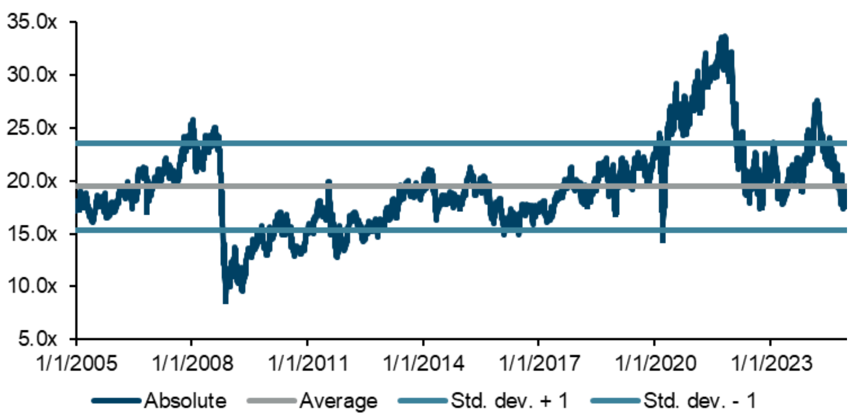


* Values as of January 16, 2025
Sources: Company filings, FactSet, and William Blair Equity Research

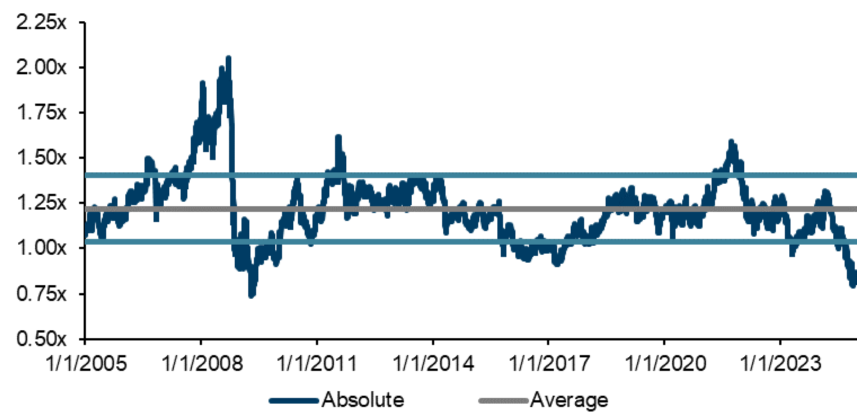
Large Pharma Deep Dive

CRO Valuations

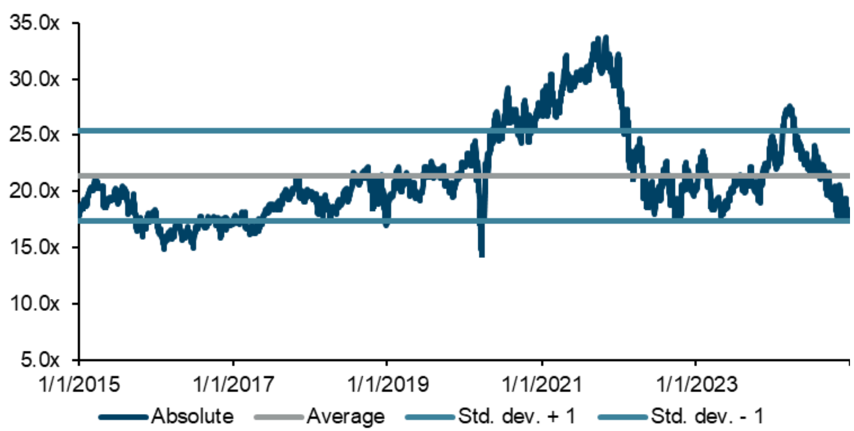
CROs – Average NTM P/E (20 Years)



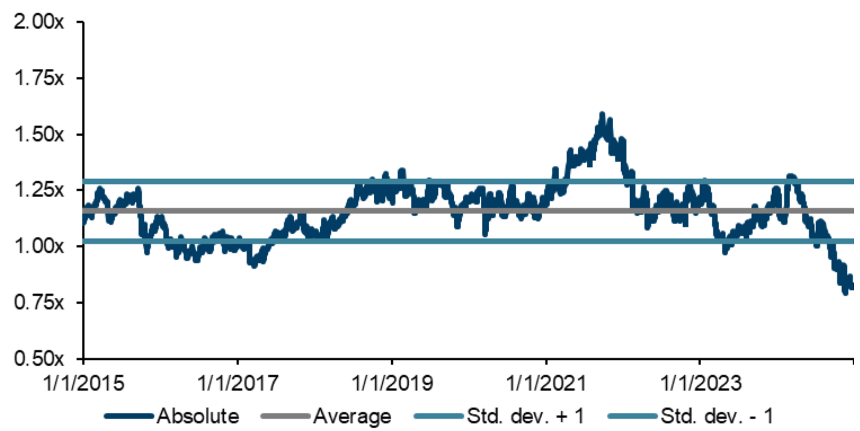
CROs – Average NTM P/E Versus S&P 500 (20 Years)



CROs – Average NTM P/E (10 Years)



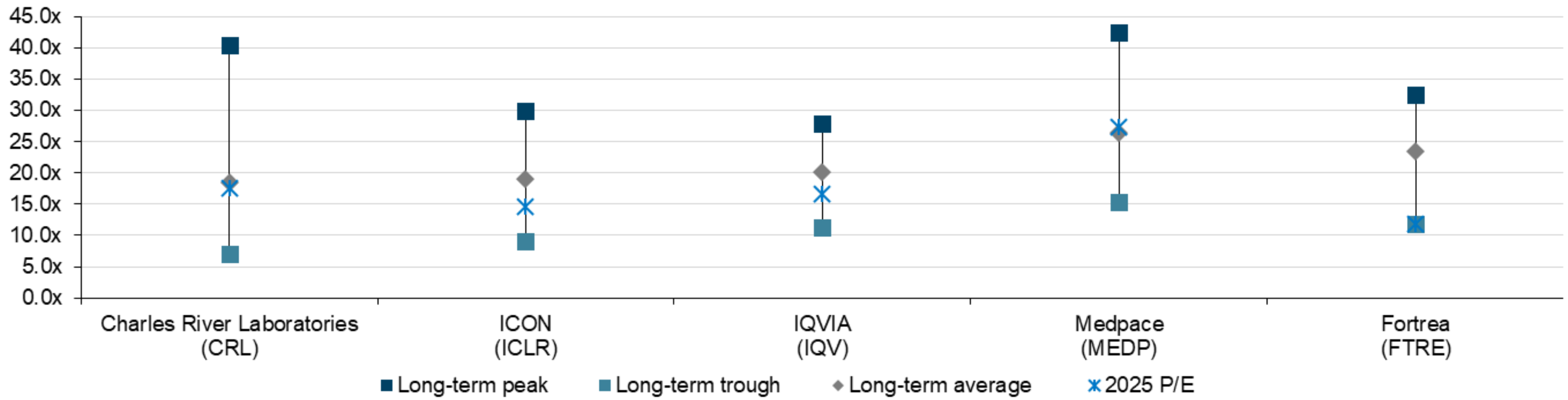
CROs – Average NTM P/E Versus S&P 500 (10 Years)



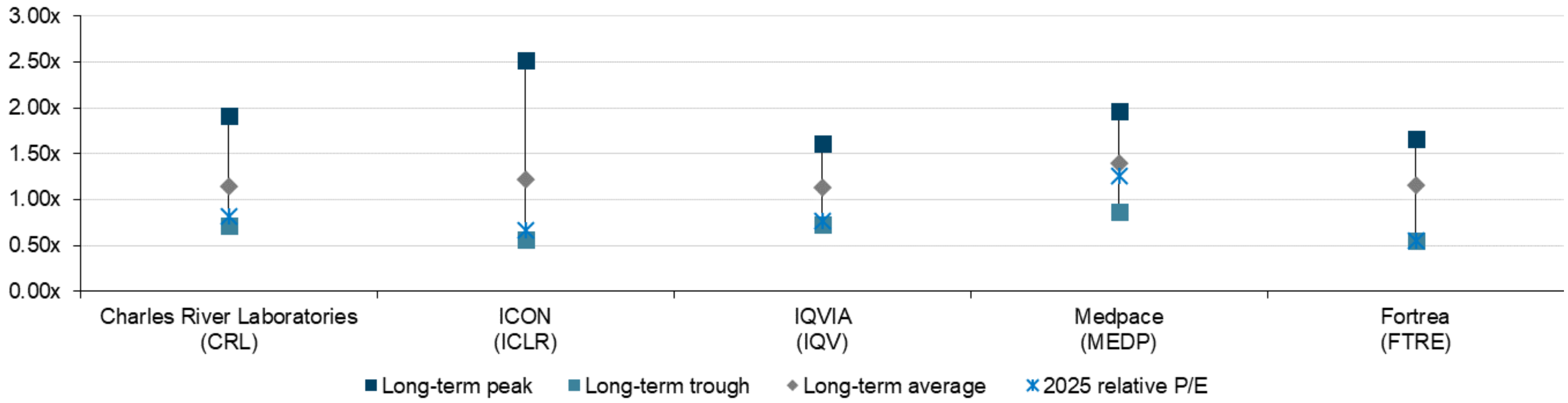
Note: CRO group includes CRL, ICLR, IQV, MEDP, and FTRE
Sources: Company filings, FactSet, and William Blair Equity Research

Large Pharma Deep Dive

CRO Valuations – Company Ranges (Long-Term Absolute NTM P/E)



CRO Valuations – Company Ranges (Long-Term NTM P/E Versus S&P 500)



Sources: Company filings, FactSet, and William Blair Equity Research

Large Pharma Deep Dive

CRO Growth Trends – Organic Constant-Currency Revenue Growth, First Quarter 2019 Through Third Quarter 2024

	IQV	ICLR	MEDP	CRL	FTRE	PRAH	SYNH	PPD	Simple Avg.
Q1'19	4.9%	10.6%	23.7%	10.8%		28.9%	6.4%	7.6%	**13.3%**
Q2'19	6.0%	9.4%	26.0%	8.5%		22.3%	9.0%	-6.9%	**10.6%**
Q3'19	6.0%	8.4%	21.0%	7.9%		16.1%	5.8%	23.3%	**12.7%**
Q4'19	6.8%	6.0%	19.5%	7.4%		17.8%	6.0%	20.7%	**12.0%**
2019	5.9%	8.5%	22.6%	8.5%		20.4%	6.8%	10.4%	**11.9%**
Q1'20	2.3%	5.0%	15.2%	8.2%		-4.6%	4.4%	11.0%	**5.9%**
Q2'20	-8.0%	-11.4%	-4.1%	1.4%		-30.0%	-12.7%	-1.9%	**-9.5%**
Q3'20	-0.8%	3.0%	5.8%	7.8%		-1.6%	-7.5%	27.1%	**4.8%**
Q4'20	11.7%	2.8%	12.2%	10.3%		0.4%	-6.9%	21.0%	**7.4%**
2020	1.5%	-1.7%	7.3%	7.0%		-8.1%	-5.8%	15.3%	**2.2%**
Q1'21	21.2%	17.8%	11.6%	13.0%		29.4%	0.2%	50.7%	**20.5%**
Q2'21	32.8%	37.5%	34.4%	24.1%			19.0%	54.4%	**33.7%**
Q3'21	20.2%	23.8%	28.1%	13.6%			15.4%		**20.2%**
Q4'21	10.2%	15.4%	19.2%	10.6%			14.0%		**13.9%**
2021	20.3%	23.0%	22.9%	15.1%			11.8%		**18.6%**
Q1'22	5.4%	7.7%	28.1%	9.4%			10.9%		**12.3%**
Q2'22	5.4%	4.4%	27.7%	9.5%			7.6%		**10.9%**
Q3'22	8.7%	7.4%	31.9%	15.2%			1.7%		**13.0%**
Q4'22	5.6%	7.6%	28.9%	24.6%			1.7%		**13.7%**
2022	6.3%	7.0%	29.2%	14.8%			5.3%		**12.5%**
Q1'23	3.7%	5.3%	31.8%	15.0%			2.4%		**11.6%**
Q2'23	4.1%	4.3%	31.0%	11.1%					**12.6%**
Q3'23	2.7%	4.8%	27.6%	4.1%					**9.8%**
Q4'23	1.2%	3.6%	26.0%	-8.1%					**5.7%**
2023	2.9%	4.5%	28.9%	4.9%					**10.3%**
Q1'24	1.8%	4.9%	17.6%	-3.3%	-4.6%				**3.3%**
Q2'24	1.9%	4.8%	14.7%	-3.3%	-8.6%				**1.9%**
Q3'24	2.4%	-1.5%	8.1%	-2.7%	-5.4%				**0.2%**

Sources: Company filings, FactSet, and William Blair Equity Research

Large Pharma Deep Dive

CRO Growth Trends – Book-to-Bill, First Quarter 2019 Through Third Quarter 2024

	IQV	ICLR	MEDP	CRL	FTRE	PRAH	SYNH	PPD	Simple Avg.
Q1'19	1.04x	1.31x	1.24x			1.26x	1.14x	1.29x	**1.21x**
Q2'19	1.59x	1.30x	1.30x			1.24x	1.26x	1.17x	**1.31x**
Q3'19	1.24x	1.31x	1.32x			1.22x	0.94x	1.14x	**1.20x**
Q4'19	1.46x	1.28x	1.22x			1.21x	1.46x	1.24x	**1.31x**
2019	1.33x	1.30x	1.27x			1.23x	1.21x	1.21x	**1.26x**
Q1'20	1.42x	1.21x	1.07x			1.10x	1.40x	1.29x	**1.25x**
Q2'20	1.64x	1.47x	1.24x			1.35x	1.58x	1.34x	**1.44x**
Q3'20	1.71x	1.41x	1.37x			1.28x	1.20x	1.34x	**1.38x**
Q4'20	1.41x	1.42x	1.38x			1.42x	1.52x	1.33x	**1.41x**
2020	1.53x	1.38x	1.27x			1.29x	1.42x	1.33x	**1.37x**
Q1’21	1.41x	1.28x	1.37x			1.24x	1.30x	1.49x	**1.35x**
Q2’21	1.34x	1.27x	1.39x				1.45x	1.55x	**1.41x**
Q3’21	1.39x	1.27x	1.38x	1.56x			1.30x		**1.38x**
Q4’21	1.24x	1.26x	1.49x	1.75x			0.34x		**1.22x**
2021	1.34x	1.27x	1.41x				1.09x		**1.28x**
Q1’22	1.31x	1.28x	1.28x	1.73x			1.22x		**1.36x**
Q2’22	1.34x	1.20x	1.28x	1.34x			0.92x		**1.22x**
Q3’22	1.27x	1.21x	1.23x	1.32x			0.18x		**1.04x**
Q4’22	1.51x	1.20x	1.23x	0.93x			0.46x		**1.07x**
2022	1.36x	1.22x	1.25x	1.31x			0.70x		**1.17x**
Q1’23	1.28x	1.22x	1.28x	0.77x			0.70x		**1.05x**
Q2’23	1.28x	1.20x	1.25x	0.64x					**1.09x**
Q3’23	1.24x	1.26x	1.24x	0.76x	1.24x				**1.15x**
Q4’23	1.31x	1.22x	1.23x	0.76x	1.30x				**1.17x**
2023	1.28x	1.22x	1.25x	0.73x					**1.12x**
Q1’24	1.23x	1.27x	1.20x	0.83x	1.11x				**1.13x**
Q2’24	1.27x	1.22x	1.04x	0.70x	0.96x				**1.04x**
Q3’24	1.06x	1.15x	1.00x	0.93x	1.23x				**1.07x**

Sources: Company filings, FactSet, and William Blair Equity Research

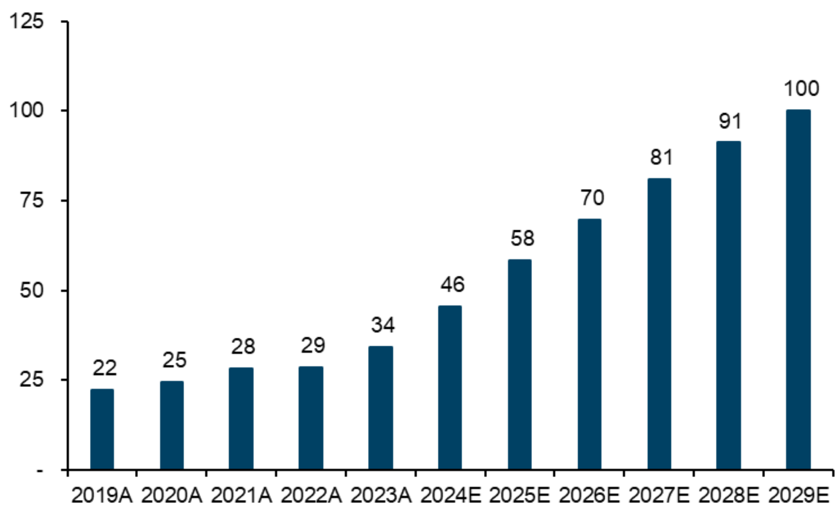
Large Pharma Company Profiles

Eli Lilly
Market Cap: $720 Billion

Overview

Bottom line: Eli Lilly is currently locked into a GLP-1 arms race with Novo Nordisk, but the obesity market looks more than healthy enough to support two major winners. Unsurprisingly, there are a couple of notable competitors other than Novo Nordisk attempting to chip away at Eli Lilly's GLP-1 empire by offering oral alternatives or longer-lasting treatments that require less frequent injections; however, given Eli Lilly's significant head start, especially with respect to building out its manufacturing capabilities, and the strength of its GLP-1 pipeline, it is hard to see the company as being anything other than the long-term winner, especially in light of recent underwhelming data from Novo Nordisk's next-generation GLP-1 candidate, Cagrisema. On the back of its robust top-line outlook, Eli Lilly is spending aggressively to protect its leading position in the GLP-1 space, as well as to diversify its sales mix by bolstering R&D for discovery and early-stage development, with a specific focus on oncology, neurology, and immunology.

Revenue Forecast ($s in Billions)



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Key Products ($s in Millions)

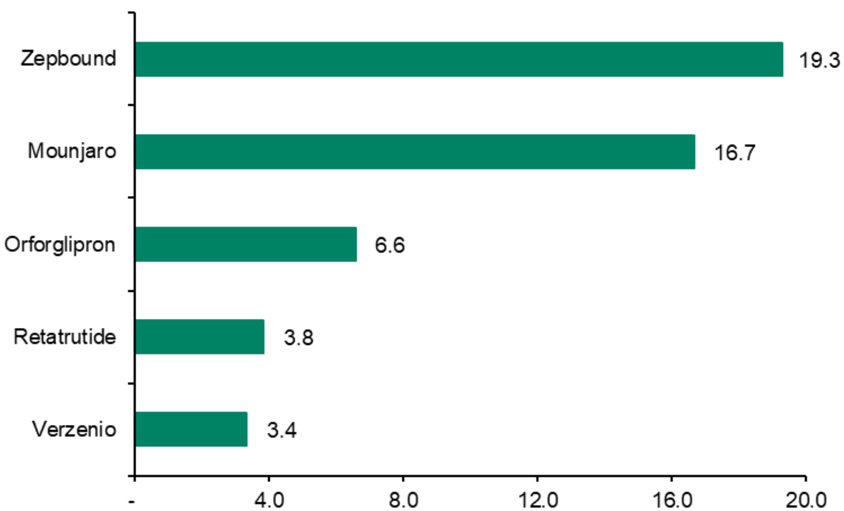
Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Mounjaro	2022	2036	Biologic (peptide)	Diabetes	12,252	26.8%	18.7%
Zepbound	2023	2036	Biologic (peptide)	Obesity	5,527	12.1%	35.0%
Trulicity	2014	2027	Biologic (peptide)	Diabetes	5,253	11.5%	-21.6%
Verzenio	2017	2031	Small molecule	Breast cancer	5,230	11.5%	10.4%
Taltz	2016	2030	Biologic (mAb)	Psoriatic arthritis	3,206	7.0%	3.2%
Jardiance	2014	2028	Small molecule	Diabetes	3,016	6.6%	-8.6%
Humalog	1996	2013	Biologic (protein)	Diabetes	2,152	4.7%	-7.9%
Cyramza	2014	2026	Biologic (mAb)	Stomach, lung, and colorectal cancers	966	2.1%	-17.6%
Olumiant	2017	2032	Small molecule	Rheumatoid arthritis	947	2.1%	3.5%
Emgality	2018	2033	Biologic (mAb)	Migraines	833	1.8%	4.1%
Humulin	1983	2001	Biologic (protein)	Diabetes	823	1.8%	-6.3%

Eli Lilly

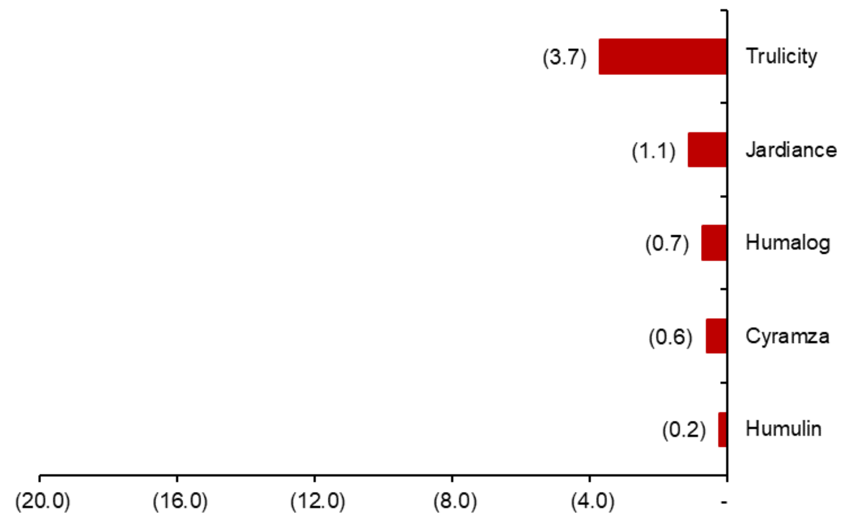
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to increase 27.9% in 2025 and at a 17.0% compound annual rate from $45.7 billion in 2024 to $100.1 billion in 2029. Eli Lilly does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials.
- **Growth drivers:** Unsurprisingly, the vast majority of Eli Lilly's growth is expected to come from its GLP-1 franchise, most notably Zepbound (weekly injection for obesity) and Mounjaro (weekly injection for diabetes), which are projected to collectively generate revenue of $17.8 billion in 2024 (38.9% of total sales) and $53.7 billion in 2029 (53.7% of total sales). To protect its leading position in the booming GLP-1 space, the company is developing orforglipron, a once-daily oral small molecule drug for diabetes and obesity, and retatrutide, a next-generation weekly injectable peptide that acts on three hormones (as opposed to two for Zepbound and Mounjaro and one for Novo Nordisk's Ozempic and Wegovy) and therefore could lead to more weight loss than existing GLP-1 products. Orforglipron and retatrutide are currently being evaluated in Phase III trials, and both products are expected to launch in 2026. Beyond its GLP-1 franchise, sales of Verzenio (small molecule for breast cancer) are expected to increase from $5.2 billion in 2024 to $8.6 billion in 2029, despite competition from rival CDK4/6 inhibitors from Pfizer (Ibrance) and Novartis (Kisqali). Kisunla, Eli Lilly's mAb for Alzheimer's disease, was approved in July 2024 and is expected to generate sales of $2.6 million in 2029.
- **Growth brakes:** There is not much to pick at—four of the five products included in the exhibit below (Trulicity, Jardiance, Humalog, and Humulin) are legacy diabetes drugs that are being phased out by Eli Lilly's GLP-1 franchise. The lone exception in Cyramza, Eli Lilly's mAb for stomach, lung, and colorectal cancers, with sales of the drug expected to decline from $1.0 billion in 2024 to $0.4 billion in 2029 due to stiff competition and loss of exclusivity in 2026.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



* $s in billions

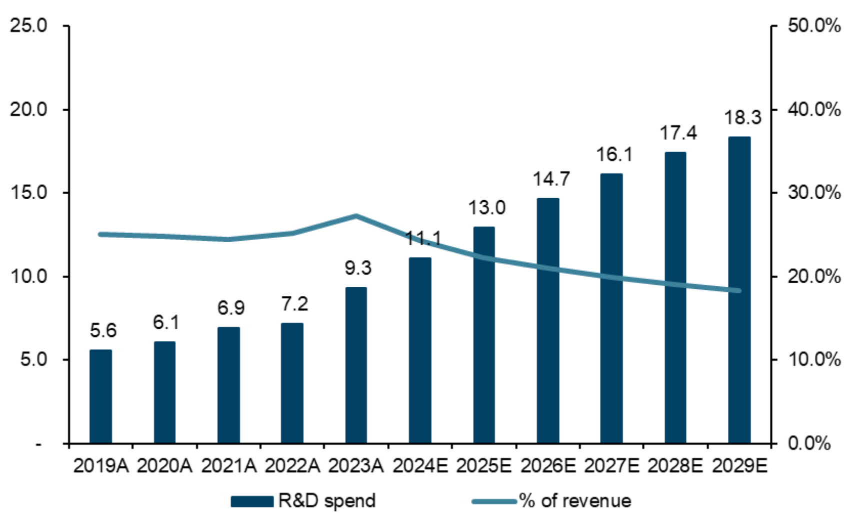
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Eli Lilly

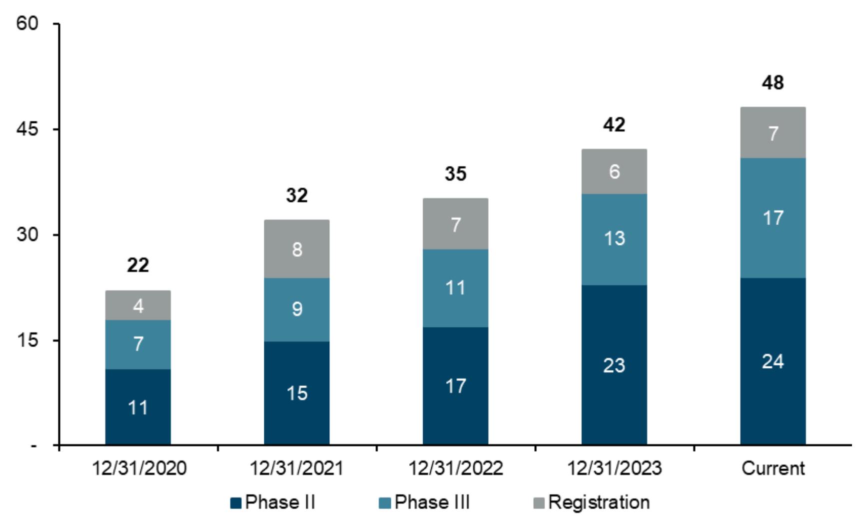
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is expected to increase 16.8% in 2025 and at a robust 10.6% compound annual rate over the next five years, growing from $11.1 billion in 2024 (24.3% of revenue) to $18.3 billion in 2029 (18.3% of revenue). Eli Lilly currently has approximately 50 new products in development or under regulatory review (no change since the end of 2023, but up from 45 new products at the end of 2022), with 48 ongoing late-phase programs as of October 30, 2024 (up from 42 late-phase programs at the end of 2023).
- **Announced cost cuts:** None. Rather, Eli Lilly is spending aggressively to protect its leading position in the GLP-1 space by developing next-generation GLP-1 products, expanding Zepbound into new indications (e.g., sleep apnea and MASH), and diversifying its sales mix by bolstering R&D for discovery and early-stage development, with a specific focus on oncology, neurology, and immunology. The company completed its acquisition of radiopharma company POINT Biopharma in December 2023, and it looks poised to continue pursuing inorganic opportunities in splashy emerging modalities.
- **IRA and election impact:** Eli Lilly's Jardiance (small molecule for diabetes) was one of the first 10 negotiated drugs under the IRA, which cut the Medicare price for a 30-day supply of the drug from its estimated net price of $252 to $197 (22% discount). President Biden recently proposed Medicare and Medicaid coverage of weight loss drugs, which would add 7.4 million patients to Eli Lilly's addressable market, but it remains unclear whether the incoming Trump administration will allow the rule to go into effect. Eli Lilly does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials, meaning the company is not at risk if future government policies negatively impact vaccine uptake.

R&D Spend ($s in Billions)



Clinical Programs by Stage of Development



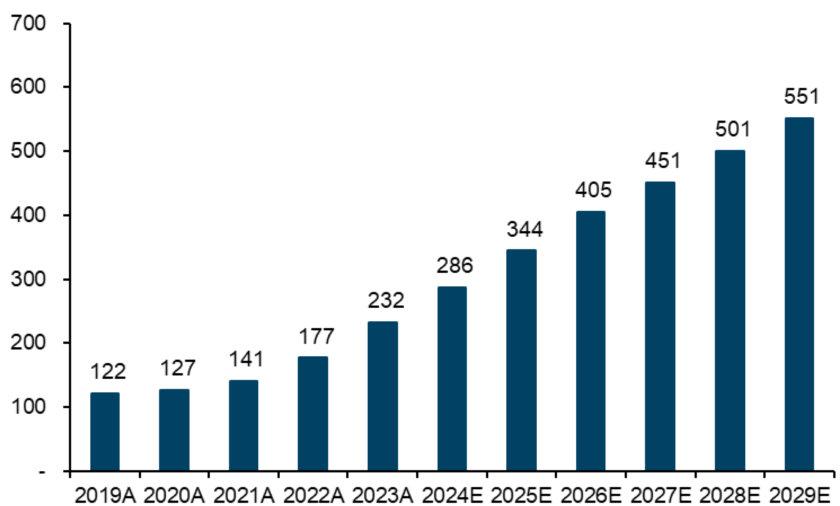
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Novo Nordisk
Market Cap: $369 Billion

Overview

Bottom line: Novo Nordisk is currently locked into a GLP-1 arms race with Eli Lilly, but the obesity market looks more than healthy enough to support two major winners. Unsurprisingly, there are a couple notable competitors other than Eli Lilly that are attempting to chip away at Novo Nordisk's GLP-1 empire by offering oral alternatives or longer lasting treatments that require less frequent injections; however, given Novo Nordisk's significant head start, especially with respect to building out its manufacturing capabilities, and the strength of its GLP-1 pipeline, it is hard to see the company as being anything other than a long-term winner, despite recent underwhelming data from its next-generation GLP-1 candidate, Cagrisema. On the back of its robust top-line outlook, Novo Nordisk is spending aggressively to protect its leading position in the GLP-1 space, strengthen and progress its rare diseases pipeline, and establish a presence in cardiovascular and emerging therapy areas (e.g., MASH).

Revenue Forecast (DKKs in Billions)



Key Products (DKKs in Millions)

Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Ozempic	2018	2032	Biologic (peptide)	Diabetes	120,381	42.0%	6.8%
Wegovy	2021	2032	Biologic (peptide)	Obesity	58,958	20.6%	21.5%
Rybelsus	2019	2032	Biologic (peptide)	Diabetes	23,130	8.1%	11.1%
NovoRapid	1999	2014	Biologic (protein)	Diabetes	14,533	5.1%	-4.8%
Tresiba	2013	2029	Biologic (protein)	Diabetes	9,230	3.2%	-1.4%
NovoSeven	1996	2010	Biologic (protein)	Hemophilia A and B	7,715	2.7%	-3.2%
Human insulin	1984	Expired	Biologic (protein)	Diabetes	6,868	2.4%	-4.5%
Saxenda	2015	2023	Biologic (protein)	Obesity	6,792	2.4%	-19.9%
Victoza	2009	2024	Biologic (protein)	Diabetes	5,588	2.0%	-17.5%
NovoMix	2000	2014	Biologic (protein)	Diabetes	5,575	1.9%	-4.7%

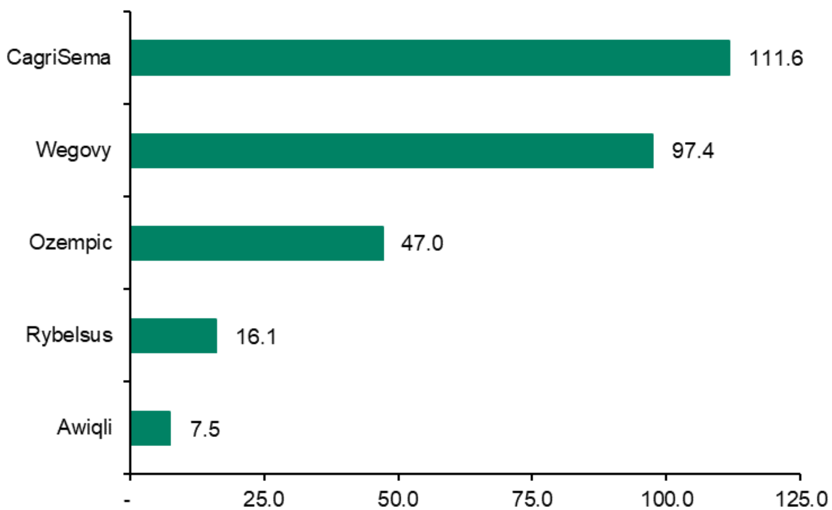
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Novo Nordisk

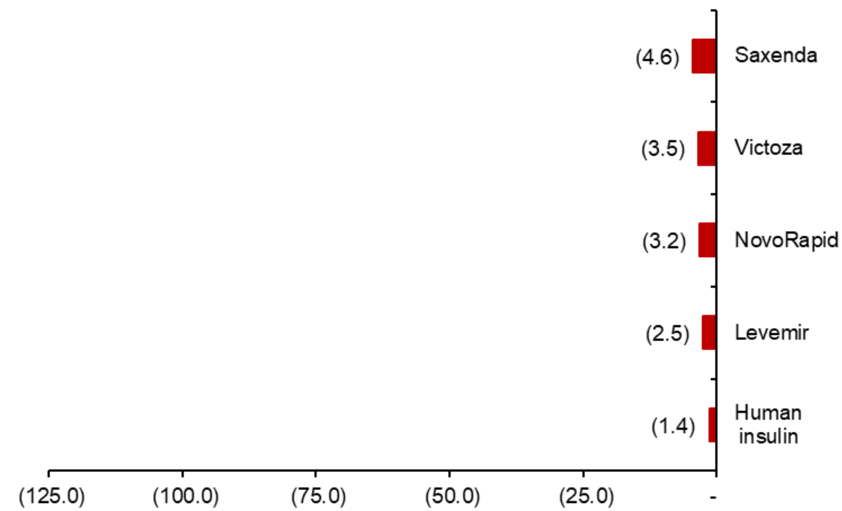
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to increase 20.3% in 2025 and at a 14.0% compound annual rate from DKK 286.4 billion in 2024 to DKK 551.1 billion in 2029. Novo Nordisk does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials.
- **Growth drivers:** Unsurprisingly, the vast majority of Novo Nordisk's growth is expected to come from its GLP-1 franchise, most notably Wegovy (weekly injectable for obesity) and Ozempic (weekly injection for diabetes), which are expected to collectively generate revenue of DKK 179.3 billion in 2024 (62.6% of total sales) and DKK 323.8 billion in 2029 (58.8% of total sales). In addition to these injectables, Novo Nordisk's Rybelsus is the only oral GLP-1 on the market (currently approved for diabetes, expansion into obesity expected in 2025), with sales forecast to grow from DKK 23.1 billion in 2024 to DKK 39.2 billion in 2029. To protect its leading position in the booming GLP-1 space, the company is developing Cagrisema, a weekly injectable for obesity that combines semaglutide (active ingredient in existing GLP-1 products) with cagrilintide (helps regulate blood sugar levels and promotes satiety) and therefore could lead to more weight loss than existing GLP-1 products. Cagrisema is currently being evaluated in Phase III trials, with approval expected in 2025. Beyond its GLP-1 franchise, sales of Novo Nordisk's Awiqli (protein-based long-acting insulin receptor for diabetes) are expected to increase from DKK 0.2 billion in 2024 to DKK 7.7 billion in 2029.
- **Growth brakes:** Like Eli Lilly, there is not much to pick at. All five of the products included in the growth brakes exhibit below are legacy diabetes or obesity drugs that are being phased out by Novo Nordisk's GLP-1 franchise. Collectively, sales of these five drugs are expected to decline from DKK 38.1 billion in 2024 (13.3% of total revenue) to DKK 23.0 billion in 2029 (4.2% of total revenue).

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



* DKKs in billions

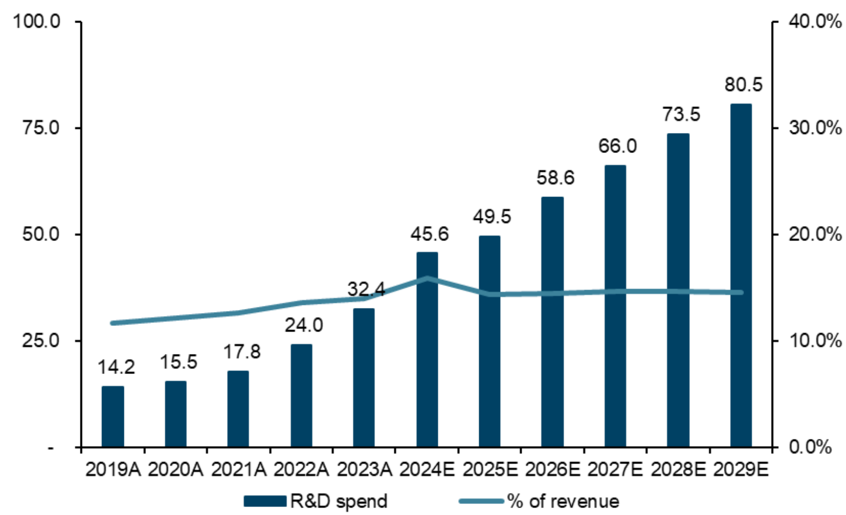
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Novo Nordisk

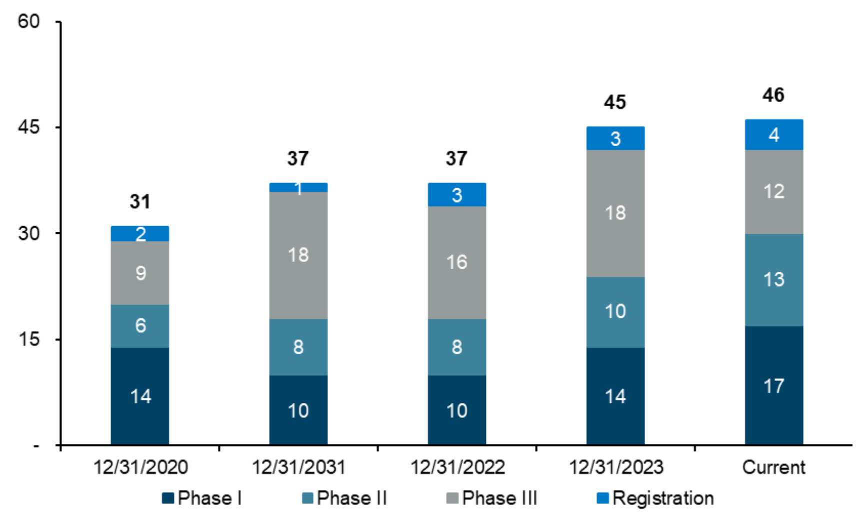
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is expected to increase 8.7% in 2025 and at a robust 12.0% compound annual rate over the next five years, growing from DKK 45.6 billion in 2024 (15.9% of revenue) to DKK 80.5 billion in 2029 (14.6% of revenue). In terms of its pipeline, Novo Nordisk currently has 46 ongoing clinical programs (up from 45 programs at the end of 2023), half of which are geared toward diabetes or obesity. Over the last couple years, Novo Nordisk has focused on expanding its early-stage pipeline, and as a result, Phase I trials currently represent 37% of total trials versus 27% at the end of 2022.
- **Announced cost cuts:** None. Rather, Novo Nordisk is spending aggressively to protect its leading position in the GLP-1 space, strengthen and progress its rare diseases pipeline, and establish a presence in cardiovascular and emerging therapy areas (e.g., MASH).
- **IRA and election impact:** Novo Nordisk's Fiasp (rapid-acting insulin) was one of the first 10 negotiated drugs under the IRA, which slashed the Medicare price for a 30-day supply of the product from its current estimated net price of $168 to $119 (29% discount). The IRA also capped out-of-pocket costs for insulin at $35 per monthly prescription among Medicare Part D enrollees, although this is not expected to significantly impact Novo Nordisk since the insulin market was already experiencing heavy pricing pressure. President Biden recently proposed Medicare and Medicaid coverage of weight loss drugs, which would add 7.4 million patients to Novo Nordisk's addressable market, although it remains unclear whether the incoming Trump administration will allow the rule to go into effect. Novo Nordisk does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials, meaning the company is not at risk if future government policies negatively impact vaccine uptake.

R&D Spend (DKKs in Billions)



Clinical Programs by Stage of Development



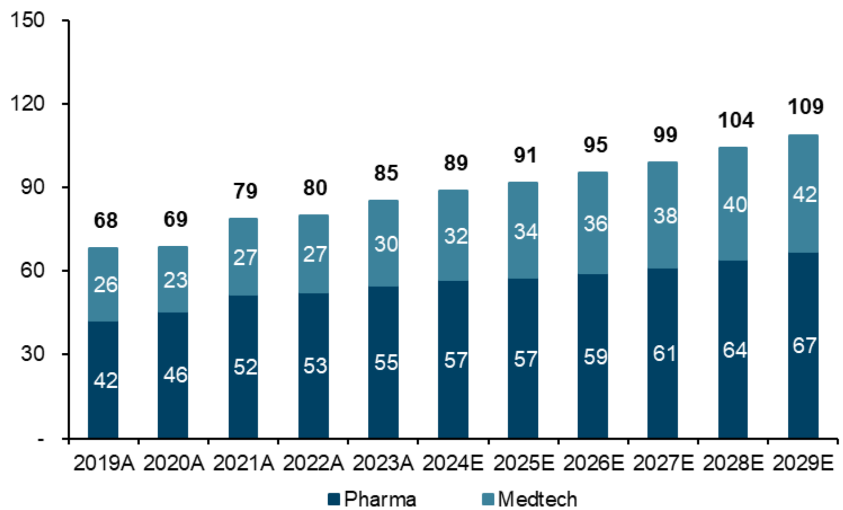
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Johnson & Johnson
Market Cap: $359 Billion

Overview

Bottom line: Johnson & Johnson faces major headwinds from loss of exclusivity and the IRA, with sales of its top 10 pharma products, which account for nearly 80% of revenue, projected to decline at a 2.0% compound annual rate from 2024 to 2029. Despite these headwinds, pharma revenue is projected to increase at a 3.3% compound annual rate over the next five years on the back of strong growth from its impressive multiple myeloma franchise, as well as robust growth from Tremfya, its Stelara successor. Unfortunately, this relatively healthy top-line outlook does not look set to translate to R&D, with total spend expected to decrease by 4.0% in 2025 and increase at a very modest 1.8% compound annual rate from 2024 to 2029. Given this soft near-term outlook, we believe Johnson & Johnson is one of the main headwinds to CRO growth in 2025. One silver lining—the company recently scrapped its vaccine unit altogether, and it does not expect to generate any revenue from vaccines in 2025 or beyond.

Revenue Forecast ($s in Billions)



Key Products ($s in Millions)

Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of pharma	
Darzalex	2015	2029	Biologic (mAb)	Multiple myeloma	11,611	20.4%	8.4%
Stelara	2008	2023	Biologic (mAb)	Psoriasis, Crohn's, Ulcer. colitis	10,368	18.2%	-25.0%
Invega Sustenna	2007	2019	Small molecule	Schizophrenia	4,197	7.4%	1.5%
Tremfya	2017	2031	Biologic (mAb)	Psoriasis, Crohn's, Ulcer. colitis	3,768	6.6%	11.9%
Imbruvica	2013	2027	Small molecule	Lymphoma, leukemia	3,014	5.3%	-11.5%
Erleada	2018	2030	Small molecule	Prostate cancer	3,010	5.3%	8.4%
Opsumit	2013	2025	Small molecule	Pulmonary hypertension	2,220	3.9%	-22.7%
Xarelto	2011	2025	Small molecule	Blood clots	2,140	3.8%	-22.7%
Simponi/ Simponi Aria	2009	2024	Biologic (mAb)	Arthritis, Ulcer. colitis	2,115	3.7%	-14.5%
Uptravi	2016	2026	Small molecule	Pulmonary hypertension	1,814	3.2%	-16.4%
Prezista	2006	2019	Small molecule	HIV	1,698	3.0%	-10.8%
Remicade	1998	2018	Biologic (mAb)	Chron's disease	1,610	2.8%	-12.8%

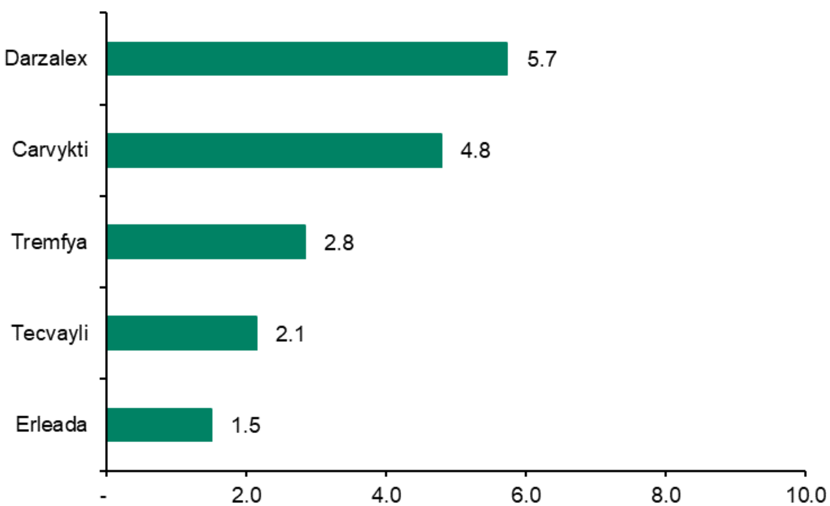
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Johnson & Johnson

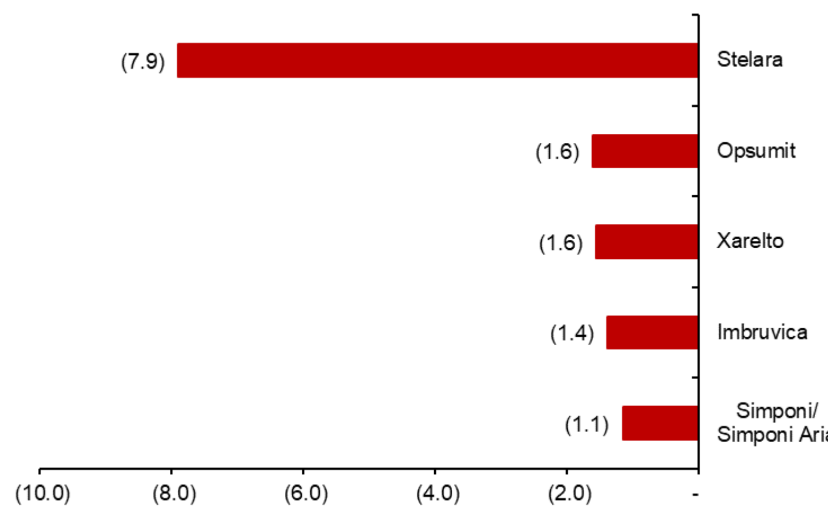
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to increase 3.1% in 2025 and at a 4.2% compound annual rate from $88.7 billion in 2024 to $108.8 billion in 2029. Pharma revenue is expected to grow 1.1% in 2025 and at a 3.3% compound annual rate from $56.8 billion in 2024 (64.0% of revenue) to $66.9 billion in 2029 (61.5% of revenue). Johnson & Johnson is not expecting any vaccine revenue in 2025 or beyond.
- **Growth drivers:** The majority of Johnson & Johnson's growth is expected to come from its multiple myeloma franchise, most notably the subcutaneous formulation of Darzalex (mAb), which was approved for first-line use in July 2024. Collectively, sales of Darzalex, Carvykti (CAR-T cell therapy for multiple myeloma), Tecvayli (bispecific antibody for multiple myeloma), and Talvey (bispecific antibody for multiple myeloma) are expected to grow at a 15.3% compound annual rate from $13.3 billion in 2024 (23.4% of pharma revenue) to $27.1 billion in 2029 (40.5% of pharma revenue). Beyond its multiple myeloma franchise, sales of the company's Stelara successor, Tremfya (mAb for psoriasis, Crohn's disease, and ulcerative colitis), are expected to increase from $3.8 billion in 2024 to $6.6 billion in 2029, while sales of Erleada (small molecule for prostate cancer) are expected to grow from $3.0 billion to $4.5 billion over the same five-year period.
- **Growth brakes:** Stelara (mAb for psoriasis, Crohn's disease, and ulcerative colitis) is by far the biggest headwind to growth moving forward, with sales of the drug projected to decrease at a 25.0% compound annual rate from $10.4 billion in 2024 to $2.5 billion in 2029 due to loss of exclusivity and IRA-related pricing headwinds. Beyond Stelara, collective sales of Opsumit (small molecule for pulmonary hypertension), Xarelto (small molecule for blood clots), Imbruvica (small molecule for leukemias and lymphomas), and Simponi (mAb for arthritis and ulcerative colitis) are expected to decline from $9.5 billion in 2024 to $3.8 billion in 2029 due primarily to loss of exclusivity, although both Imbruvica and Xarelto are also subject to negotiated pricing under the IRA starting in 2026.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



* $s in billions

Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Johnson & Johnson

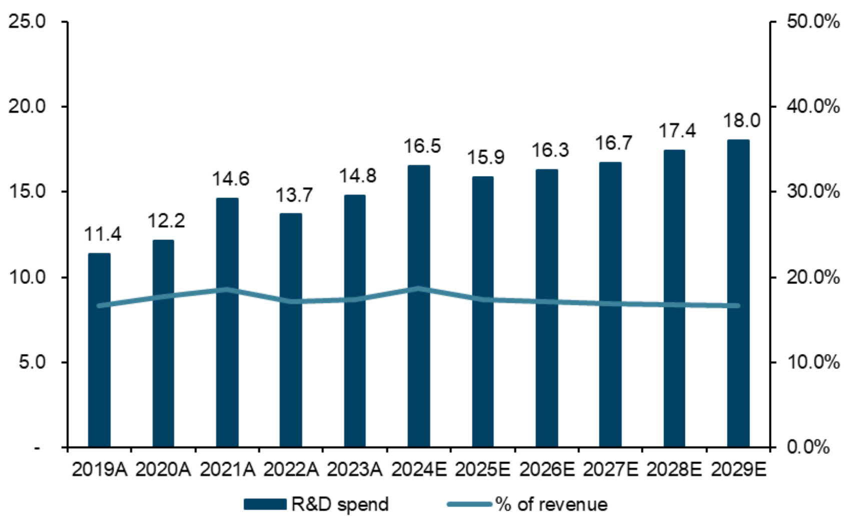
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is forecast to decline 4.0% in 2025. However, over the next five years, R&D spend is expected to increase at a 1.8% compound annual rate, growing from $16.5 billion in 2024 to $18.0 billion in 2029. In terms of its pipeline, Johnson & Johnson currently has 94 ongoing clinical programs, roughly half of which are in oncology. By stage, nearly 60% of its programs are in Phase III or registration, suggesting the company has ample near-term opportunities to launch new products that could help offset declining revenue from current key products over the next five years.

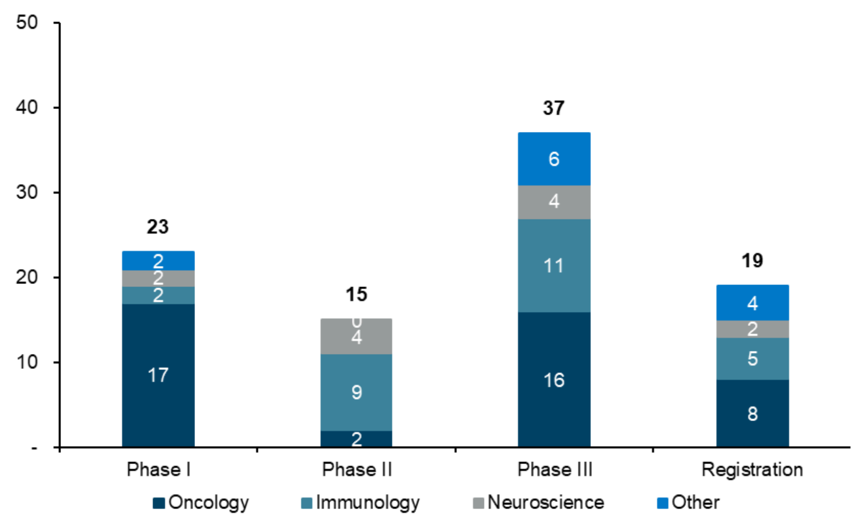
- **Announced cost cuts:** In August 2023, Johnson & Johnson made the decision to cut R&D for its infectious disease and vaccine units altogether to focus on oncology, immunology, neuroscience, cardiovascular disease, pulmonary hypertension, and retinal disorders. A year later, in October 2024, the company cut several programs, with three of the culls taking place in the neuroscience field. In addition, in February 2024, Johnson & Johnson terminated 55 employees and closed its nearly 200,000 square-foot R&D site in Brisbane, California, less than 18 months after opening the facility. When the facility was opened in September 2022, the company planned to hire up to 400 people, with a focus on emerging gene and RNA-based therapies, plus research on retinal and infectious diseases.

- **IRA and election impact:** Johnson & Johnson is facing the biggest headwind from the IRA among the companies included in this report, with three of its drugs (Stelara, Imbruvica, and Xarelto) subject to negotiated pricing under the bill starting in 2026. Collectively, sales of these three drugs are expected to decline at a 21.3% compound annual rate from $15.5 billion in 2024 (27.3% of pharma revenue) to $4.7 billion in 2029 (7.0% of pharma revenue). In regard to the election, the company is not expected to generate any revenue from vaccines in 2025 or beyond, meaning it is not at risk if future policies negatively impact uptake of approved vaccines or lead to a higher bar for future approvals.

R&D Spend ($s in Billions)



Clinical Programs by Stage of Development



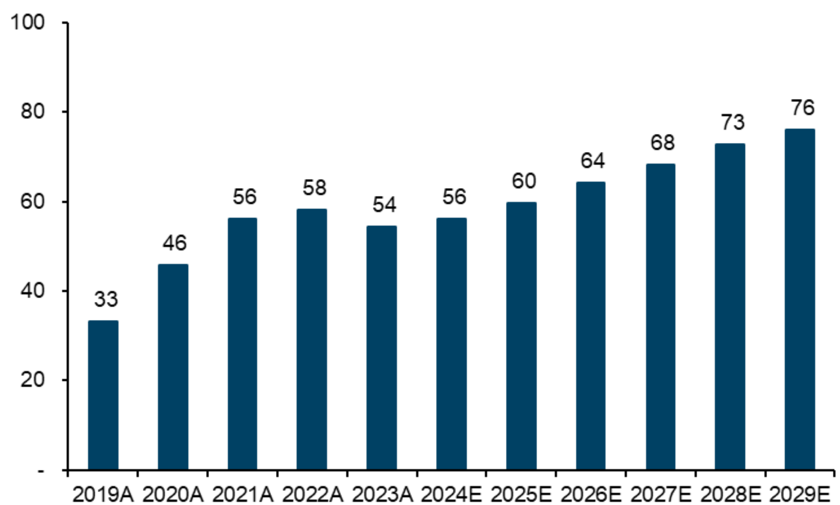
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

AbbVie
Market Cap: $310 Billion

Overview

Bottom line: Ahead of its golden goose, Humira, losing exclusivity in 2023, AbbVie developed two new drugs that target similar patient populations—Skyrizi and Rinvoq. Thanks to robust sales growth from these two key products, as well as a lack of major growth brakes beyond Humira (with perhaps the exception of Imbruvica), AbbVie's top-line outlook over the next five years is one of the best among the companies included in this report (6.3% revenue CAGR from 2024 through 2029). The outlook for R&D does not look as robust, but total spend is still projected to increase at a very healthy 4.5% compound annual rate over the next five years as the company attempts to elevate the standard of care for patients in its five key growth areas—oncology, neurology, immunology, aesthetics, and eye care. In addition, AbbVie does not have any vaccine revenue or vaccines in development, meaning it is in a good position if future government policies negatively impact vaccine approvals or uptake.

Revenue Forecast ($s in Billions)



Key Products ($s in Millions)

Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Skyrizi	2019	2031	Biologic (mAb)	Psoriasis	11,514	20.5%	14.7%
Humira	2003	2023	Biologic (mAb)	Rheumatoid arthrisis	9,254	16.5%	-20.3%
Rinvoq	2019	2033	Small molecule	Rheumatoid arthrisis	5,838	10.4%	16.6%
Vraylar	2016	2029	Small molecule	Bipolar disorder	3,301	5.9%	5.1%
Imbruvica	2013	2027	Small molecule	Leukemia and lymphoma	3,286	5.9%	-13.0%
Botox Therapeutic	1989	N/A	Biologic (protein)	Migraines	3,283	5.9%	5.0%
Botox Cosmetic	2002	N/A	Biologic (protein)	Cosmetic	2,811	5.0%	8.7%
Venclexta	2016	2031	Small molecule	Leukemia	2,592	4.6%	4.9%
Creon	2009	2030	Biologic (protein)	Exocrine pancreatic insufficiency	1,327	2.4%	2.1%
Mavyret	2017	2032	Small molecule	Hepatitis C	1,319	2.4%	-5.5%
Juvederm	2000	2021	Small molecule	Cosmetic	1,214	2.2%	7.8%

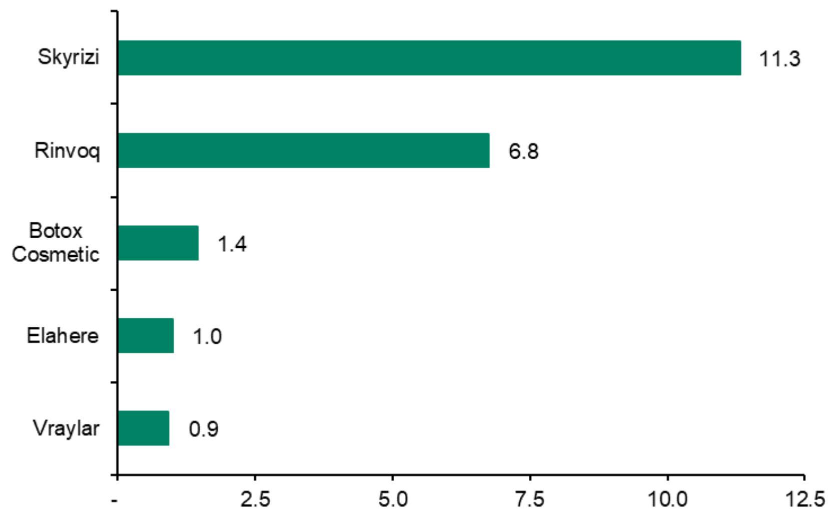
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

AbbVie

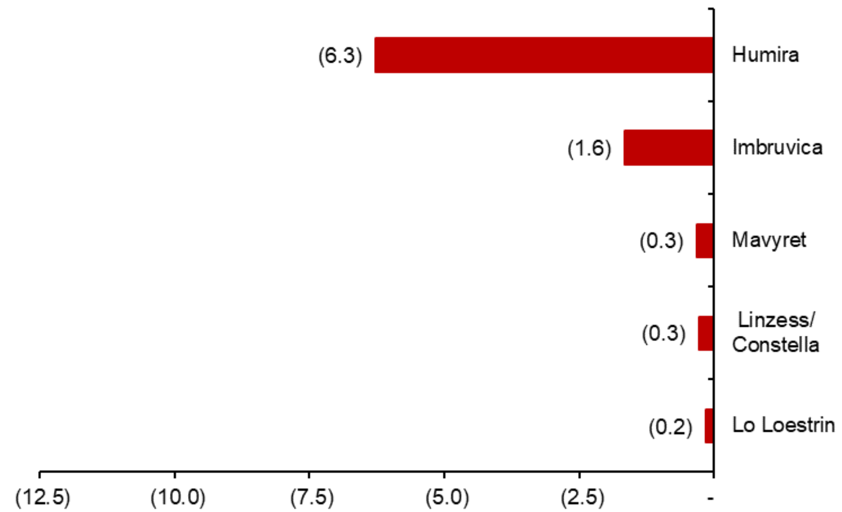
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to increase 6.3% in 2025 and at a 6.3% compound annual rate from $56.1 billion in 2024 to $76.1 billion in 2029. AbbVie does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials.
- **Growth drivers:** Ahead of its golden goose, Humira, losing exclusivity in 2023, AbbVie developed two new drugs that target similar patient populations—Skyrizi (mAb for autoimmune diseases) and Rinvoq (small molecule for autoimmune diseases and dermatologic conditions). Skyrizi is currently the go-to product for both psoriasis and psoriatic arthritis, and Rinvoq is the leading drug for rheumatoid arthritis. On the back of expected share gains in their respective legacy markets, as well as growing adoption of both drugs in Crohn's disease and ulcerative colitis, collective sales of Skyrizi and Rinvoq are forecast to increase at a robust 15.3% compound annual rate from $17.4 billion in 2024 (31.0% of revenue) to $35.4 billion in 2029 (59.5% of revenue). Other notable growth drivers include cosmetic botox (acquired by AbbVie through its acquisition of Allergan in 2020), Elahere (antibody-drug conjugate for ovarian cancer), and Vraylar (small molecule for bipolar disorder), with sales of these three drugs expected to grow at an 8.6% compound annual rate from $6.6 billion in 2024 to $10.0 billion in 2029.
- **Growth brakes:** Humira (mAb for autoimmune diseases) is by far AbbVie's biggest headwind to growth moving forward, with sales of the drug expected to decrease at a 20.3% compound annual rate from $9.3 billion in 2024 (16.5% of revenue) to $3.0 billion in 2029 (3.9% of revenue) due to loss of exclusivity. Imbruvica (small molecule for leukemia and lymphoma) is the company's only other notable growth brake—sales of the drug are forecast to decrease at a 13.0% compound annual rate from $3.3 billion in 2024 to $1.6 billion in 2029 due primarily to competition, although the drug is also subject to negotiated pricing under the IRA starting in 2026.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



* $s in billions

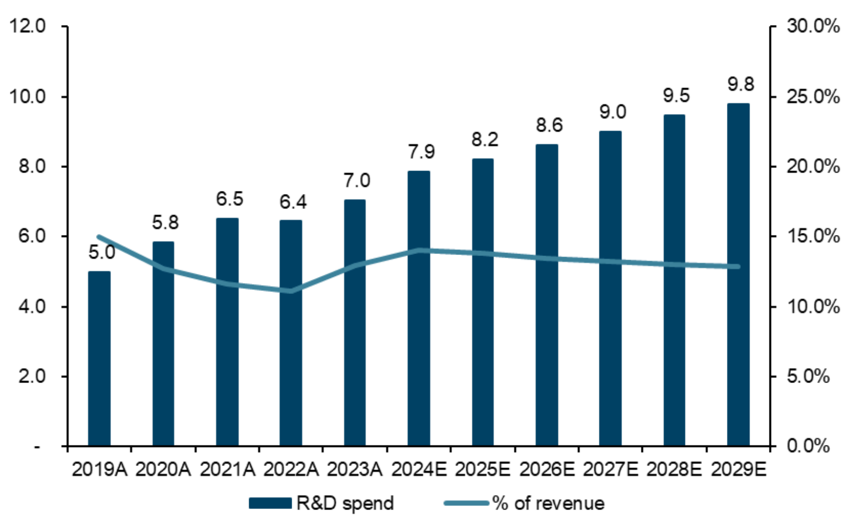
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

AbbVie

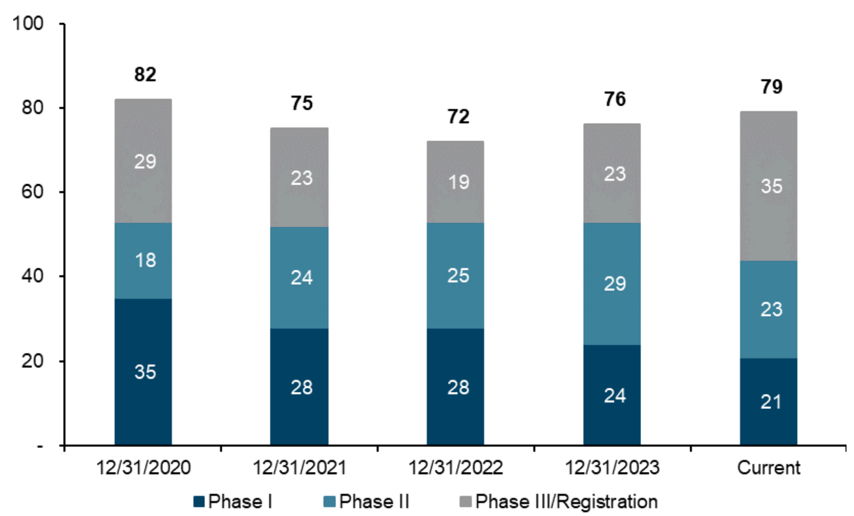
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is forecast to increase 4.6% in 2025 and at a 4.5% compound annual rate from $7.9 billion in 2024 (14.0% of revenue) to $9.8 billion in 2029 (12.9% of revenue). AbbVie currently has 79 programs in its development pipeline (up from 76 at the end of 2023), including 32 in oncology, 16 in neuroscience, 16 in immunology, 7 in aesthetics, 5 in eye care, and 3 in other disease areas. Over the past two years, there has been a significant shift in the company's pipeline towards later-stage programs, with 44% of projects in Phase III currently versus 26% at the end of 2022.
- **Announced cost cuts:** None. Rather, AbbVie remains committed to spending organically on R&D in order to elevate the standard of care for patients in its five key growth areas—oncology, immunology, neuroscience, aesthetics, and eye care. The company has also been relatively aggressive in pursuing inorganic opportunities, most notably with its $63 billion acquisition of Allergan in 2020. More recent notable acquisitions include AbbVie's $8.7 billion acquisition of Cerevel Therapeutics in 2023 to strengthen its neuroscience pipeline (although Cerevel's lead schizophrenia candidate has so far disappointed in clinical trials), as well as its $1.4 billion acquisition of Aliada Therapeutics in December 2024, which brought in a potential best-in-class therapy for Alzheimer's disease.
- **IRA and election impact:** AbbVie's Imbruvica (small molecule for leukemia and lymphoma) was one of the first 10 negotiated drugs under the IRA, which cut the Medicare price for a 30-day supply of the drug from its estimated net price of $11,571 to $9,319 (19.5% discount). In terms of the election, AbbVie does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials, meaning the company is not at risk if future government policies negatively impact vaccine approvals or uptake.

R&D Spend ($s in Billions)



Clinical Programs by Stage of Development



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

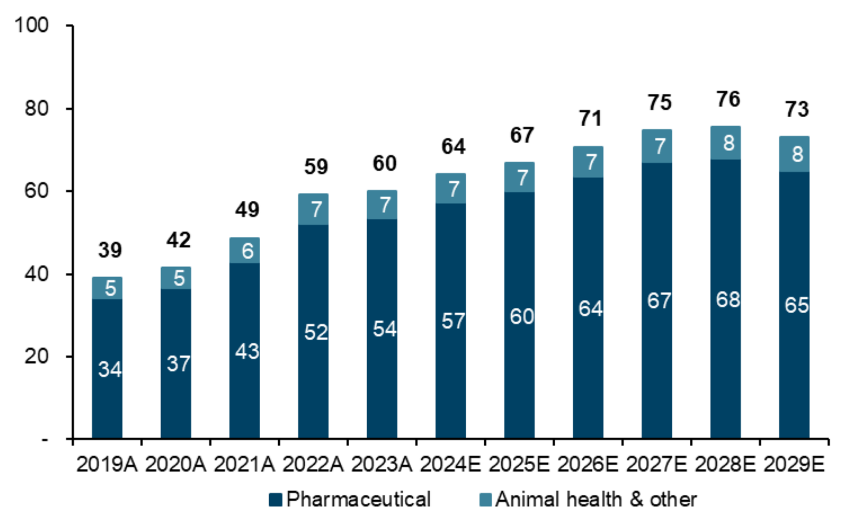
Merck

Market Cap: $257 Billion

Overview

Bottom line: While its flagship product, Keytruda, faces loss of exclusivity in 2028, Merck looks set to overcome this obstacle by introducing a subcutaneous version of the drug in 2025. Beyond Keytruda, there is not much to get excited about, but there are also not many reasons to worry, as Merck's top-five growth brakes account for less than 10% of current revenue. Despite its modest top-line outlook (2.7% revenue CAGR from 2024 through 2029), the company remains committed to investing in R&D as it seeks to diversify its portfolio in oncology and expand into new therapeutic areas, such as cardiometabolic and neurological diseases, but spend is projected to grow at a very modest 2.2% compound annual rate over the next five years. In terms of what could derail the story, a major concern appears to be Merck's vaccine exposure (21.0% of revenue in 2024), which puts it at risk if future government policies negatively impact adoption of approved vaccines or lead to a higher bar for future approvals.

Revenue Forecast ($s in Billions)



Key Products ($s in Millions)

Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of pharma	
Keytruda	2014	2028	Biologic (mAb)	Multiple types of cancer	29,160	50.9%	3.1%
Gardasil/ Gardasil 9	2015	2028	Vaccine	HPV	8,802	15.4%	3.0%
ProQuad/ M-M-R II/ Varivax	1978	1992	Vaccine	Measles, mumps, rubella, varicella, chickenpox	2,483	4.3%	3.1%
Bridion	2008	2026	Small molecule	Hospital acute care	1,740	3.0%	-25.0%
Januvia	2006	2026	Small molecule	Diabetes	1,444	2.5%	-24.2%
Lynparza	2014	2027	Small molecule	Multiple types of cancer	1,297	2.3%	-4.3%
Lenvima	2015	2025	Small molecule	Multiple types of cancer	1,028	1.8%	-18.0%
Vaxneuvance	2021	2031	Vaccine	Strep. pneumoniae	889	1.6%	3.7%
Lagevrio	2021	2038	Small molecule	COVID-19	882	1.5%	-19.8%
Janumet	2007	2026	Small molecule	Diabetes	861	1.5%	-23.2%
RotaTeq	2006	2019	Vaccine	Rotavirus	768	1.3%	0.4%

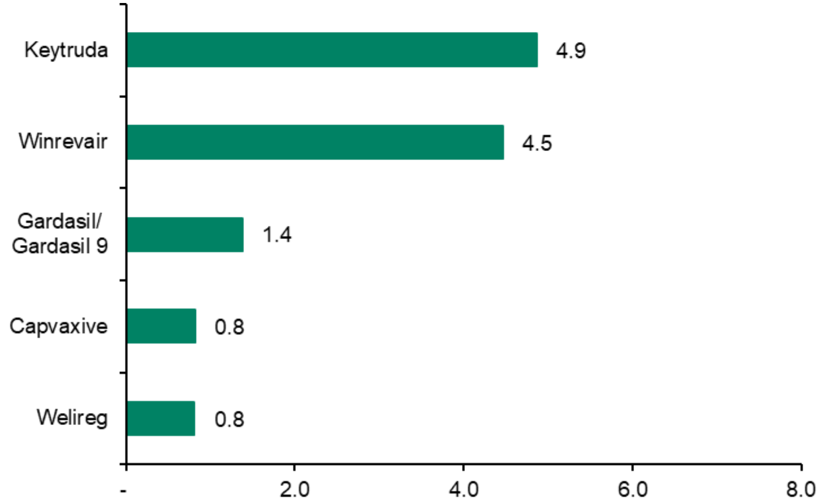
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Merck

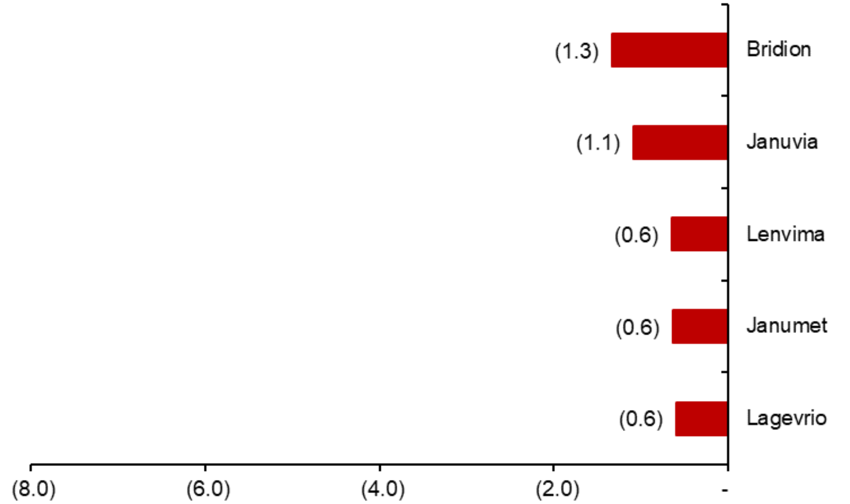
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to grow 4.5% in 2025 and at a 2.7% compound annual rate from $64.0 billion in 2024 to $73.1 billion in 2029. Pharma revenue is forecast to increase 4.6% in 2025 and at a 2.6% compound annual rate from $57.3 billion (89.4% of revenue) in 2024 to $65.1 billion in 2029 (89.0% of revenue). Vaccine revenue is expected to grow at a 4.2% compound annual rate from $13.4 billion in 2024 (23.5% of pharma revenue) to $16.5 billion in 2029 (25.3% of pharma revenue).
- **Growth drivers:** Merck's flagship product is Keytruda, a mAb approved for more than 40 different indications, including 9 early-stage cancers. With expected sales of $29.2 billion in 2024 (50.9% of pharma revenue), Keytruda is the best-selling drug in the world. While the original intravenous formulation of Keytruda is set to lose patent protection in 2028, Merck is developing a subcutaneous version of the drug that is on track to receive approval in 2025, and sales of this new version of the drug are expected to more than offset declining sales of the original product. Beyond Keytruda, Winrevair (protein for pulmonary hypertension) is expected to be the main driver of growth, with sales increasing from $0.5 billion in 2024 to $4.9 billion in 2029. Collective sales of Gardasil/Gardasil 9 (vaccine for HPV), Capvaxive (vaccine for pneumonia), and Welireg (small molecule for kidney cancer and VHL) are expected to grow from $9.4 billion in 2024 to $12.4 billion in 2029.
- **Growth brakes:** Merck may have a lack of growth drivers to get excited about, but it also does not give investors many reasons to worry. Collective sales of Bridion (small molecule for anesthesia reversal), Januvia (small molecule for diabetes), Lenvima (small molecule for several types of cancer), Janumet (small molecule for diabetes), and Lagevrio (small molecule for COVID-19) are expected to decrease from $6.0 billion in 2024 (10.4% of pharma revenue) to $1.7 billion in 2029 (2.6% of pharma revenue), primarily due to loss of exclusivity.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



* $s in billions

Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Merck

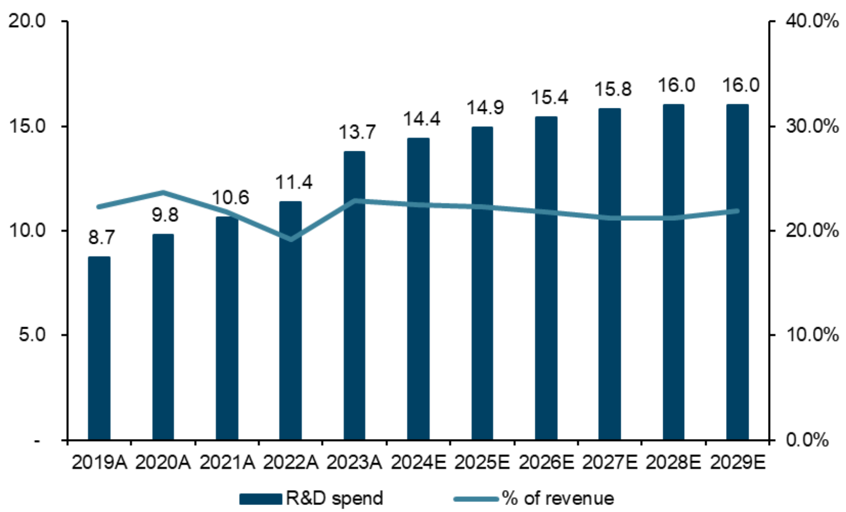
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is forecast to increase 3.7% in 2025 and at a 2.2% compound annual rate over the next five years, growing from $14.4 billion in 2024 (22.5% of revenue) to $16.0 billion in 2029 (21.9% of revenue). Merck currently has 37 molecules being evaluated across 105 late-stage programs, up meaningfully from 87 late-stage programs at the end of 2023 but well below 125 late-stage programs at the end of 2022. By therapeutic area, 22 of the company's 37 late-stage molecules are in oncology, 5 are antivirals, 4 are for cardiovascular diseases, 2 are preventative vaccines, and 4 are in other disease areas. By therapeutic modality, 13 of Merck's 37 late-stage drugs are small molecules, 11 are monoclonal antibodies, 5 are proteins/peptides, 5 are antibody-drug conjugates, and 3 are vaccines.

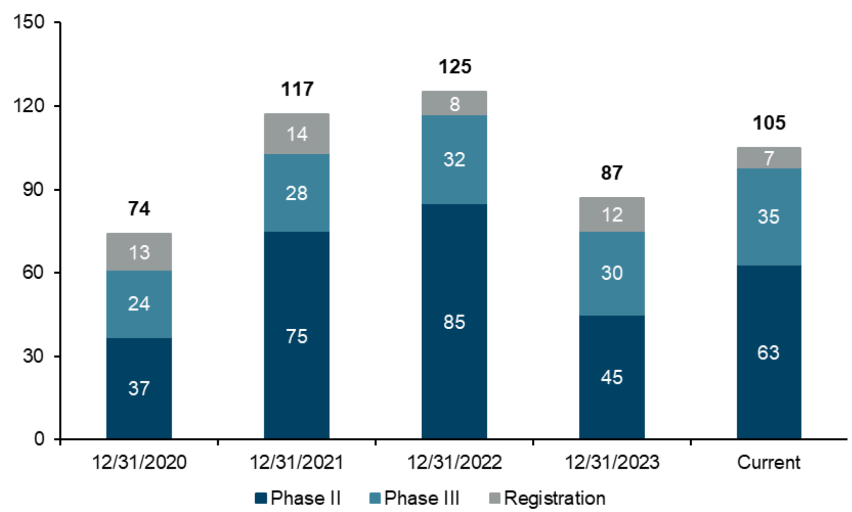
- **Announced cost cuts:** Despite its modest top-line outlook, Merck remains committed to spending on R&D through internal investments, strategic partnerships (such as its ongoing ADC-focused development and collaboration agreement with Daiichi Sankyo), and strategic acquisitions in the $1 billion to $15 billion range. To reduce its dependence on Keytruda, the company aims to diversify its portfolio in oncology and expand into new therapeutic areas, such as cardiometabolic and neurological diseases. Over the last three-plus years, its Phase III pipeline has nearly tripled to more than 20 unique assets, fueling what the company expects to be a substantial set of new medicine and vaccine launches over the next five years.

- **IRA and election impact:** Merck's Januvia (small molecule drug for diabetes) was one of the first 10 negotiated drugs under the IRA, which cut the Medicare price for a 30-day supply of the drug from its estimated net price of $196 to $113 (42% discount). In regard to the election, Merck generates over 20% of its revenue from vaccines, which puts it at risk if future policies negatively impact uptake of approved vaccines or lead to a higher bar for future approvals.

R&D Spend ($s in Billions)



Clinical Programs by Stage of Development



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

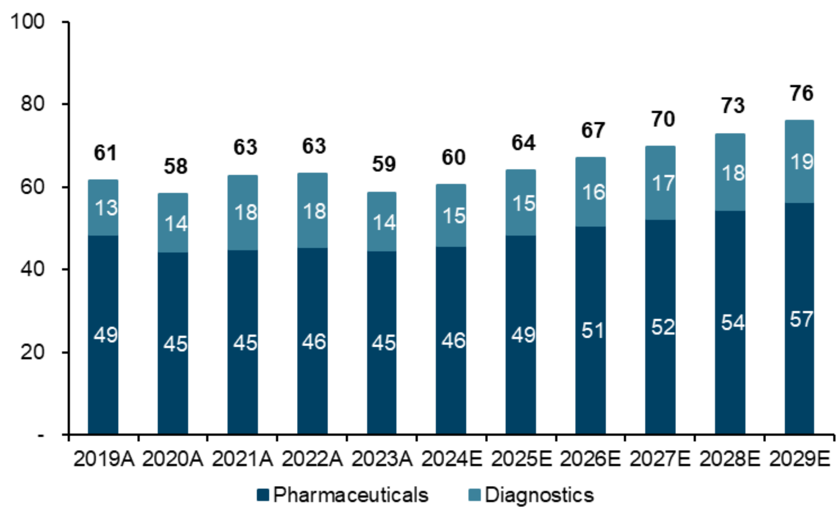
Roche

Market Cap: $238 Billion

Overview

Bottom line: While the top of Roche's portfolio is insulated from loss of exclusivity, the company lacks major growth drivers beyond Vabysmo, its mAb for wet age-related macular degeneration (AMD) and macular oedema. The result is a lackluster outlook for its current key products, with sales of these drugs expected to be roughly flat from 2024 through 2029. Roche's total top-line outlook looks better (4.3% pharma revenue CAGR over the next five years), but these projections could prove to be ambitious considering the company's recent high-profile clinical failures. Below the top line, Roche recently announced plans to cut the total number of programs in its pipeline by 25%, yet R&D spend is still forecast to increase by 2.4% in 2025 and at a 3.2% compound annual rate from 2024 through 2029. In terms of positives, Roche did not have any drugs selected to be negotiated under the IRA, and it does not have any vaccine revenue or vaccines in development.

Revenue Forecast (CHFs in Billions)



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Key Products (CHFs in Millions)

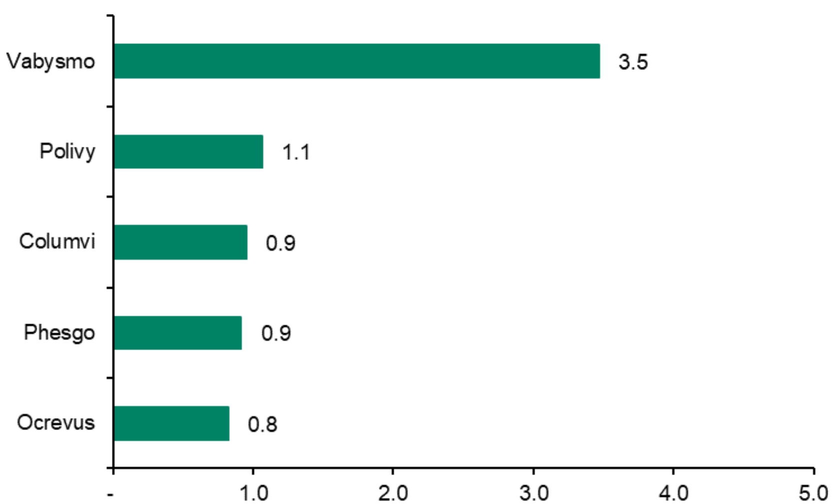
Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of pharma	
Ocrevus	2017	2029	Biologic (mAb)	Multiple sclerosis	6,793	14.8%	2.3%
Hemlibra	2017	2031	Biologic (mAb)	Hemophilia A	4,376	9.5%	2.4%
Vabysmo	2022	2030	Biologic (mAb)	Eye conditions	3,892	8.5%	13.6%
Tecentriq	2016	2032	Biologic (mAb)	Lung cancer	3,673	8.0%	2.1%
Perjeta	2012	2025	Biologic (mAb)	Breast cancer	3,647	8.0%	-14.2%
Actemra	2005	2022	Biologic (mAb)	Rheumatoid arthritis (RA)	2,500	5.5%	-15.4%
Xolair	2003	2025	Biologic (mAb)	Asthma	2,368	5.2%	-11.7%
Kadcyla	2013	2025	Biologic (ADC)	Breast cancer	1,974	4.3%	-10.6%
Phesgo	2020	2030	Biologic (mAb)	Breast cancer	1,679	3.7%	9.1%
Evrysdi	2020	2034	Small molecule	Spinal muscular atrophy	1,664	3.6%	7.7%
Alecensa	2015	2031	Small molecule	Lung cancer	1,556	3.4%	3.5%
Herceptin	1998	2019	Biologic (mAb)	Breast and stomach cancers	1,374	3.0%	-11.0%
MabThera/ Rituxan	1997	2018	Biologic (mAb)	Blood cancers; RA	1,330	2.9%	-12.6%

Roche

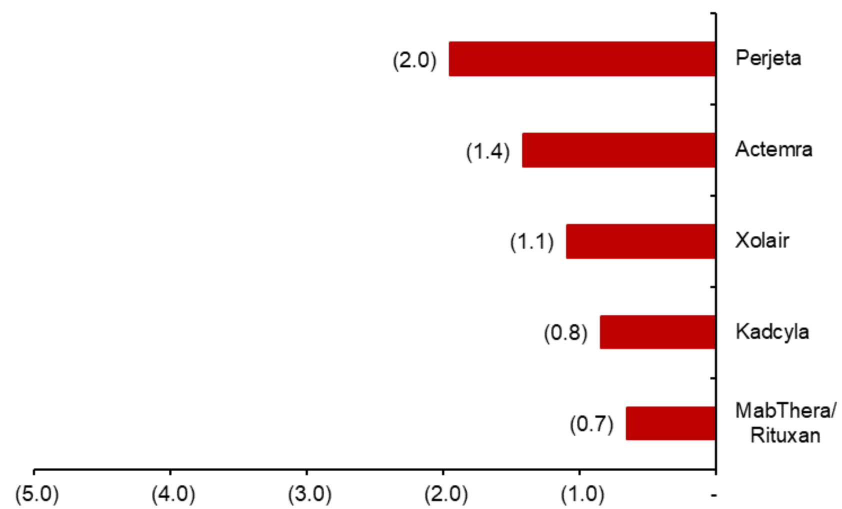
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to increase 5.9% in 2025 and at a 4.7% compound annual rate from CHF 60.4 billion in 2024 to CHF 75.9 billion in 2029. Pharma revenue is forecast to grow 5.8% in 2025 and at a 4.3% compound annual rate from CHF 45.8 billion to CHF 56.5 billion over the same five-year period. Roche does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials.
- **Growth drivers:** Roche's major growth driver is Vabysmo, a mAb launched in 2022 for wet age-related macular degeneration (AMD) and macular oedema. The drug faces stiff competition from Regeneron's Eylea, but sales of the product are projected to grow at a 13.6% compound annual rate from CHF 3.9 billion in 2024 to CHF 7.4 billion in 2029. Beyond Vabysmo, the majority of Roche's growth is expected to come from its oncology franchise, with collective sales of Polivy (antibody-drug conjugate for non-Hodgkin lymphoma), Columvi (bi-specific antibody for non-Hodgkin lymphoma), and Phesgo (mAb for breast cancer) forecast to increase at a 14.6% compound annual rate from CHF 3.0 billion in 2024 to CHF 5.9 billion in 2029. Roche's current leading product, Ocrevus (mAb for multiple sclerosis), is also expected to be a key driver moving forward, with sales forecast to grow at a 2.3% compound annual rate from CHF 6.8 billion in 2024 to CHF 7.6 billion in 2029.
- **Growth brakes:** Six of Roche's top 13 products, which collectively account for roughly 30% of revenue, face headwinds from loss of exclusivity. The most notable of these drugs is Perjeta (mAb for breast cancer), with sales of the product expected to decline at a 14.2% compound annual rate from CHF 3.6 billion in 2024 to CHF 1.7 billion in 2029. Other key products dealing with loss of exclusivity include Actemra (mAb for rheumatoid arthritis), Xolair (mAb for asthma), and MabThera/Rituxan (mAb for blood cancers and rheumatoid arthritis). Roche's antibody-drug conjugate for breast cancer, Kadcyla, also loses patent protection in 2025, but declining sales are more a function of competitive dynamics than loss of exclusivity.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



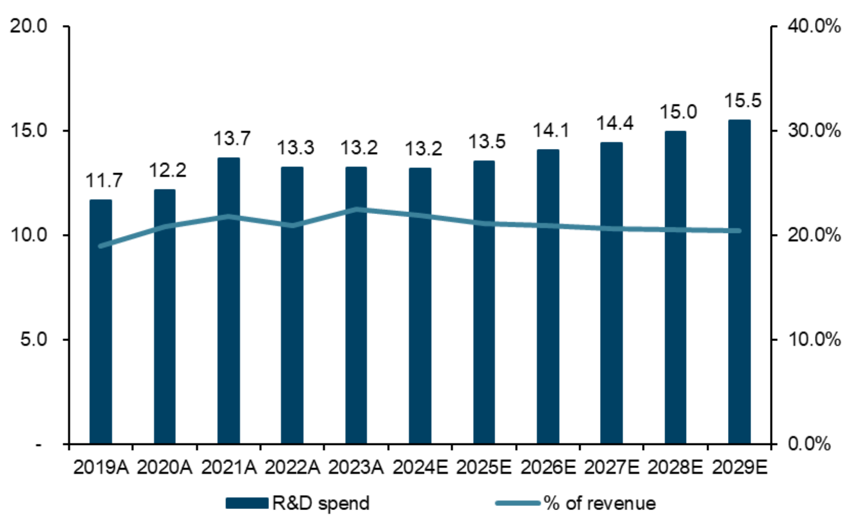
* CHFs in billions
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Roche

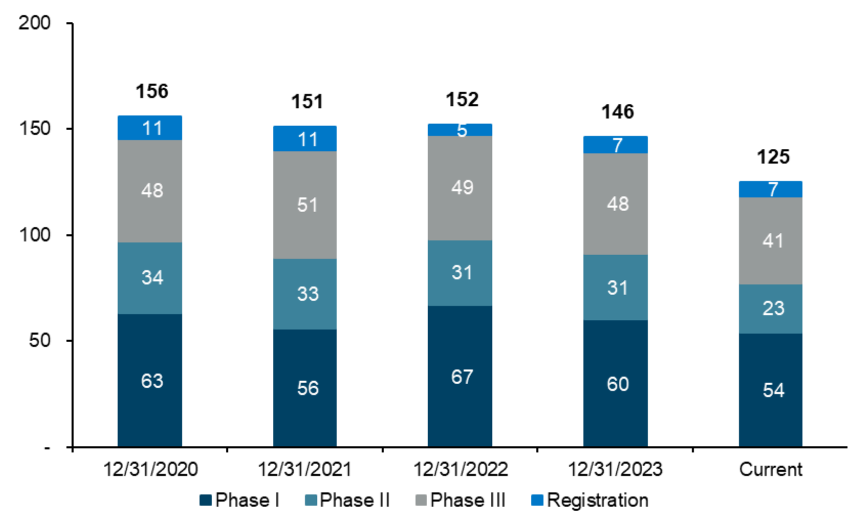
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is forecast to grow by 2.4% in 2025 and at a 3.2% compound annual rate from 2024 through 2029, increasing from CHF 13.2 billion to CHF 15.5 billion over the five-year period. In September 2024, Roche announced plans to cut the total number of programs in its pipeline by 25% following a series of development challenges over the last several years, most notably in Alzheimer's disease and lung cancer. As a result, Roche's pipeline has shrunken considerably, going from 146 programs at the end of 2023 to 125 programs currently. By therapeutic area, the company currently has 65 ongoing programs in oncology (down from 77 at the end of 2023), 18 in immunology (down from 20 at the end of 2023), 5 in cardiovascular and metabolism (no change from the end of 2023), 17 in neurology (down from 20 at the end of 2023), 14 in ophthalmology (no change from the end of 2023), none in infectious diseases (down from 8 at the end of 2023), and 6 in other disease areas (up from 2 at the end of 2023).
- **Announced cost cuts:** Roche has not recently announced any cost-cutting initiatives other than its plans to scale back its pipeline. Despite this cut, R&D spend is expected to increase as the company fills in its pipeline with some newly acquired assets, as well as continues its push into the burgeoning obesity drug market, where it is betting on its early-stage assets ultimately proving to have reduced adverse side effects compared to market leaders from Eli Lilly and Novo Nordisk.
- **IRA and election impact:** Roche did not have any drugs selected to be among the first 10 negotiated drugs under the IRA. In addition, the company does not generate any revenue from vaccines, and it currently does not have any vaccine candidates in development, meaning Roche is effectively immune to any future policies that negatively impact uptake of approved vaccines or lead to a higher bar for future vaccine approvals.

R&D Spend (CHFs in Billions)



Clinical Programs by Stage of Development



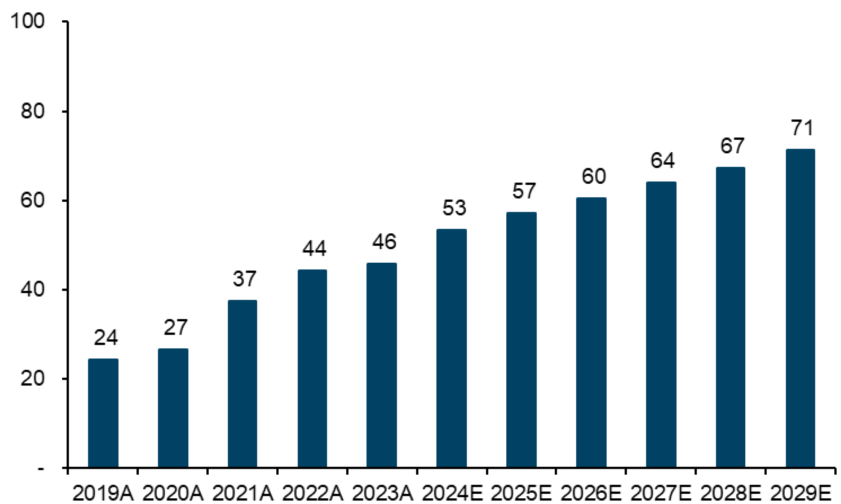
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

AstraZeneca
Market Cap: $204 Billion

Overview

Bottom line: AstraZeneca is not immune to the loss of exclusivity and IRA headwinds plaguing much of large pharma, but it looks set to deliver healthy top-line growth over the medium term. Despite the company's top-selling product, Farxiga, losing exclusivity in 2025, AstraZeneca's sales are projected to grow at a 5.9% compound annual rate from 2024 through 2029. This outlook is thanks to the commendable job the company has done building out its oncology franchise, which features several products, most notably Enhertu, that have early-line approvals and exclusivity beyond 2030. To hit its target of $80 billion in total revenue by 2030, the company is slated to spend relatively robustly in the medium term, with R&D spend projected to grow at a 4.9% CAGR over the next five years. As a bonus, AstraZeneca generates little revenue from vaccines, leaving it in a good position if future government policies negatively impact adoption of approved vaccines or lead to a higher bar for future approvals.

Revenue Forecast ($s in Billions)



Key Products ($s in Millions)

Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Farxiga	2012	2025	Small molecule	Diabetes	7,699	14.4%	-14.6%
Tagrisso	2015	2032	Small molecule	Non-small cell lung cancer	6,540	12.2%	5.0%
Imfinzi	2017	2031	Biologic (mAb)	Lung cancer	4,723	8.8%	6.9%
Ultomiris	2019	2035	Biologic (mAb)	Myasthenia gravis & other rare diseases	3,890	7.3%	7.9%
Lynparza	2014	2027	Small molecule	Ovarian, breast & prostate cancer	3,487	6.5%	-3.0%
Calquence	2017	2032	Small molecule	Lymphoma and leukemia	3,158	5.9%	7.6%
Symbicort	2000	2023	Small molecule	Asthma	2,821	5.3%	-9.0%
Soliris	2007	2025	Biologic (mAb)	Neuromyelitis optica & other rare diseases	2,620	4.9%	-22.6%
Enhertu	2020	2033	Biologic (ADC)	Breast cancer	1,980	3.7%	23.9%
Fasenra	2017	2024	Biologic (mAb)	Asthma	1,666	3.1%	3.8%
Strensiq	2015	2025	Biologic (protein)	Hypophosphatasia	1,339	2.5%	2.9%
Brilinta	2010	2025	Small molecule	Coronary artery disease	1,318	2.5%	-24.1%

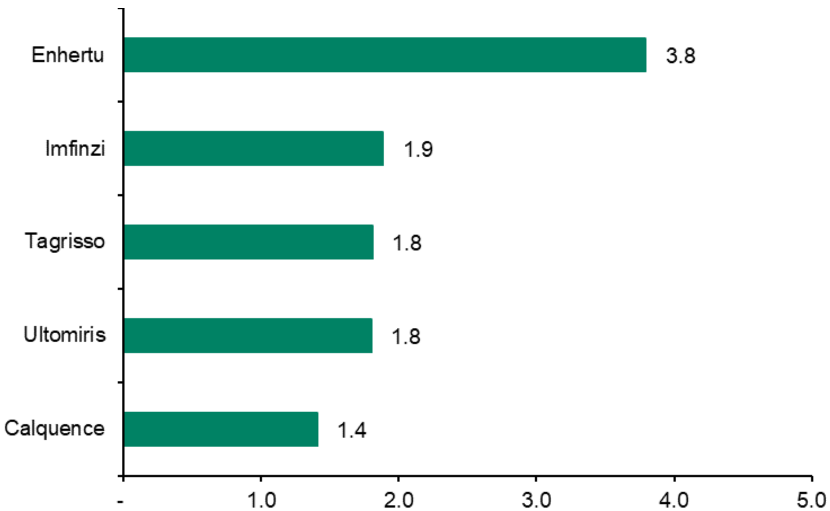
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

AstraZeneca

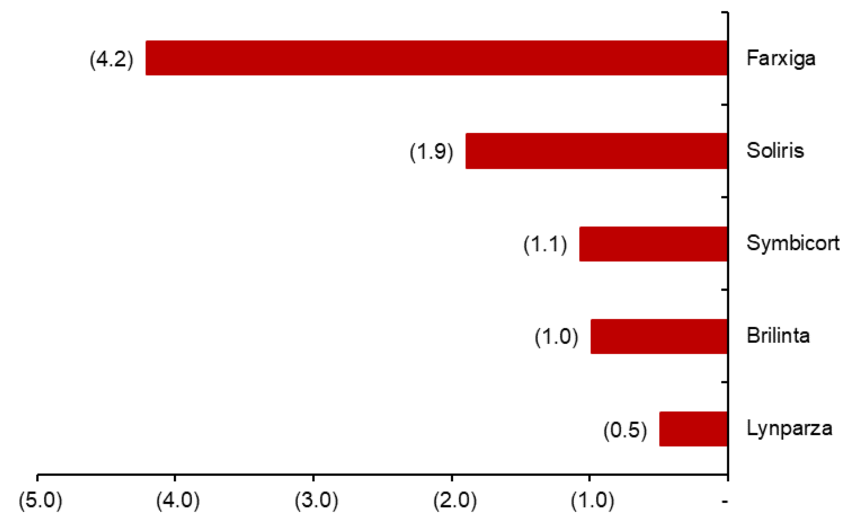
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to grow 6.9% in 2025 and at a 5.9% compound annual rate from $53.4 billion in 2024 to $71.2 billion in 2029. Vaccines are projected to account for less than 1.0% of AstraZeneca's total revenue over the next five years.
- **Growth drivers:** AstraZeneca's most important growth driver is Enhertu, an antibody-drug conjugate (ADC) approved to treat several types of solid tumors, most notably breast cancer. While the company's development and commercialization partner, Daiichi Sankyo, will record the lion's share of revenue, AstraZeneca's Enhertu sales are expected to increase at a 23.9% compound annual rate from $2.0 billion in 2024 (3.7% of revenue) to $5.8 billion in 2029 (8.1% of revenue). In addition to Enhertu, the company has several innovative early-line cancer treatments that are expected to drive growth moving forward, with sales of Imfinzi (mAb for lung cancer), Tagrisso (small molecule for non–small-cell lung cancer) and Calquence (small molecule for blood cancers) forecast to grow at a 6.2% compound annual rate from $14.4 billion in 2024 to $19.5 billion in 2029. Beyond oncology, sales of AstraZeneca's next-generation version of Soliris, Ultomiris (mAb for rare diseases), are expected to grow at a 7.9% compound annual rate from $3.9 million in 2024 to $5.7 billion in 2029.
- **Growth brakes:** The biggest headwind to AstraZeneca's growth moving forward is Farxiga (small molecule for diabetes), with sales of the drug expected to decline at a 14.6% compound annual rate from $7.7 billion in 2024 (14.4% of revenue) to $3.5 billion in 2029 (4.9% of revenue), due to loss of exclusivity, competition, and its selection as one of the first 10 drugs subject to negotiated pricing under the IRA. Beyond Farxiga, collective sales of Soliris (mAb for rare diseases), Symbicort (small molecule for asthma), Brilinta (small molecule for coronary artery disease), and Lynparza (small molecule for several types of solid cancer) are expected to decline at a 10.7% compound annual rate from $10.2 billion in 2024 (19.2% of revenue) to $5.8 billion in 2029 (8.2% of revenue) due primarily to loss of exclusivity.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



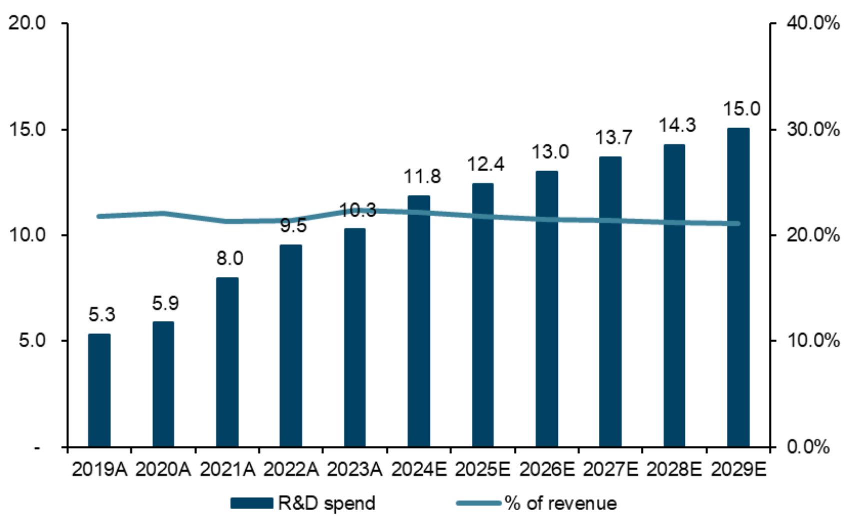
* $s in billions
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

AstraZeneca

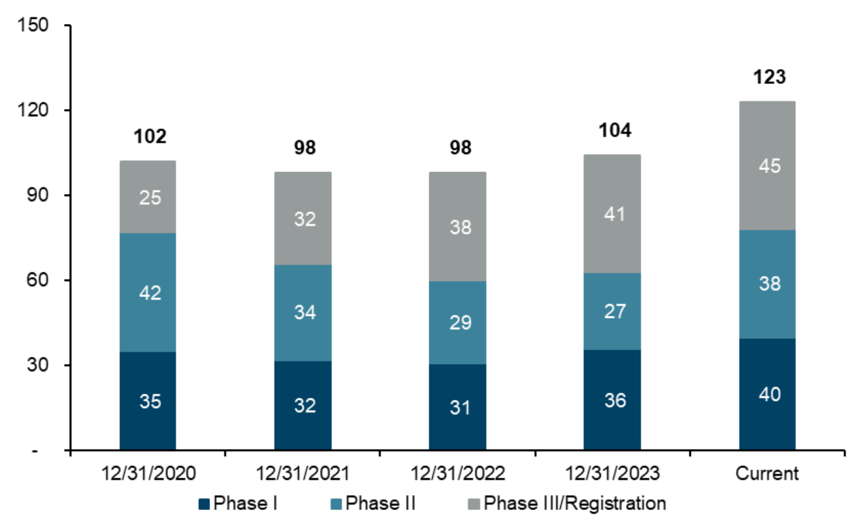
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is forecast to increase 4.9% in 2025 and at a healthy 4.9% compound annual rate over the next five years, growing from $11.8 billion in 2024 (22.2% of revenue) to $15.0 billion in 2029 (21.1% of revenue). AstraZeneca currently has 123 clinical programs evaluating new molecule entities or additional indications for assets that have yet to be launched, up significantly from 104 at the end of 2023. Over half of the company's total programs and roughly two-thirds of late-stage programs are in oncology.
- **Announced cost cuts:** None. While AstraZeneca expects core R&D to remain in the low 20s as a percentage of total revenue, its strong top-line outlook gives it plenty of capacity to spend over the next five years. Along those lines, in November 2024, the company announced plans to invest $3.5 billion by the end of 2026 to grow its research and production footprint in the U.S. AstraZeneca did not disclose what portion of this total will be dedicated to manufacturing versus R&D, but a portion will be dedicated to its R&D center in Cambridge, Massachusetts, which will serve as a strategic R&D center and Alexion's headquarters (acquired by AstraZeneca in 2021 for roughly $39 billion) and house 1,500 R&D, commercial, and corporate employees once completed in 2026.
- **IRA and election impact:** AstraZeneca's Farxiga (small molecule for diabetes) was one of the first 10 negotiated drugs under the IRA, which cut the Medicare price for a 30-day supply of the drug from its estimated net price of $194 to $179 (7.9% discount). In regard to the election, vaccines are expected to account for less than 1.0% of the company's revenue over the next five years, meaning it is insulated from any future policies that negatively impact uptake of approved vaccines or lead to a higher bar for future vaccine approvals.

R&D Spend ($s in Billions)



Clinical Programs by Stage of Development



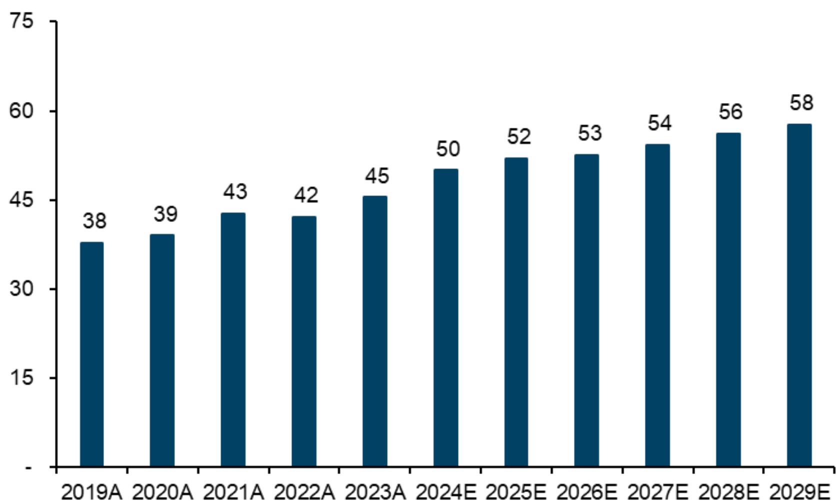
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Novartis
Market Cap: $197 Billion

Overview

Bottom line: Six of Novartis's top 10 products are dealing with loss of exclusivity, with total revenue from these drugs expected to decrease at an 18.5% compound annual rate from $16.6 billion in 2024 (33.2% of revenue) to $6.0 billion in 2029 (10.3% of revenue). Despite this headwind, the company looks like it has enough in its stable to put up some modest top-line growth over the next five years (2.9% revenue CAGR for 2024 through 2029). Below the top line, Novartis has announced several cuts to its footprint and headcount over the last few years, as well as significantly pulled back on its number of programs in development. Unfortunately, the outlook for the next five years does not look much better, with R&D spend projected to increase at a modest 2.3% compound annual rate from 2024 through 2029. Novartis does not have any vaccine revenue or vaccines in development, meaning it is in a good position if future government policies negatively impact vaccine approvals or uptake.

Revenue Forecast ($s in Billions)



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

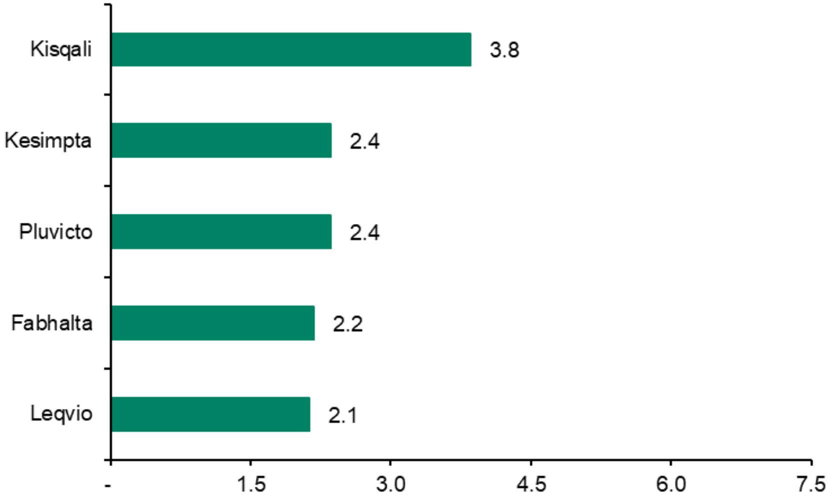
Key Products ($s in Millions)

Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Entresto	2015	2025	Small molecule	Chronic heart failure	7,646	15.3%	-24.4%
Cosentyx	2015	2029	Biologic (mAb)	Psoriasis	6,217	12.4%	3.8%
Kesimpta	2020	2031	Biologic (mAb)	Multiple sclerosis	3,150	6.3%	11.8%
Kisqali	2017	2031	Small molecule	Breast cancer	2,972	5.9%	18.1%
Promacta/ Revolade	2008	2023	Small molecule	Thrombocytopenia, anemia	2,186	4.4%	-25.2%
Tafinlar/ Mekinist	2013	2030	Small molecule	Melanoma	2,043	4.1%	0.7%
Jakafi	2011	2026	Small molecule	Myelofibrosis, polycytomia vera	1,941	3.9%	-10.6%
Tasigna	2007	2023	Small molecule	Chronic myeloid leukemia	1,661	3.3%	-28.0%
Xolair	2003	2025	Biologic (mAb)	Asthma	1,658	3.3%	-13.3%
Ilaris	2009	2024	Biologic (mAb)	Auto-inflammatory diseases	1,499	3.0%	-2.3%
Pluvicto	2022	2034	Small molecule	Prostate cancer	1,438	2.9%	21.4%
Zolgensma	2019	2033	Biologic (C&GT)	Spinal muscular atrophy	1,252	2.5%	4.6%

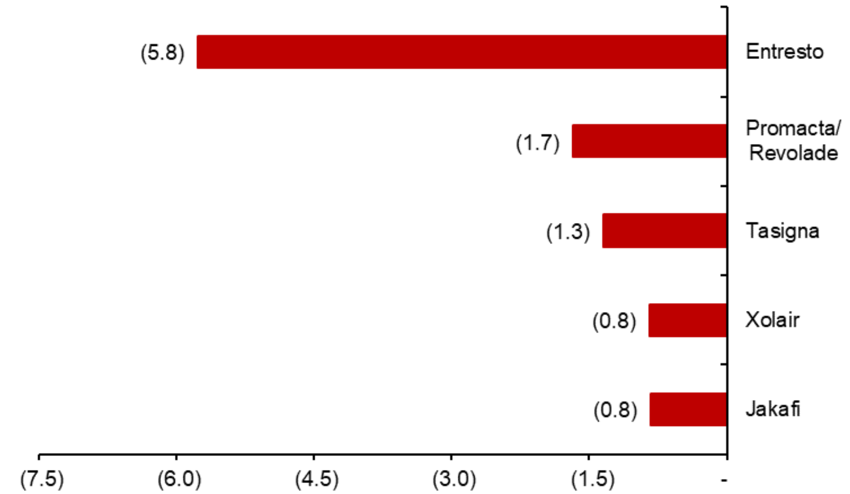
Novartis
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to grow 4.1% in 2025 and at a 2.9% compound annual rate from $50.0 billion in 2024 to $57.6 billion in 2029. Novartis does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials.
- **Growth drivers:** Novartis's most important growth driver is Kisqali, a small molecule approved for first-line use in patients with the most common form of breast cancer. Given its early-line approval and relatively broad label, sales of Kisqali are forecast to increase at an 18.1% compound annual rate from $3.0 billion in 2024 to $6.8 billion in 2029. Beyond Kisqali, sales of Kesimpta (mAb for multiple sclerosis) are forecast to grow at an 11.8% compound annual rate from $3.2 billion in 2024 to $5.5 billion in 2029 due to its convenience edge over the current market leader. Also noteworthy is Pluvicto, the company's flagship product in the emerging radiopharmaceutical space, an area that serves as a pillar of Novartis's cancer strategy. Sales of the drug, which is used to treat prostate cancer, are expected to increase at a 21.4% compound annual rate from $1.4 billion in 2024 to $3.8 billion in 2029. Lastly, collective sales of Fabhalta (small molecule for rare diseases) and Leqvio (RNA therapeutic for high cholesterol) are forecast to grow at an impressive 42.3% compound annual rate from $0.9 billion in 2024 to $5.2 billion in 2029.
- **Growth brakes:** The biggest headwind to Novartis's growth moving forward comes from its largest product, Entresto, a small molecule for chronic heart failure. Due to loss of exclusivity and IRA-related pricing pressure, sales of the drug are expected to decline at a 24.4% compound annual rate from $7.6 billion in 2024 to $1.9 billion in 2029. Other key products facing loss of exclusivity include Promacta/Revolade (small molecule for blood disorders), Tasigna (small molecule for chronic myeloid leukemia), Xolair (mAb for asthma), and Jakafi (small molecule for blood cancers), with collective sales of these drugs forecast to decline at a 18.1% compound annual rate from $7.4 billion in 2024 to $2.7 billion in 2029.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



* $s in billions

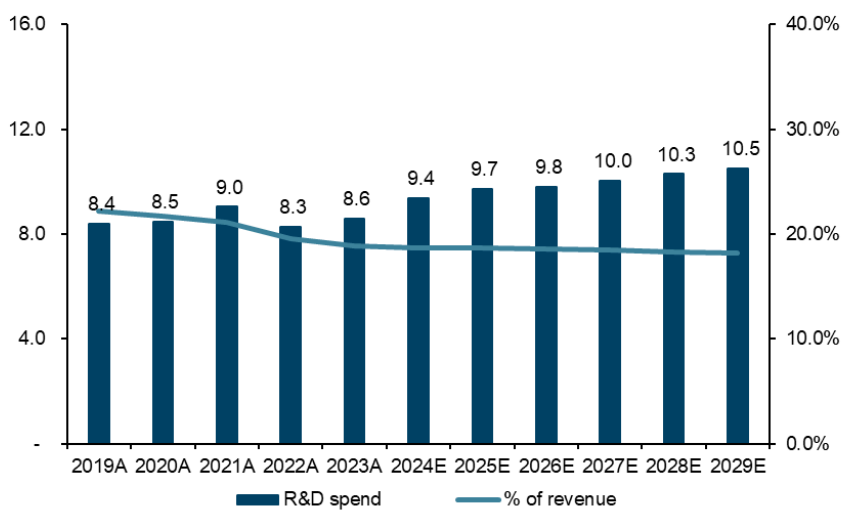
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Novartis

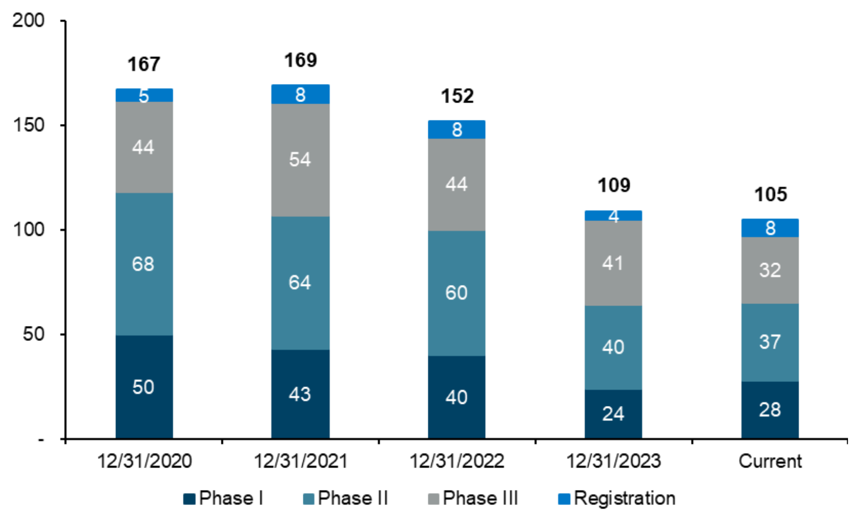
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is forecast to increase 3.7% in 2025 and at a modest 2.3% compound annual rate over the next five years, growing from $9.4 billion in 2024 (18.7% of revenue) to $10.5 billion in 2029 (18.2% of revenue). In April 2023, Novartis decided to cut 10% of its development pipeline and streamline its development efforts around five core therapeutic areas—cardiovascular, immunology, neuroscience, solid tumors, and hematology. On the back of these changes, the company's pipeline has shrunken considerably over the last couple years, going from 152 ongoing programs at the end of 2022 to 105 ongoing programs currently.
- **Announced cost cuts:** In addition to the pipeline cuts discussed above, Novartis has announced several changes to its footprint and headcount over the last few years. The most significant reduction came in 2022 when the company outlined plans to lay off around 8,000 of its 108,000 staff worldwide in a bid to save $1.0 billion annually. In April 2024, Novartis revealed more changes to its global development group, including plans to terminate around 440 development positions in Switzerland and add up to 240 roles in the U.S. More recently, the company announced the closure of its technical R&D site in San Diego in July 2024.
- **IRA and election impact:** Novartis's Entresto (small molecule for chronic heart failure) was one of the first 10 negotiated drugs under the IRA, which slashed the Medicare price for a 30-day supply of the drug from its estimated net price of $458 to $295 (35.6% discount); however, the impact of the cut should be somewhat limited given Entresto is slated to lose exclusivity before it takes effect in 2026. In regard to the election, Novartis does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials, meaning the company is insulated from any future policies that negatively impact uptake of approved vaccines or lead to a higher bar for future vaccine approvals.

R&D Spend ($s in Billions)



Clinical Programs by Stage of Development



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

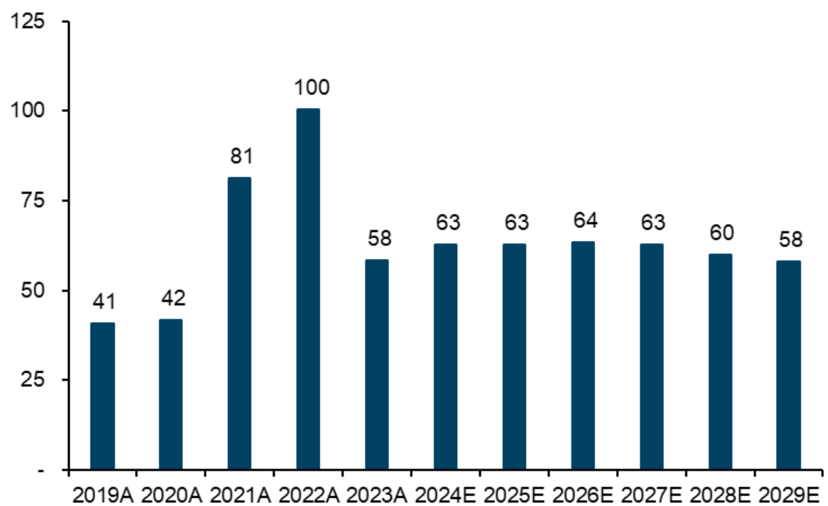
Pfizer

Market Cap: $154 Billion

Overview

Bottom line: Things look bleak. Sales of Pfizer's top seven products, which collectively account for nearly 60% of revenue, are forecast to decline at a 12.2% compound annual rate over the next five years. The company's acquisition of Seagen (closed in December 2023) added some compelling products (most notably Padcev) and bolstered Pfizer's position in oncology, but it is not enough to offset an underwhelming legacy pipeline and headwinds from loss of exclusivity, the IRA, competition, and any potential government policies that negatively impact uptake of approved vaccines or lead to a higher bar for vaccine approvals (vaccines account for roughly 20% of revenue). To protect its bottom line, Pfizer announced an aggressive multiyear enterprisewide cost realignment program in 2023, and, as a result, R&D spend is expected to decrease modestly from $11.5 billion in 2024 to $11.1 billion in 2029 (-0.8% compound annual rate).

Revenue Forecast ($s in Billions)



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

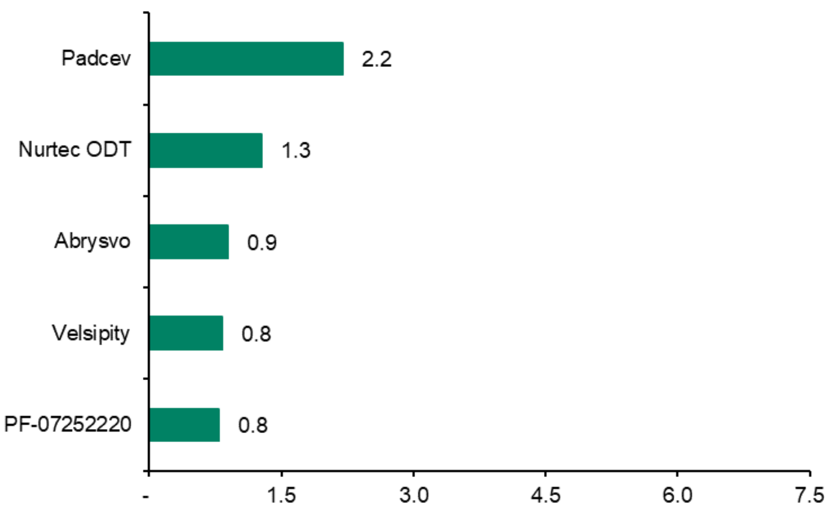
Key Products ($s in Millions)

Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Eliquis	2011	2026	Small molecule	Prophylaxis of stroke	7,059	11.3%	-25.5%
Prevnar	2009	2026	Vaccine	Pneumonia	6,464	10.3%	-0.4%
Paxlovid	2021	2041	Small molecule	COVID-19	5,491	8.8%	-11.1%
Vyndaqel	2012	2024	Small molecule	Heart disease	5,389	8.6%	-12.0%
Comirnaty	2021	2041	Vaccine	COVID-19	4,934	7.9%	-6.9%
Ibrance	2015	2027	Small molecule	Breast cancer	4,292	6.8%	-26.6%
Xtandi	2012	2027	Small molecule	Prostate cancer	2,008	3.2%	-27.3%
Padcev	2019	2033	Biologic (ADC)	Urothelial cancer	1,587	2.5%	19.0%
Nurtec ODT	2020	2030	Small molecule	Migraines	1,251	2.0%	15.0%
Abrysvo	2023	2036	Vaccine	RSV	1,161	1.9%	12.1%
Xeljanz	2012	2025	Small molecule	Rheumatoid arthritis	1,146	1.8%	-29.1%
Adcetris	2011	2024	Biologic (ADC)	Lymphomas	1,108	1.8%	8.5%

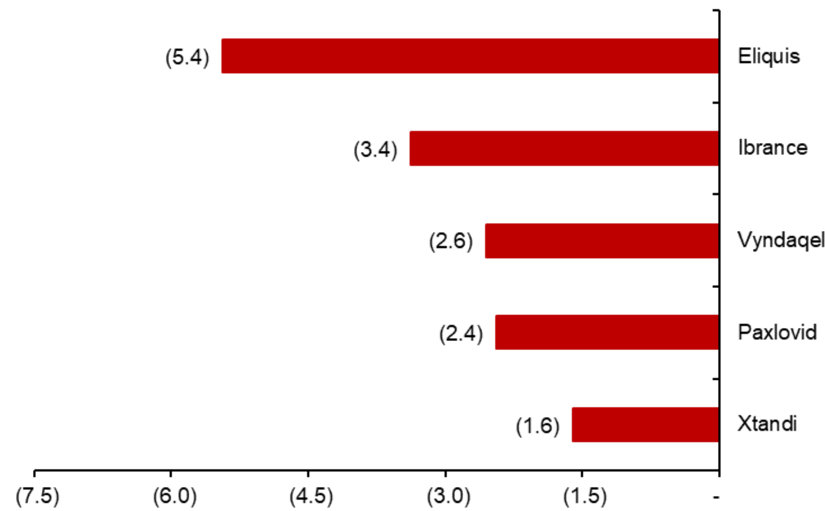
Pfizer
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to be roughly flat in 2025 and decline at a 1.5% compound annual rate from $62.7 billion in 2024 to $58.1 billion in 2029. Over the same five-year period, vaccine revenue is forecast to increase at a 1.4% compound annual rate from $13.1 billion (20.9% of revenue) to $14.0 billion (24.1% of revenue).
- **Growth drivers:** Seagen's legacy antibody-drug conjugate (ADC), Padcev, is expected to be Pfizer's main growth driver, with sales of the first-line treatment for urothelial cancer expected to grow from $1.6 billion in 2024 to $3.8 billion in 2029. Beyond Padcev, collective sales of currently marketed products Nurtec ODT (small molecule drug for migraines), Abrysvo (vaccine for RSV), and Velsipity (small molecule drug for ulcerative colitis) are expected to grow from $2.5 billion to $5.5 billion over the next five years, while PF-07252220 (vaccine for influenza; estimated approval: December 2025) is expected to contribute $0.8 billion in 2029.
- **Growth brakes:** Sales of Pfizer's top seven products are forecast to decline at a 12.2% compound annual rate from $35.6 billion in 2024 to $18.6 billion in 2029, with the largest headwind coming from Eliquis (small molecule blood thinner) as it faces loss of exclusivity in key European markets in the second half of 2026 and IRA-related pricing pressure (sales expected to decrease from $7.1 billion in 2024 to $1.6 billion in 2029). Similarly, collective sales of Ibrance (small molecule for breast cancer), Vyndaqel (small molecule for heart disease), and Xtandi (small molecule for prostate cancer) are expected to decrease from $11.7 billion to $4.2 billion over the next five years due to competitive threats and looming patent cliffs, while estimates for Paxlovid (small molecule for COVID-19) reflect skepticism over the long-term durability of COVID revenue (sales expected to decrease from $5.5 billion in 2024 to $3.1 billion in 2029). Comirnaty (vaccine for COVID-19) narrowly avoided making it onto the exhibit below, with sales of the drug forecast to decrease from $4.9 billion in 2024 to $3.4 billion in 2029.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



* $s in billions

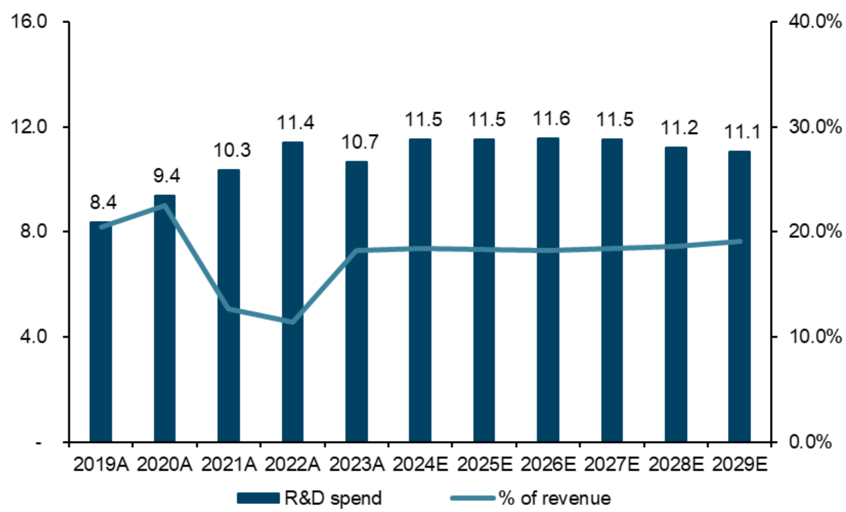
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Pfizer

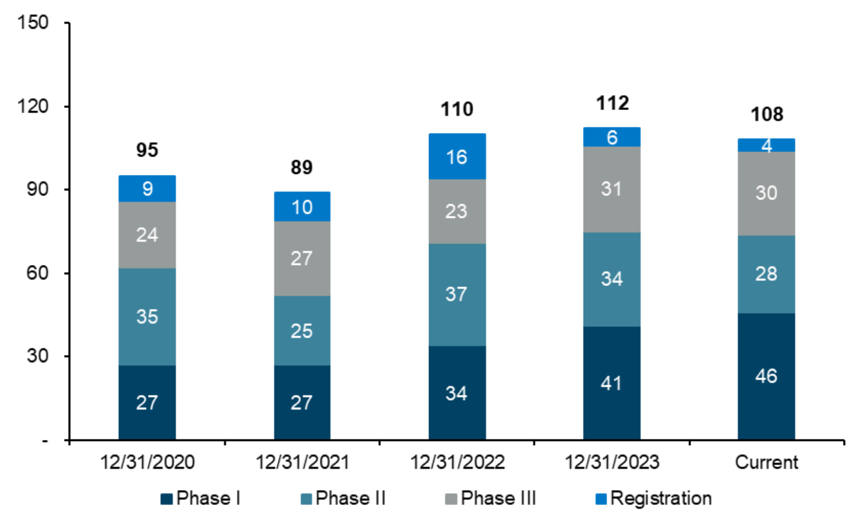
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is expected to be roughly flat in 2025 and decline at a 0.8% compound annual rate over the next five years, shrinking from $11.5 billion in 2024 (18.4% of revenue) to $11.1 billion in 2029 (19.1% of revenue). In terms of its pipeline, Pfizer currently has 66 programs evaluating new molecular entities, as well as 42 ongoing programs aimed at expanding previously approved drugs to additional indications (108 programs in total, down from 112 as of January 30, 2024).
- **Announced cost cuts:** In 2023, Pfizer announced plans to achieve $4.0 billion in net cost savings by the end of 2024, with around 70% ($2.8 billion) of the proposed savings expected to come from R&D. This sounds drastic, but management's cost-savings goal was based on the midpoint of Pfizer's 2023 R&D guide, which at the time called for R&D spend to be between $12.4 billion and $13.4 billion (12.9% increase year-over-year), and it did not incorporate an incremental $1.5 billion in annual R&D spend picked up by the company from its acquisition of Seagen. In December 2024, Pfizer announced it anticipates an additional $0.5 billion in savings in 2025 from ongoing cost realignment programs.
- **IRA and election impact:** Pfizer's Eliquis (small molecule blood thinner) was one of the first 10 negotiated drugs under the IRA, which slashed the Medicare price for a 30-day supply of the product from its current estimated net price of $309 to $231 (25% discount). While Pfizer has other products that could potentially be selected for negotiation, all these drugs are nearing the end of their respective patent lives, and as a result, management expects further impact from the IRA to be somewhat limited. In regard to the election, Pfizer generates slightly more than 20% of its revenue from vaccines ($13.1 billion in 2024, including $4.9 billion from Comirnaty), which puts it at risk if future government policies negatively impact uptake of approved vaccines or lead to a higher bar for future vaccine approvals.

R&D Spend ($s in Billions)



Clinical Programs by Stage of Development



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

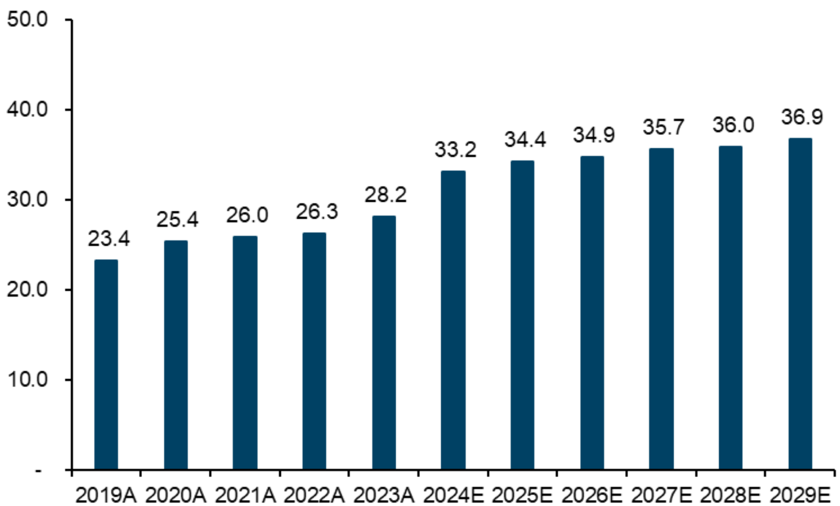
Amgen

Market Cap: $147 Billion

Overview

Bottom line: Sales of Amgen's top 12 products, which collectively account for nearly 75% of total revenue, are expected to decline at a 3.9% compound annual rate over the next five years. To offset this headwind, Amgen is making a big bet on MariTide, its Phase II GLP-1 injectable for diabetes and obesity, which is differentiated from other GLP-1 therapies by its less-frequent maintenance dosing regimen. That said, even if MariTide is approved in 2027 and reaches $2.7 billion in revenue in 2029 as expected, Amgen's total revenue is only projected to increase at a modest 2.1% compound annual rate from 2024 through 2029. Amgen's R&D spend is forecast to increase by a healthy 4.4% in 2025 and at a more modest 2.5% compound annual rate from 2024 through 2029, and its pipeline has grown from 39 clinical programs at the end of 2023 to 46 programs currently. Amgen does not have any vaccine revenue or vaccines in development.

Revenue Forecast ($s in Billions)



Key Products ($s in Millions)

Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Prolia	2010	2025	Biologic (mAb)	Osteoporosis	4,378	13.2%	-15.2%
Enbrel	1998	2029	Biologic (protein)	Rheumatoid arthritis	3,167	9.6%	-14.7%
Xgeva	2010	2025	Biologic (mAb)	Bone health	2,221	6.7%	-17.0%
Repatha	2015	2030	Biologic (mAb)	High cholesterol	2,176	6.6%	8.8%
Otezla	2014	2028	Small molecule	Psoriasis	2,111	6.4%	-18.1%
Tepezza	2020	2032	Biologic (mAb)	Thyroid eye disease	1,978	6.0%	7.8%
Nplate	2008	2028	Biologic (protein)	Thrombo-cytopenia	1,596	4.8%	-4.3%
Evenity	2019	2031	Biologic (mAb)	Osteoporosis	1,548	4.7%	9.6%
Kyprolis	2012	2027	Small molecule	Multiple myeloma	1,517	4.6%	-10.7%
Aranesp	2001	2024	Biologic (hormone)	Anemia	1,351	4.1%	-7.4%
Blincyto	2015	2030	Biologic (mAb)	Acute lymphocytic leukemia	1,165	3.5%	7.9%
Krystexxa	2010	2030	Biologic (protein)	Chronic gout	1,139	3.4%	6.1%

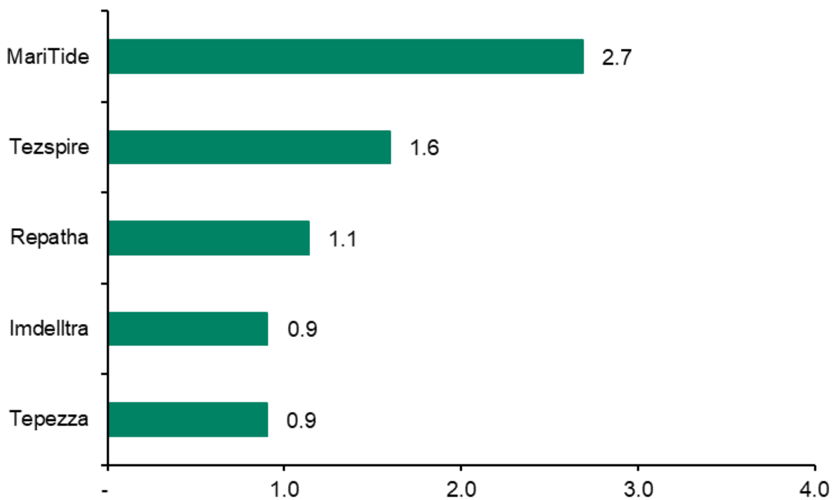
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Amgen

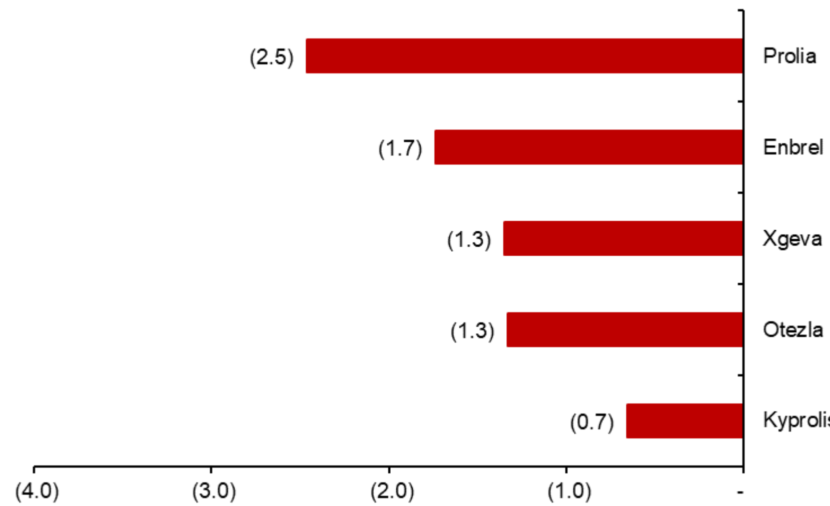
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to grow 3.7% in 2025 and at a 2.1% compound annual rate from $33.2 billion in 2024 to $36.9 billion in 2029. Amgen does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials.
- **Growth drivers:** There is a lot riding on MariTide, Amgen's clinical-stage GLP-1 injectable for diabetes and obesity. In MariTide's Phase II obesity trial, results were comparable to Eli Lilly's Zepbound and Novo Nordisk's Wegovy, with the drug showing similar efficacy and slightly more side effects. While the data failed to live up to lofty investor expectations, MariTide was still clearly effective in helping patients lose weight, and it is differentiated from other GLP-1 therapies by its less-frequent maintenance dosing regimen (monthly or potentially quarterly injections versus weekly injections for Zepbound and Wegovy). As a result, the drug remains on track to reach approval in 2027, and sales of MariTide are expected to quickly ramp up to $2.7 billion in 2029. Beyond MariTide, collective sales of currently approved drugs Tezspire (mAb for asthma), Repatha (mAb for high cholesterol), Imdelltra (mAb for small cell lung cancer), and Tepezza (mAb for thyroid eye disease) are forecast to grow at a 13.4% compound annual rate from $5.2 billion in 2024 (15.7% of revenue) to $9.7 billion in 2029 (26.5% of revenue).
- **Growth brakes:** Amgen's biggest headwind is expected to come from loss of exclusivity for its osteoporosis and bone health mAbs, Prolia and Xgeva, with collective sales of the drugs forecast to decline at a 15.8% compound annual rate from $6.6 billion in 2024 to $2.8 billion in 2029. In addition, sales of Enbrel (protein for rheumatoid arthritis) are expected to decrease at a 14.7% compound annual rate from $3.2 billion in 2024 to $1.4 billion in 2029 due to IRA-related pricing pressure and competitive headwinds. Other products facing major setbacks due to loss of exclusivity and competition include Otezla (small molecule for psoriasis) and Kyprolis (small molecule for multiple myeloma), with collective sales of these drugs forecast to decline from $3.6 billion in 2024 to $1.6 billion in 2029.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



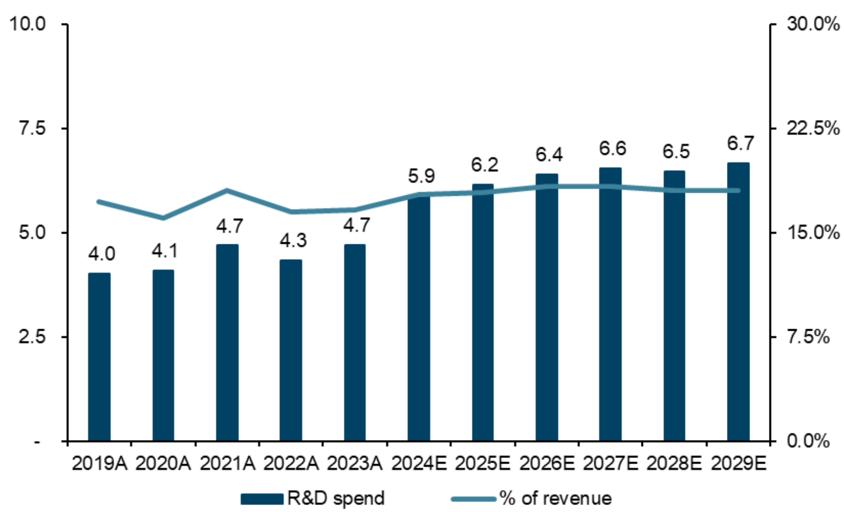
* $s in billions
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Amgen

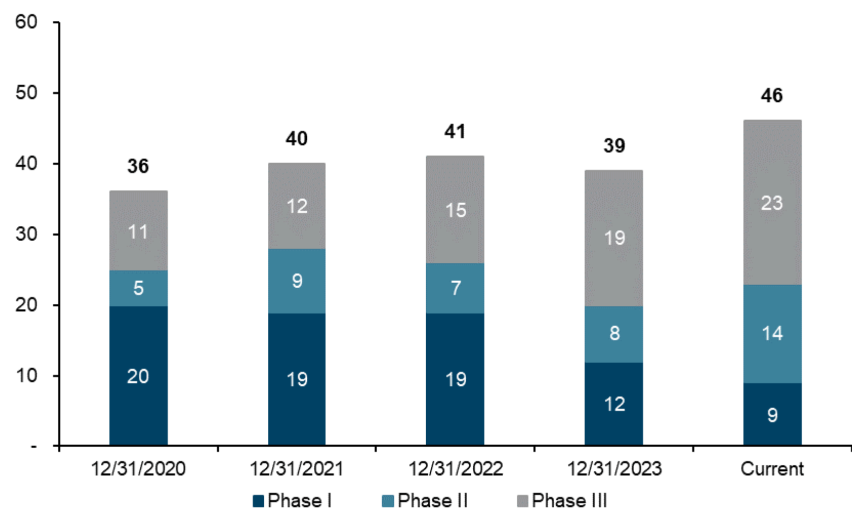
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is expected to increase 4.4% in 2025 and at a 2.5% compound annual rate from 2024 through 2029, increasing from $5.9 billion (17.8% of revenue) to $6.7 billion (18.1% of revenue) over the five-year period. Amgen currently has 46 clinical programs, up considerably from 39 clinical programs at the end of 2023, with roughly two-thirds of existing programs focused on hematology/oncology and inflammation. Over the last several years, the company's pipeline has meaningfully shifted toward late-stage trials, with half of its ongoing programs in Phase III currently versus less than a third of programs at the end of 2020.
- **Announced cost cuts:** None. Despite its modest top-line outlook, Amgen remains committed to spending on R&D through internal investments and strategic partnerships and acquisitions (e.g., its 2023 acquisition of rare disease specialist Horizon Therapeutics, Amgen's largest-ever acquisition, which drove the spike in R&D spend in 2024). The company increasing spending to support late-stage development, recently noting that increased R&D spend will result in its operating margins declining from 50% in 2023 to 47% in 2024.
- **IRA and election impact:** Amgen's Enbrel (protein for rheumatoid arthritis) was one of the first 10 negotiated drugs under the IRA, which cut the Medicare price for a 30-day supply of the drug from its current estimated net price of $3,572 to $2,355 (34.1% discount). Amgen does not generate any revenue from vaccines, and it currently does not have any vaccine candidates in development, meaning the company is insulated from any future policies that negatively impact uptake of approved vaccines or lead to a higher bar for future vaccine approvals.

R&D Spend ($s in Billions)



Clinical Programs by Stage of Development



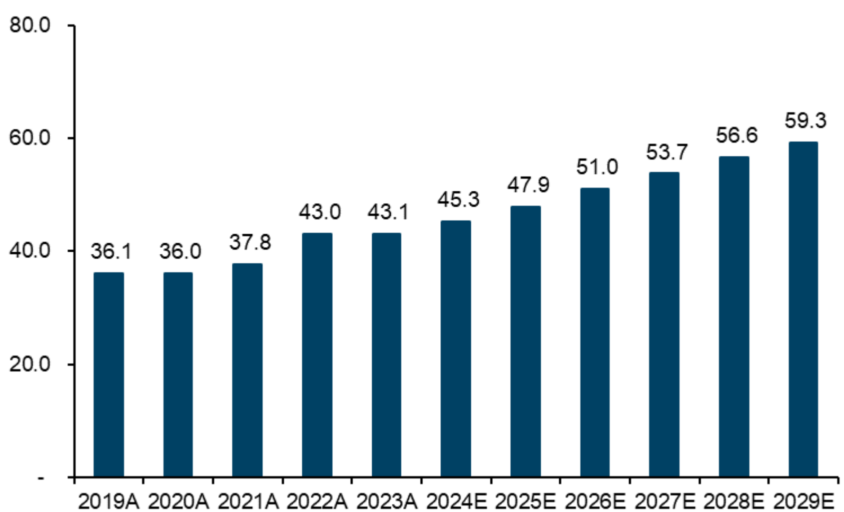
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Sanofi
Market Cap: $126 Billion

Overview

Bottom line: Like its partner Regeneron, Sanofi is extremely reliant on Dupixent and has little else to be excited about. However, the company is also not facing the loss of exclusivity and IRA-related pricing headwinds that are plaguing most companies in this report, and as a result, it has a relatively healthy outlook (5.5% revenue CAGR from 2024 through 2029). The bigger issue for Sanofi is its vaccine exposure (accounts for roughly 15% of revenue), which puts it among the companies most at risk from any potential government policies that negatively impact uptake of approved vaccines or lead to a higher bar for future approvals. Below the top line, Sanofi has meaningfully pulled back on its number of programs in development and clinical trials over the last several years, particularly with respect to early-stage development, but R&D spend projections look healthy (3.1% CAGR from 2024 through 2029), albeit likely too aggressive for 2025, in our view.

Revenue Forecast (€s in Billions)



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Key Products (€ in Millions)

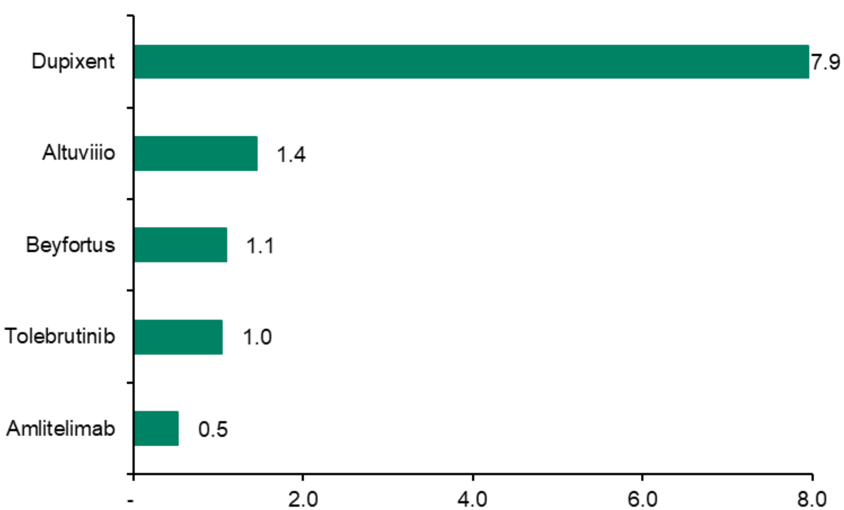
Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Dupixent	2017	2031	Biologic (mAb)	Eczema	13,194	29.1%	9.9%
Fluzone	1981	2029	Vaccine	Flu	2,546	5.6%	1.9%
Pentacel	1997	2002	Vaccine	Polio, DTaP, Hib	1,843	4.1%	0.7%
Lantus	2000	2015	Biologic (hormone)	Diabetes	1,517	3.3%	-10.1%
Beyfortus	2023	2035	Vaccine	RSV	1,413	3.1%	12.1%
Toujeo	2015	2031	Biologic (hormone)	Diabetes	1,230	2.7%	0.7%
Fabrazyme	2001	2015	Biologic (enzyme)	Fabry disease	1,036	2.3%	1.9%
Lovenox	1987	2010	Small molecule	Preventing blood clots	997	2.2%	-4.9%
Plavix	1998	2012	Small molecule	Preventing blood clots	932	2.1%	-0.5%
Altuviiio	2023	2035	Biologic (protein)	Hemophilia A	627	1.4%	27.1%

Sanofi

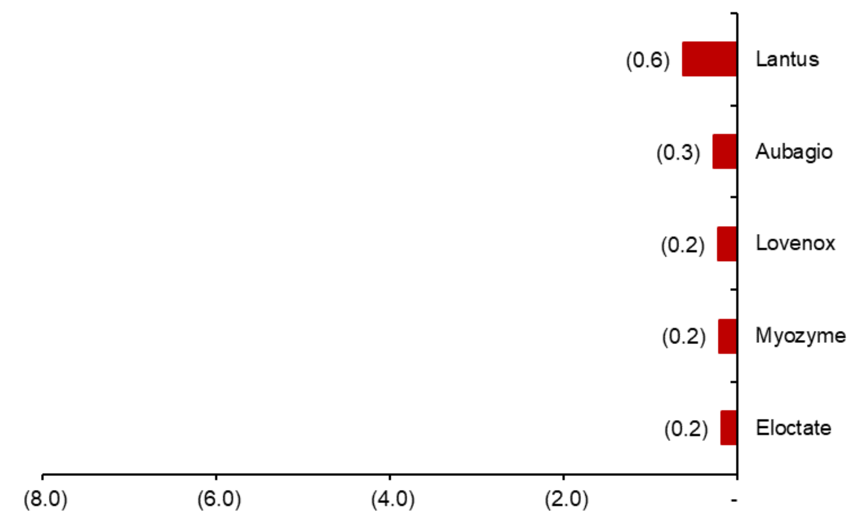
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to increase 5.8% in 2025 and at a 5.5% compound annual rate from €45.3 billion in 2024 to €59.3 billion in 2029. Over the same five-year period, vaccine revenue is forecast to grow at a 3.1% compound annual rate from €6.6 billion (14.6% of revenue) to €7.7 billion (13.0% of revenue).
- **Growth drivers:** Sanofi's most important product is Dupixent, a mAb for various autoimmune, dermatology, and gastrointestinal disorders, most notably eczema, that was developed in collaboration with Regeneron. Since its approval in 2017, Dupixent has become the go-to product for eczema, a position it is expected to comfortably maintain moving forward. Given its leadership position and a healthy outlook for eczema market growth, Sanofi's Dupixent revenue is forecast to grow at a 9.9% compound annual rate from €13.2 billion in 2024 (29.1% of revenue) to €21.1 billion in 2029 (35.7% of revenue). Beyond Dupixent, other notable growth drivers already on the market include Altuviiio (protein for hemophilia A) and Beyfortus (vaccine for RSV), with collective sales of these drugs expected to grow at a 17.6% compound annual rate from €2.0 billion in 2024 to €4.6 billion in 2029. In terms of products in development, tolebrutinib (Phase III small molecule for multiple sclerosis) and amlitelimab (Phase III mAb for eczema) are expected to collectively add €1.6 billion to the top line in 2029.
- **Growth brakes:** Sanofi may be a bit of a one-trick pony with respect to near-term growth drivers, but it is also not facing the loss of exclusivity and IRA-related pricing headwinds impacting most companies in this report. Collective sales of its top five growth brakes—Lantus (hormone for diabetes), Aubagio (small molecule for multiple sclerosis), Lovenox (small molecule for blood clots), Myozyme (enzyme for Pompe disease), and Eloctate (protein for hemophilia A)—are expected to decrease at a 9.1% compound annual rate from €3.9 billion in 2024 (8.7% of revenue) to €2.5 billion in 2029 (4.1% of revenue).

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



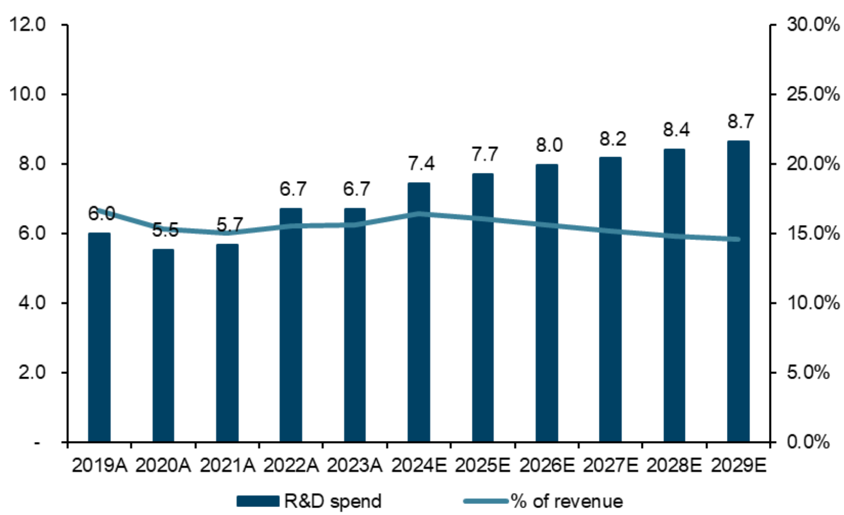
* €s in billions
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Sanofi

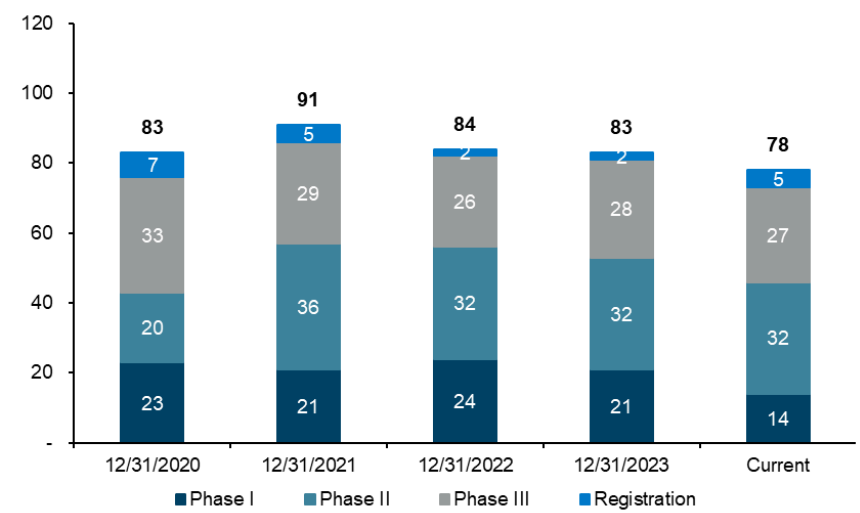
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is expected to increase at a 3.1% compound annual rate from €7.4 billion in 2024 (16.4% of revenue) to €8.7 billion in 2029 (14.6% of revenue). In 2025, R&D spend is projected to grow by 3.7%, even though Sanofi has stated that it expects R&D spend to be relatively flat. The company currently has 78 programs in its clinical pipeline (down from 83 programs at the end of 2023), including 38 programs in immunology, 13 programs in oncology, 12 vaccine programs, 8 programs in neurology, and 7 programs in rare diseases. Sanofi is currently supporting 112 clinical trials across its 78 programs, which is down from 115 ongoing trials at the end of 2023 and 144 ongoing trials at the end of 2021. Over the last couple of years, there has been a notable shift in Sanofi's pipeline to later-stage programs, with only 18% of current programs in Phase I versus roughly 30% at the end of 2022.
- **Announced cost cuts:** In early 2024, Sanofi launched strategic cost-cutting initiatives targeting up to €2.0 billion of savings by the end of 2025. Of this €2.0 billion of savings, the company expects €0.7 billion to come from reallocation of pipeline resources (e.g., from oncology to immunology), €0.6 billion from further leveraging procurement, and €0.7 billion from optimizing its country setup, increasing its degree of centralization, and refocusing R&D infrastructure and technology platforms. Despite these cuts, Sanofi has ambitious targets for a 50% increase in the number of Phase III studies, 25 mid- to late-stage readouts, and up to 19 regulatory submissions between 2023 and 2025.
- **IRA and election impact:** None of Sanofi's drugs were selected to be among the first 10 negotiated drugs under the IRA. However, vaccines are expected to account for 14.6% of total revenue in 2024, which puts the company at risk if future government policies negatively impact uptake of approved vaccines or lead to a higher bar for future vaccine approvals.

R&D Spend (€s in Billions)



Clinical Programs by Stage of Development



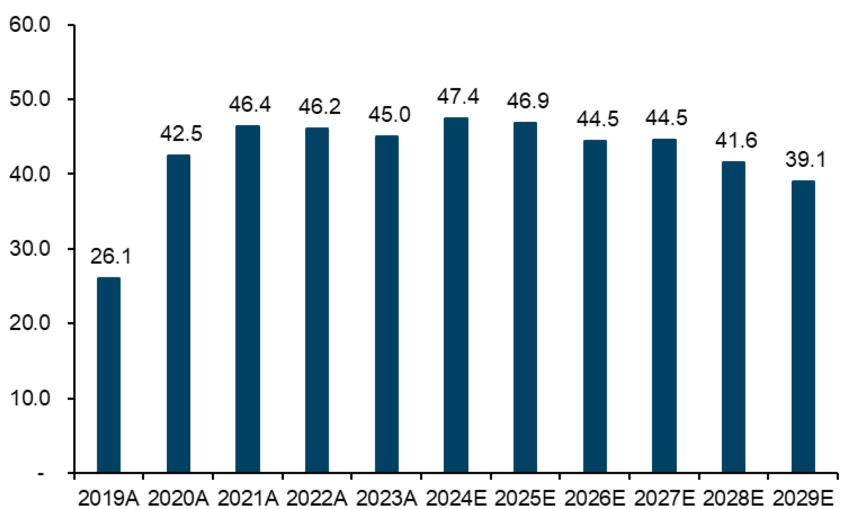
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Bristol Myers Squibb
Market Cap: $117 Billion

Overview

Bottom line: Pfizer gets a lot of attention as the poster child for the issues plaguing large pharma, but Bristol Myers deserves to be included in the conversation. Sales of the company's top 10 products, which account for nearly 90% of revenue, are set to decline at a 10.1% compound annual rate over the next five years due largely to loss of exclusivity. In addition, despite several recent notable acquisitions, there is not much to get excited about in Bristol Myers' late-stage pipeline, with its two most promising candidates only expected to collectively contribute roughly $1.6 billion to the top line in 2029. To protect its bottom line, Bristol Myers announced a plan in early 2024 to cut roughly $1.5 billion in costs by the end of 2024, with roughly two-thirds of these savings expected to come from R&D, and as a result, R&D is expected to decrease modestly from $9.5 billion in 2024 to $9.0 billion in 2029. One small silver lining, especially relative to Pfizer, is that Bristol Myers does not have any vaccine exposure.

Revenue Forecast ($s in Billions)



* Step-up in revenue due to company's acquisition of Celgene, which closed in November 2019
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Key Products ($s in Millions)

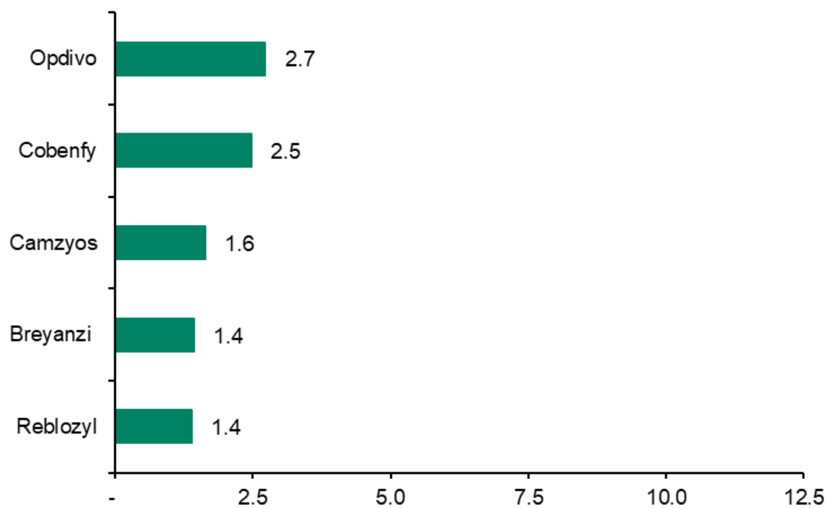
Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Eliquis	2011	2026	Small molecule	Blood clots	13,148	27.7%	-28.4%
Opdivo	2014	2028	Biologic (mAb)	Multiple types of cancer	9,309	19.6%	5.3%
Revlimid	2006	2022	Small molecule	Mult. types of blood cancer	5,548	11.7%	-42.4%
Orencia	2006	2019	Biologic (protein)	Rheumatoid arthritis	3,659	7.7%	-5.0%
Pomalyst	2013	2026	Small molecule	Multiple myeloma	3,514	7.4%	-37.5%
Yervoy	2011	2025	Biologic (mAb)	Multiple types of cancer	2,469	5.2%	-11.1%
Reblozyl	2019	2031	Biologic (protein)	Blood disorders	1,637	3.5%	13.0%
Sprycel	2006	2024	Small molecule	Leukemias	1,289	2.7%	-31.8%
Opdualag	2022	2034	Biologic (mAb)	Melanoma	930	2.0%	17.1%
Abraxane	2005	2022	Plant extract	Multiple types of cancer	886	1.9%	-19.5%

Bristol Myers Squibb

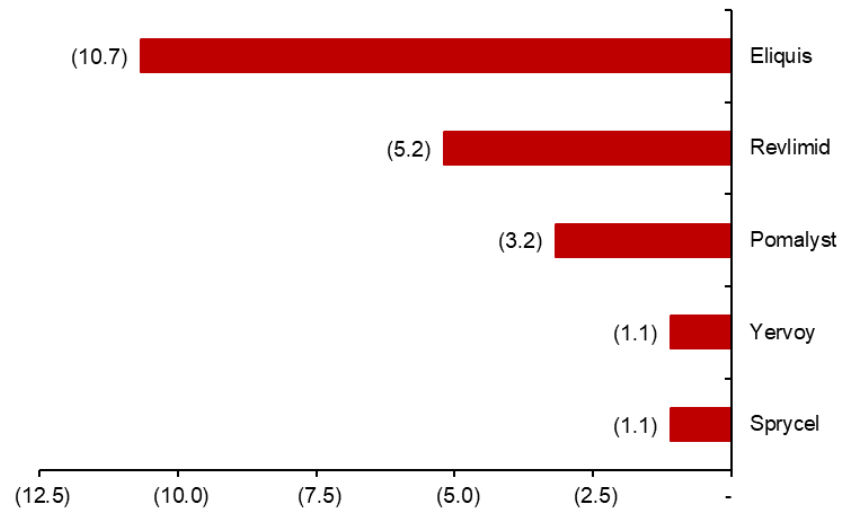
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to decline 1.1% in 2025 and at a 3.8% compound annual rate from $47.4 billion in 2024 to $39.1 billion in 2029. Bristol Myers does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials.
- **Growth drivers:** Bristol Myers' largest growth driver over the next five years is expected to be Opdivo, a monoclonal antibody used to treat 11 different forms of cancer, with sales forecast to increase at a 5.3% compound annual rate from $9.3 billion in 2024 to $12.0 billion in 2029. While the original formulation of Opdivo is set to lose exclusivity in 2028, revenues from the company's recently approved subcutaneous version of the drug are anticipated to help drive growth moving forward. Beyond Opdivo, collective sales of currently marketed products Cobenfy (small molecule for schizophrenia; acquired via Bristol Myers' 2024 takeover of Karuna Therapeutics), Camzyos (small molecule for hypertrophic cardiomyopathy), Breyanzi (CAR-T cell therapy for blood cancers), and Reblozyl (biologic for blood disorders) are expected to grow from $2.9 billion in 2024 to $9.8 billion in 2029.
- **Growth brakes:** Sales of Bristol Myers' top 10 products, which account for nearly 90% of revenue, are set to decline at a 10.1% compound annual rate over the next five years, with the largest headwind coming from Eliquis (small molecule blood thinner) as it faces loss of exclusivity in key European markets in the second half of 2026 and IRA-related pricing pressure (sales expected to decrease at a 28.4% compound annual rate from $13.1 billion in 2024 to $2.5 billion in 2029). Similarly, collective sales of Revlimid (small molecule for blood cancers), Pomalyst (small molecule for multiple myeloma), Yervoy (monoclonal antibody for seven types of cancer), and Sprycel (small molecule for leukemias) are expected to decrease at a 29.4% compound annual rate from $12.8 billion in 2024 to $2.2 billion in 2029 due to competition and loss of exclusivity.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



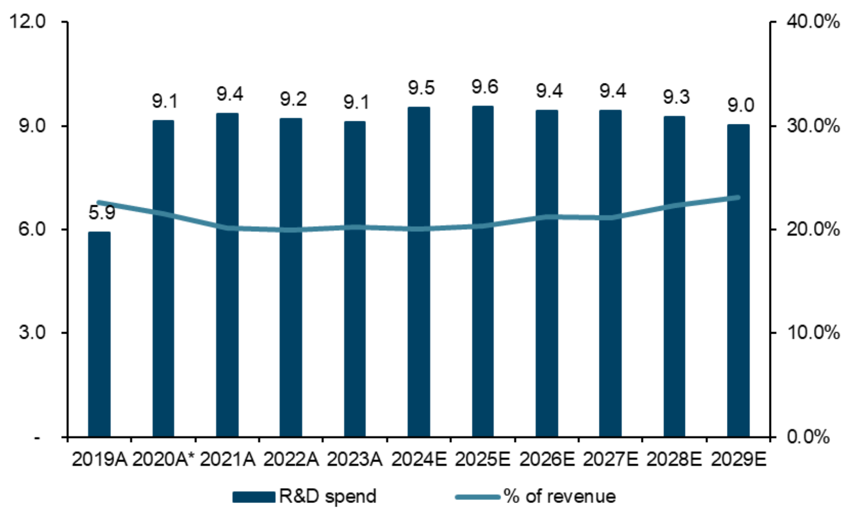
* $s in billions
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Bristol Myers Squibb

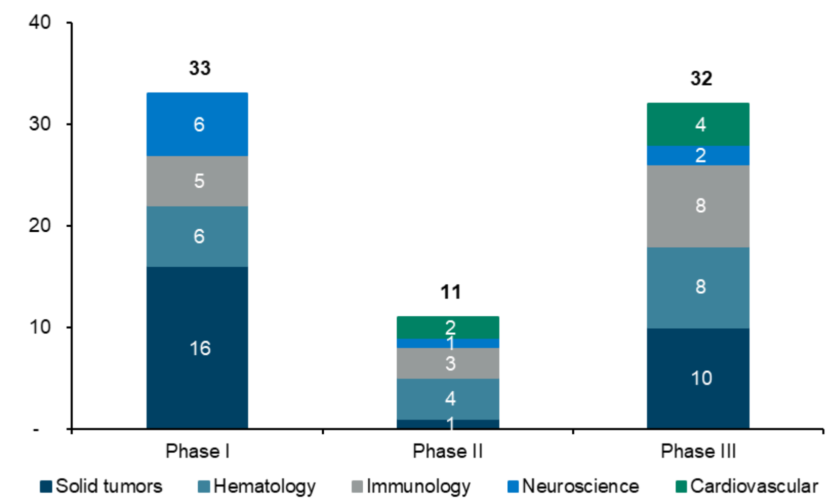
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is forecast to be roughly flat in 2025 and decrease at a 1.1% compound annual rate over the next five years, shrinking from $9.5 billion in 2024 (20.1% of revenue) to $9.0 billion in 2029 (23.1% of revenue). In terms of its pipeline, Bristol Myers currently has 51 compounds in development with 76 ongoing programs in total (33 in Phase I, 11 in Phase II, and 32 in Phase III). Despite several recent notable acquisitions—including Mirati in October 2023, RayzeBio in February 2024, and Karuna Therapeutics in March 2024—there is not much to get excited about in the company's late-stage pipeline, with its two most promising candidates (beyond the subcutaneous version of Opdivo), Milvexian (small molecule blood thinner) and Iberdomide (small molecule for multiple myeloma), only expected to collectively contribute roughly $0.8 billion to the top line in 2029.
- **Announced cost cuts:** In early 2024, Bristol Myers announced its plan to cut roughly $1.5 billion in costs by the end of 2024, with roughly two-thirds of these savings expected to come from R&D. As part of its cost-saving initiative, the company slashed around a dozen clinical programs, committed to cutting over 2,000 employees, and indicated that it would be open to further pipeline and spending cuts if necessary to improve productivity and efficiency.
- **IRA and election impact:** Bristol Myers' Eliquis (small molecule blood thinner) was one of the first 10 negotiated drugs under the IRA, which slashed the Medicare price for a 30-day supply of the product from its current estimated net price of $309 to $231 (25% discount). In regard to the election, Bristol Myers does not generate any revenue from vaccines and does not currently have any vaccine candidates being evaluated in clinical trials, meaning the company is not at risk if future government policies negatively impact vaccine uptake or approvals.

R&D Spend ($s in Billions)



Clinical Programs by Stage of Development



* Step-up in R&D spend due to company's acquisition of Celgene, which closed in November 2019

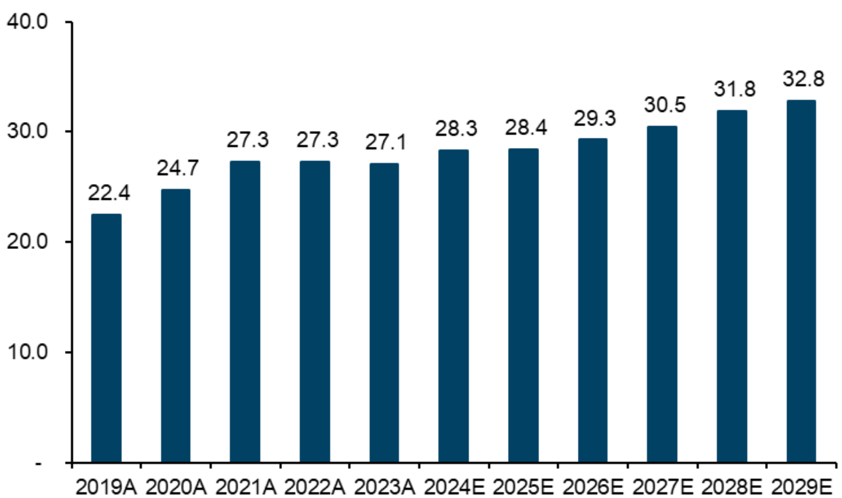
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Gilead
Market Cap: $117 Billion

Overview

Bottom line: Gilead's issue is not loss of exclusivity or IRA-related pricing pressure, but rather lackluster HIV therapy market growth and tough competition. The company generates nearly two-thirds of its revenue from HIV products and looks set to maintain its leadership position in the treatment and pre-exposure prophylaxis (PrEP) markets; however, total sales from its HIV drugs are expected to increase at an anemic 1.2% compound annual rate over the next five years. Gilead's total top-line outlook is slightly better (3.0% revenue CAGR from 2024 through 2029), but beyond a couple of interesting next-generation oncology drugs, the cupboard looks pretty bare. Below the top line, Gilead has announced several cuts to headcount over the last two years and significantly scaled back the number of programs in development since the end of 2023, yet R&D spend is forecast to increase roughly in line with revenue growth moving forward. Gilead does not have any vaccine revenue or vaccines in development.

Revenue Forecast ($s in Billions)



Key Products ($s in Millions)

Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Biktarvy	2018	2033	Small molecue	HIV	12,936	45.7%	1.3%
Descovy	2016	2031	Small molecue	HIV (including prevention)	1,934	6.8%	-7.6%
Genvoya	2015	2029	Small molecue	HIV	1,745	6.2%	-21.6%
Yescarta	2017	2031	Biologic (C&GT)	Non-Hodgkin lymphoma	1,670	5.9%	9.1%
Epclusa	2016	2033	Small molecue	Hepatitis C	1,619	5.7%	-11.4%
Veklury	2020	2035	Small molecue	COVID-19	1,346	4.8%	-15.2%
Trodelvy	2020	2032	Biologic (ADC)	Breast cancer	1,327	4.7%	16.2%
Odefsey	2016	2032	Small molecue	HIV	1,259	4.5%	-12.0%
Vemlidy	2016	2031	Small molecue	Hepatitis B	918	3.2%	-7.6%
Symtuza	2017	2029	Small molecue	HIV	595	2.1%	-5.1%

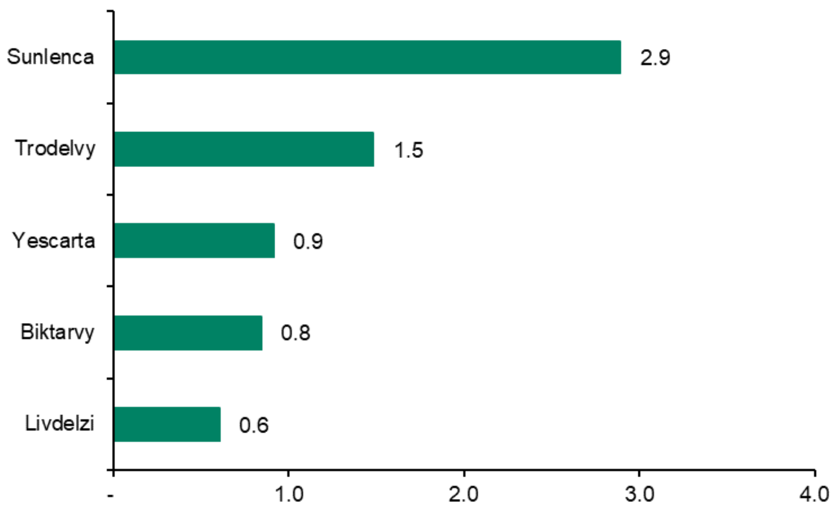
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Gilead

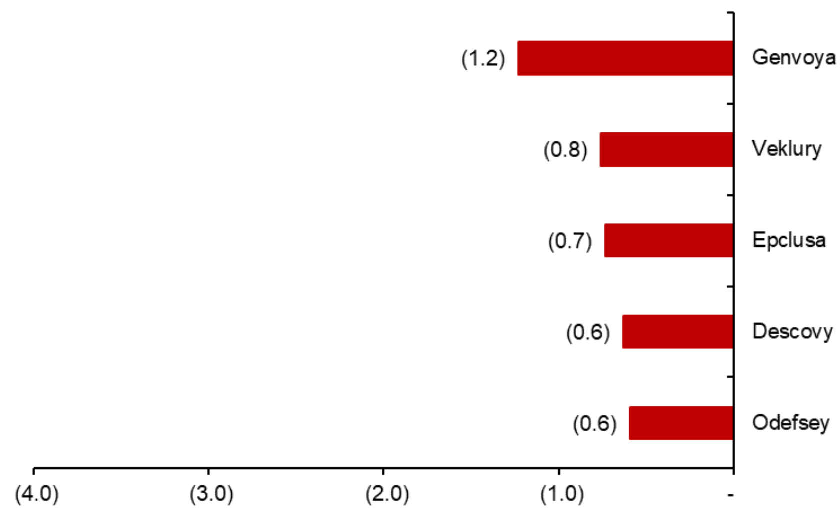
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to be roughly flat in 2025 and grow at a 3.0% compound annual rate from $28.3 billion in 2024 to $32.8 billion in 2029. Gilead does not generate any revenue from vaccines, and it currently does not have any vaccine candidates being evaluated in clinical trials.
- **Growth drivers:** Gilead's major growth driver is Sunlenca, a small molecule currently approved for HIV treatment with expansion into the HIV PrEP market expected in 2025. By positioning the drug as the first long-acting PrEP option with a twice-yearly dosing schedule, Gilead believes Sunlenca has a chance to redefine the PrEP market. This view seems to be shared by analysts, with projected sales of the drug forecast to increase from less than $0.1 billion in 2024 to nearly $3.0 billion in 2029. In the HIV treatment space, Biktarvy (small molecule) looks set to maintain its leading position, but due to lackluster market growth and tough competition, sales are only expected to grow at a 1.3% compound annual rate from $12.9 billion in 2024 to $13.8 billion in 2029. Within oncology, collective sales of Trodelvy (antibody-drug conjugate for breast cancer) and Yescarta (CAR-T cell therapy for non-Hodgkin lymphoma) are forecast to increase at a 12.5% compound annual rate from $3.0 billion in 2024 to $5.4 billion in 2029. Sales of recently approved Livdelzi (small molecule for cirrhosis) are expected to reach $0.6 billion in 2029.
- **Growth brakes:** Gilead's issue is not loss of exclusivity or IRA-related pricing pressure, but rather lackluster HIV market growth and tough competition. Collective sales of Genvoya (small molecule for HIV treatment), Descovy (small molecule for HIV treatment and PrEP), and Odefsey (small molecule for HIV treatment) are expected to decrease at a 12.8% compound annual rate from $4.9 billion in 2024 to $2.5 billion in 2029. Beyond HIV, sales of small molecule Epclusa are expected to decline at a 11.4% compound annual rate from $1.6 billion in 2024 to $0.9 billion in 2029 due to intense competition and discounted pricing in the hepatitis C space. Sales of Veklury, a small molecule for COVID-19, are expected to decrease at a 15.2% compound annual rate from $1.3 billion in 2024 to $0.6 billion in 2029.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



* $s in billions

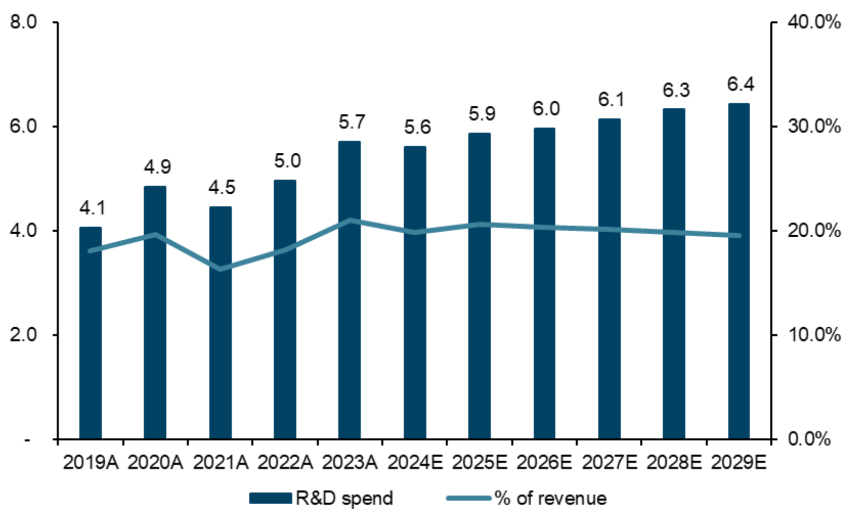
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Gilead

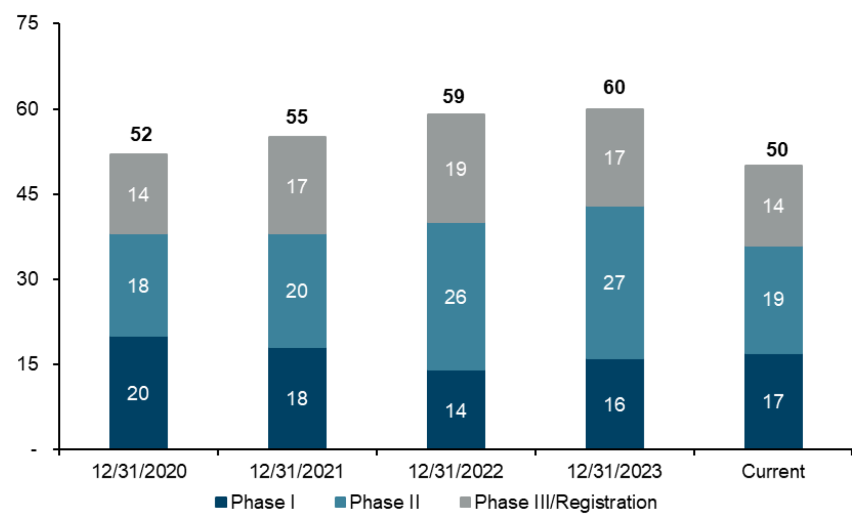
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is forecast to grow 4.3% in 2025 and at a 2.8% compound annual rate from 2024 through 2029, increasing from $5.6 billion (19.9% of revenue) to $6.4 billion (19.6% of revenue) over the five-year period. Gilead's pipeline has shrunken considerably over the last year, going from 60 programs at the end of 2023 to 50 programs currently. By therapeutic area, 29 of the company's ongoing programs are in oncology (versus 38 at the end of 2023), 13 are for viral diseases (versus 17 at the end of 2023), and 8 are for inflammatory diseases (versus five at the end of 2023).
- **Announced cost cuts:** Understandably, Gilead's R&D efforts are geared toward reducing its dependence on its HIV franchise, most notably by expanding its oncology portfolio. Within oncology, the company has had some success with emerging modalities such as antibody-drug conjugates and cell therapies, but it has also encountered challenges that have resulted in several rounds of layoffs over the last couple years. In late 2023, Gilead announced it was cutting about 7% of the workforce at its cell therapy subsidiary, Kite Pharma. The company followed this up in 2024 by cutting 72 staffers at its R&D-focused Seattle location and 104 positions at its headquarters in Foster City, California.
- **IRA and election impact:** Gilead did not have any drugs selected to be among the first 10 negotiated drugs under the IRA. However, Biktarvy, the company's gold-standard HIV treatment that is expected to account for 45.7% of 2024 revenue, could be subject to price negotiations starting in 2028. Gilead does not generate any revenue from vaccines, and it currently does not have any vaccine candidates in development, meaning the company is insulated from any future policies that negatively impact uptake of approved vaccines or lead to a higher bar for future vaccine approvals.

R&D Spend ($s in Billions)



Clinical Programs by Stage of Development



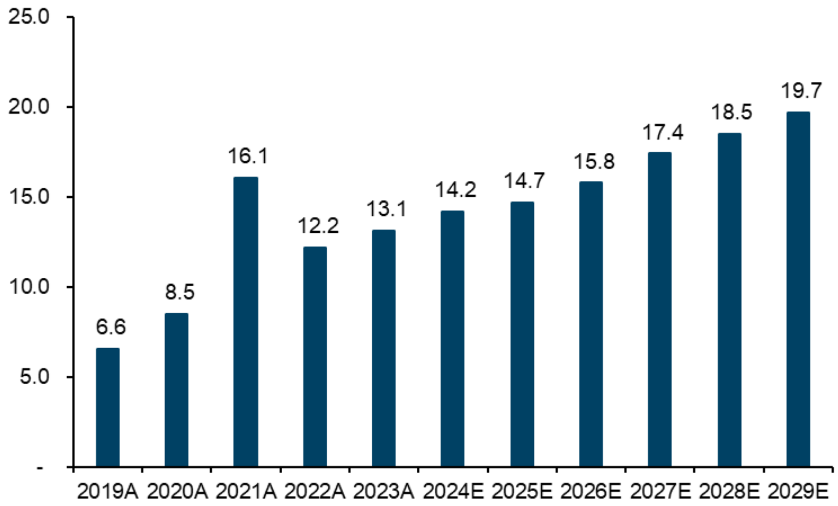
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Regeneron
Market Cap: $80 Billion

Overview

Bottom line: Regeneron's outlook is relatively compelling, but things are not going as well for the company as they have in the past. Revenue is expected to grow 3.7% in 2025 and at a 6.8% compound annual rate from 2024 through 2029, well below the 16.7% CAGR observed over the prior five years. The main reason for the slowdown is Eylea's loss of exclusivity, although the launch of Eylea HD is projected to offset the lion's share of declining sales from the legacy product. Beyond its Eylea franchise, it is hard to see Regeneron being anything other than a one-trick pony with Dupixent for the foreseeable future. Below the top line, Regeneron looks poised to continue investing heavily in R&D, albeit more modestly than it has in the past—R&D spend is projected to increase 7.1% in 2025 and at a 4.7% compound annual rate from 2024 through 2029 (versus 20.8% CAGR from 2019 to 2024). Regeneron does not have any vaccine revenue, but it does have partnerships with companies developing various formats of vaccines.

Revenue Forecast ($s in Billions)



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

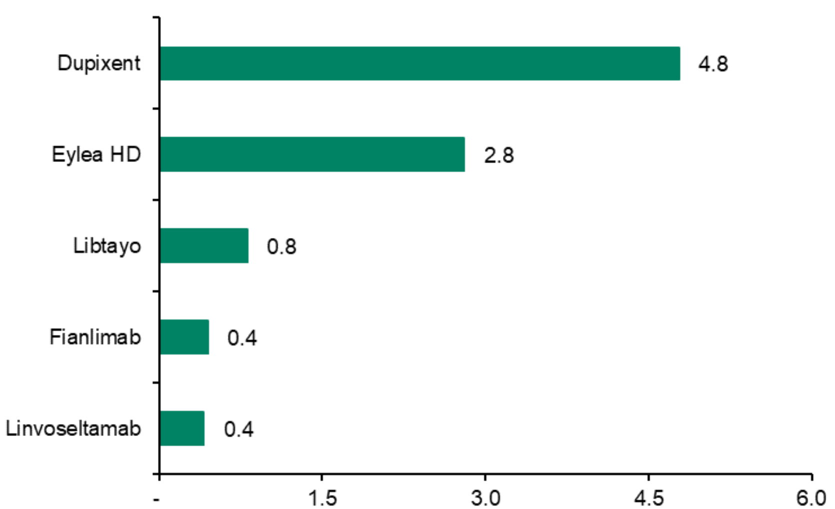
Key Products ($s in Millions)

Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Eylea	2011	2024	Biologic (protein)	Wet age-related macular degeneration	6,180	43.6%	-21.2%
Dupixent	2017	2031	Biologic (mAb)	Eczema	4,481	31.6%	15.6%
Eylea HD	2023	2032	Biologic (protein)	Wet age-related macular degeneration	1,320	9.3%	25.6%
Libtayo	2018	2035	Biologic (mAb)	Skin cancer, non-small cell lung cancer	1,171	8.3%	11.1%

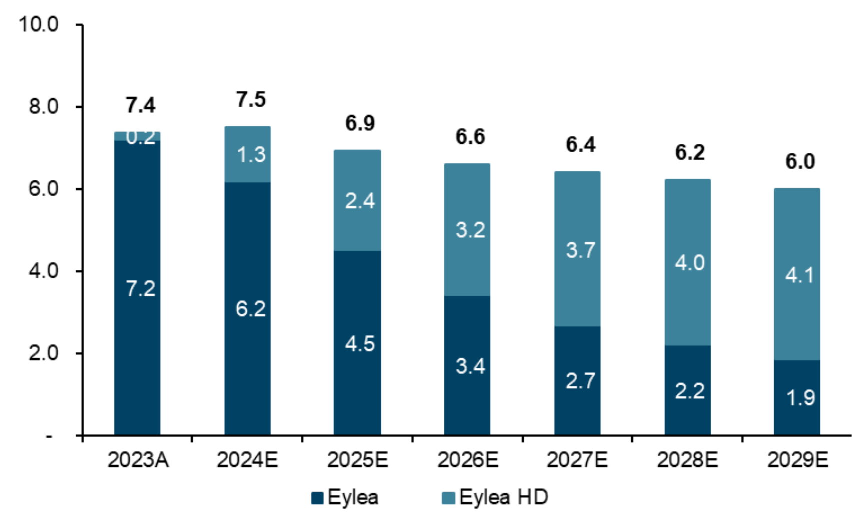
Regeneron
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to increase 3.7% in 2025 and at a 6.8% compound annual rate from $14.2 billion in 2024 to $19.7 billion in 2029. Regeneron does not generate any revenue from vaccines, but it does have partnerships with companies developing various formats of vaccines.
- **Growth drivers:** Regeneron's most important product is Dupixent, a mAb for various autoimmune, dermatology, and gastrointestinal disorders, most notably eczema. The product was developed in collaboration with Sanofi, which will capture the majority of Dupixent revenue but only slightly more of its profit than Regeneron. Since its approval in 2017, the drug has become the go-to product for eczema, a position it is expected to comfortably maintain. Given its leadership position and a healthy outlook for eczema market growth, Regeneron's Dupixent collaboration revenue is forecast to grow at a 15.6% compound annual rate from $4.5 billion in 2024 (31.6% of revenue) to $9.3 billion in 2029 (47.0% of revenue). Beyond Dupixent and Eylea HD (discussed below), collective sales of Libtayo (mAb for skin cancer and non–small-cell lung cancer), Fianlimab (clinical mAb in development for melanoma), and Linvoseltamab (clinical mAb in development for multiple myeloma) are forecast to increase from $0.9 billion in 2024 to $2.8 billion in 2029.
- **Growth brakes:** The only headwind for Regeneron is Eylea, its protein-based therapy for wet age-related macular degeneration that was co-developed with Bayer. The drug's U.S. patent expired in 2024, and the FDA subsequently approved two interchangeable biosimilars to Eylea later in the year. To offset Eylea's loss of exclusivity, Regeneron and Bayer launched Eylea HD in 2023. Eylea HD delivers a higher concentration of active ingredient compared to Eylea and therefore cuts down on the number of required injections. Eylea HD sales are expected to offset the lion's share of declining Eylea sales, with Regeneron's collective revenue from the two drugs forecast to decline at a 4.4% compound annual rate from $7.5 billion in 2024 (52.9% of revenue) to $6.0 billion in 2029 (30.4% of revenue).

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Eylea Versus Eylea HD*



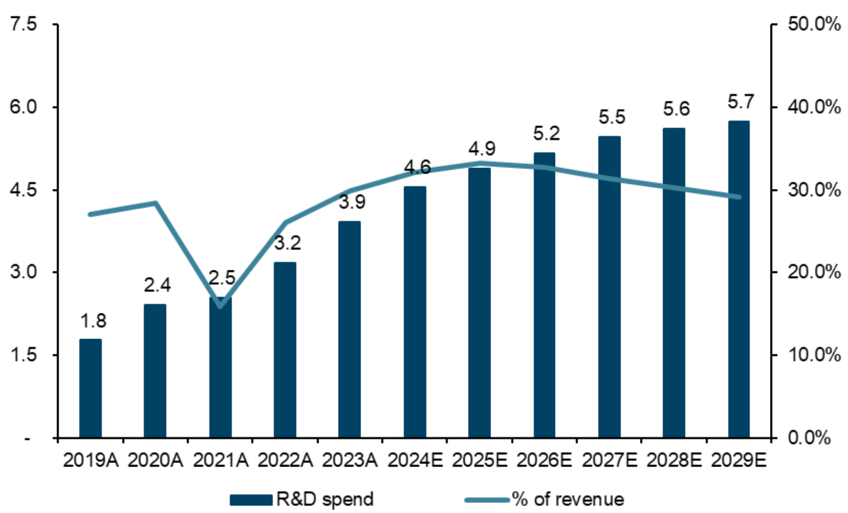
* $s in billions
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Regeneron

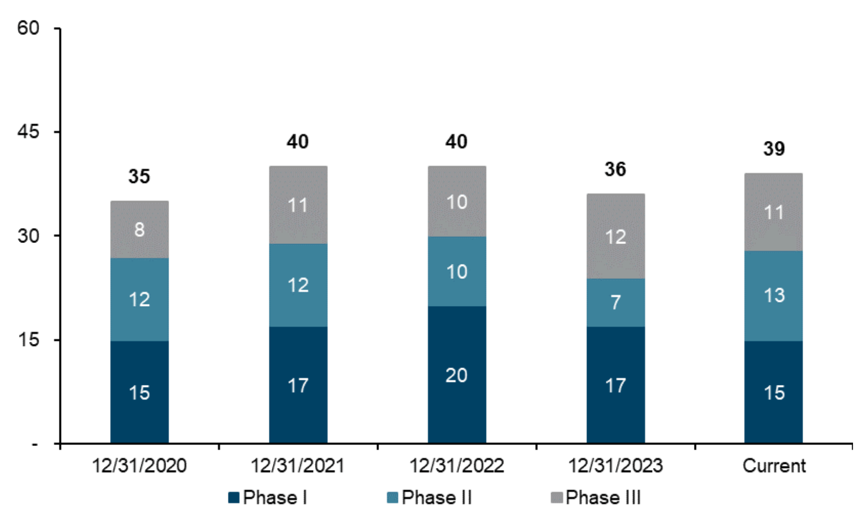
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is expected to grow 7.1% in 2025 and at a 4.7% compound annual rate from 2024 through 2029, increasing from $4.6 billion (32.2% of revenue) to $5.7 billion (29.2% of revenue) over the five-year period. Regeneron currently has 39 drugs in its clinical pipeline, up from 36 candidates at the end of 2023, with roughly half of these products focused on hematology/oncology. Outside of hematology/oncology, the most interesting product in Regeneron's pipeline is Trevogrumab, a mAb that is currently being evaluated in a Phase II trial for obesity. By giving Trevogrumab with a GLP-1 drug, Regeneron believes it can reduce the amount of muscle loss experienced by patients and improve the quality of weight loss that patients experience.
- **Announced cost cuts:** None. In 2021, Regeneron announced a six-year, $1.8 billion expansion project at its existing Westchester County, New York, campus to boost research, preclinical production, and support facilities at the site. As part of the ongoing initiative, the company planned to add 1,000 staffers to the site over the following five years. In addition, in 2024, Regeneron acquired 2seventy bio's preclinical and clinical cell therapy programs, as well as 160 employees from 2seventy bio who were supporting the acquired programs. These new employees joined Regeneron's cell medicines unit, a newly formed R&D division focused on advancing cell therapies and combination approaches in oncology and immunology.
- **IRA and election impact:** Regeneron did not have any drugs selected to be among the first 10 negotiated drugs under the IRA, and the company has not made any changes to its drug development approach based on the legislation. In regard to the election, Regeneron does not generate any revenue from vaccines, but it does have partnerships with companies developing various formats of vaccines. However, overall, the company is relatively insulated from any future government policies that negatively impact uptake of approved vaccines or lead to a higher bar for future vaccine approvals.

R&D Spend ($s in Billions)



Clinical Drugs by Stage of Development



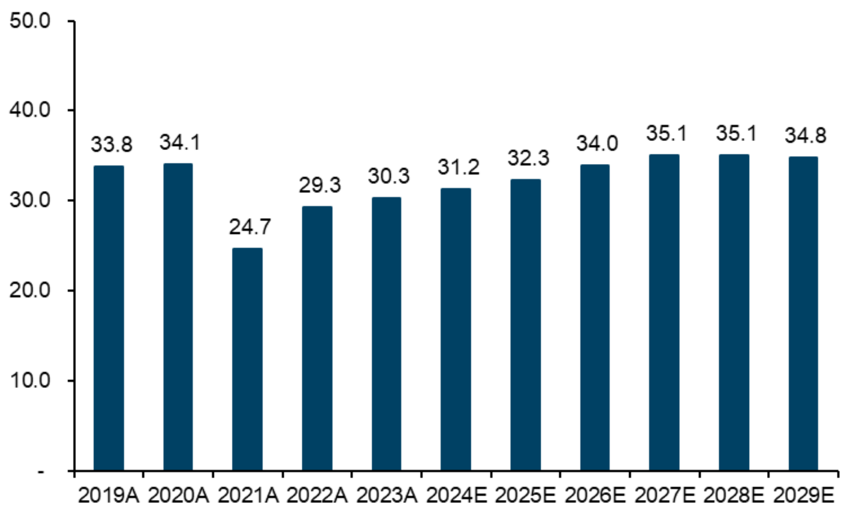
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

GSK
Market Cap: $68 Billion

Overview

Bottom line: One could make a strong case for GSK having the worst outlook among companies included in this report. In the past, investors have looked to GSK for its leading vaccine division (accounts for roughly 30% of revenue), but poor results from this segment weighed on shares in 2024. Even if the vaccine division was performing better, it is a tough time to be a company with outsized vaccine exposure given the risk that future government policies negatively impact uptake of approved vaccines or lead to a higher bar for future vaccine approvals. GSK's outlook outside of vaccines is not much better, as the company faces headwinds from competition and loss of exclusivity in two other key markets—COPD/asthma and HIV. Given these headwinds, revenue projections for the next five years seem bleak (2.2% CAGR for 2024 through 2029) but, arguably, not bleak enough. The outlook for R&D spend is even worse (1.8% CAGR for 2024 through 2029), although GSK has not announced any major cost-saving initiatives.

Revenue Forecast (£s in Billions)



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Key Products (£ in Millions)

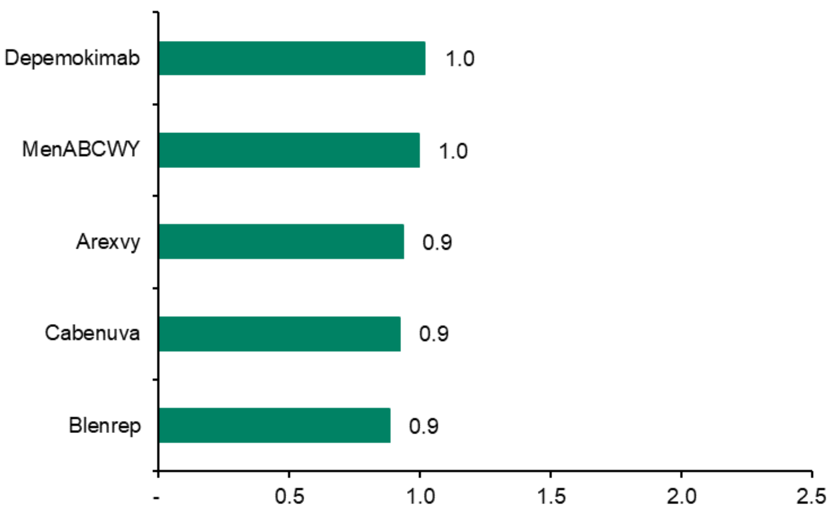
Product	First launch	Key patent expiry	Modality	Primary indication	2024E revenue		Est. CAGR - '24-'29
					Amount	% of total	
Shingrix	2017	2029	Vaccine	Shingles	3,368	10.8%	2.6%
Trelegy Ellipta	2017	2027	Small molecule	COPD	2,681	8.6%	-2.2%
Dovato	2019	2028	Small molecule	HIV	2,179	7.0%	-1.1%
Nucala	2015	2027	Biologic (mAb)	Asthma	1,795	5.7%	-1.8%
Benlysta	2011	2025	Biologic (mAb)	Lupus	1,484	4.8%	-1.0%
Triumeq	2014	2028	Small molecule	HIV	1,311	4.2%	-26.2%
Tivicay	2013	2028	Small molecule	HIV	1,308	4.2%	-21.0%
Breo Ellipta	2013	2025	Small molecule	COPD and asthma	1,076	3.4%	-7.7%
Advair	1998	2016	Small molecule	COPD and asthma	1,022	3.3%	-10.3%
Cabenuva	2020	2026	Small molecule	HIV (including prevention)	987	3.2%	14.1%
Bexsero	2013	2027	Vaccine	Meningitis	943	3.0%	0.9%
Arexvy	2023	2030	Vaccine	RSV	751	2.4%	17.5%

GSK

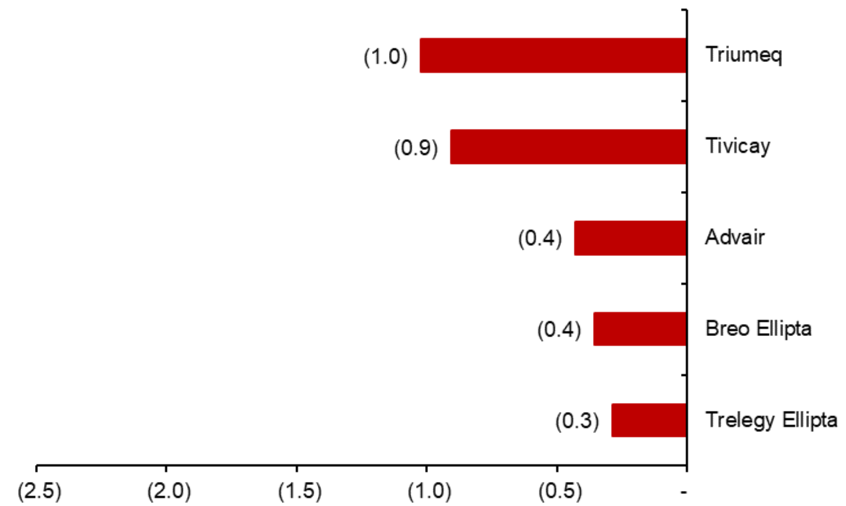
Revenue

- **Total revenue**: According to Visible Alpha, total revenue is expected to increase 3.3% in 2025 and at a 2.2% compound annual rate from £31.2 billion in 2024 to £34.8 billion in 2029. Over the same five-year period, vaccine revenue is forecast to grow at a 6.0% compound annual rate from £9.3 billion (29.7% of revenue) to £12.4 billion (35.6% of revenue).
- **Growth drivers:** GSK has two notable products set to launch in 2025—depemokimab (mAb for asthma) and MenABCWY (vaccine that protects against five serogroups of bacteria that cause meningococcal disease). While depemokimab will be playing catch-up in the crowded asthma market, GSK believes the drug's status as the first approved ultra-long-acting biologic will help it gain share. MenABCWY, on the other hand, is forecast to gradually become the leading drug in the meningitis prophylaxis market thanks to its broad coverage, adding to GSK's already dominant position in the space. In terms of drugs currently on the market, the most notable product, in our view, is Blenrep, an antibody-drug conjugate for multiple myeloma that has shown better data than its closest competitor, Johnson & Johnson's Darzalex. Other notable products include Arexvy (vaccine for RSV) and Cabenuva (small molecule for HIV treatment and prevention). Total sales from these three marketed products are forecast to increase at a 20.7% compound annual rate from £1.7 billion in 2024 to £4.5 billion in 2029.
- **Growth brakes:** Poor vaccine results weighed on GSK shares in 2024, but moving forward, the company faces headwinds in two other core markets—HIV and COPD/asthma. Within HIV, sales of Triumeq and Tivicay are expected to decline at a 23.4% compound annual rate from £2.7 billion in 2024 to £0.7 billion in 2029 on the back of declining demand for HIV treatments and share loss. The outlook in COPD/asthma looks better by comparison, but collective sales of Advair, Breo Ellipta, and Trelegy Ellipta are forecast to decline at a 4.9% compound rate from £4.8 billion in 2024 to £3.7 billion in 2029 due to loss of exclusivity.

Growth Drivers (Change in Product Sales from 2024 to 2029)*



Growth Brakes (Change in Product Sales from 2024 to 2029)*



* £s in billions

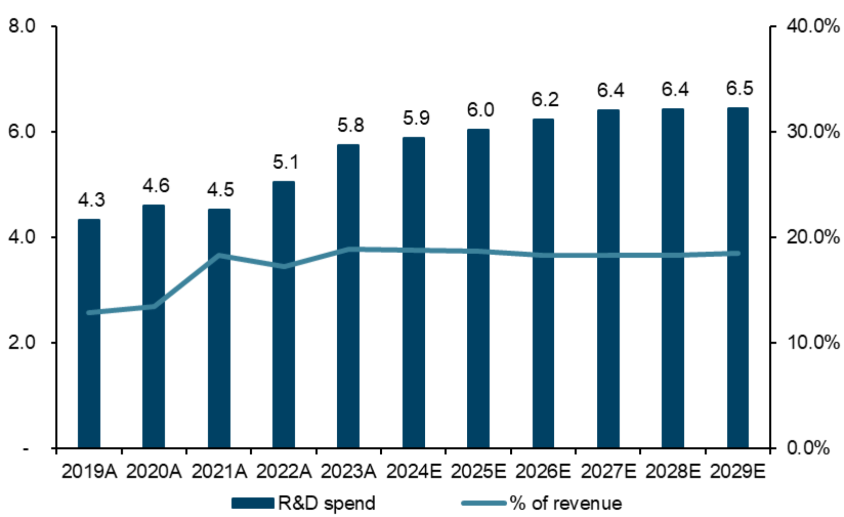
Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

GSK

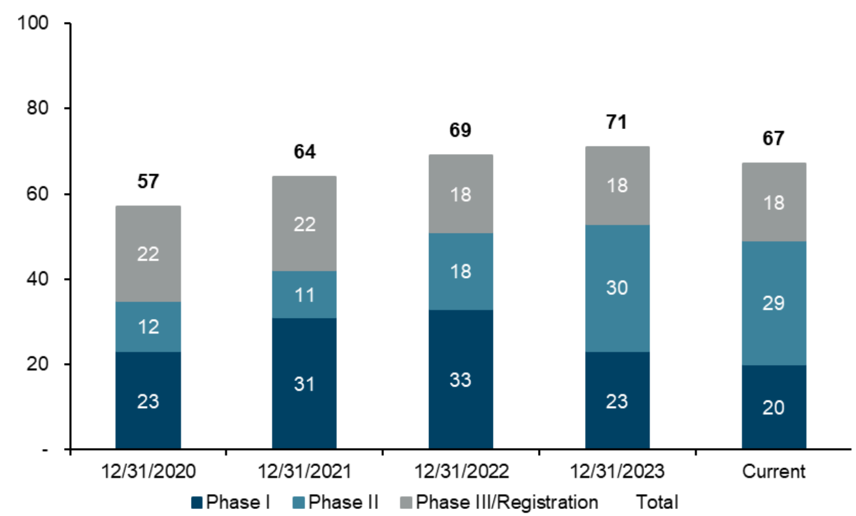
Research and Development

- **R&D spend and pipeline detail**: According to Visible Alpha, R&D spend is expected to increase 2.6% in 2025 and at an anemic 1.8% compound annual rate from £5.9 billion in 2024 (18.9% of revenue) to £6.5 billion in 2029 (18.5% of revenue). GSK currently has 67 clinical assets in development (down from 71 at the end of 2023), including 31 drugs for infectious diseases, 15 drugs for respiratory diseases, 12 drugs in oncology, 6 drugs for HIV, and 3 for other diseases. The company is currently supporting 88 clinical programs across its 67 clinical assets, which is roughly flat versus 87 ongoing programs at the end of 2023. Over the last several years, there has been a shift in GSK's pipeline to early-stage candidates, with only 27% of current drugs in Phase III, versus 39% at the end of 2020.
- **Announced cost cuts:** GSK has not announced any major cost-saving initiatives despite its modest top-line outlook. However, in early 2024, GSK laid off the majority of Bellus Health employees who joined GSK after it acquired the company in 2023. Prior to these layoffs, GSK announced a slight R&D reshuffle in September 2023, although the company noted the vast majority of roles across the division were unchanged.
- **IRA and election impact:** Among the companies in this report, GSK is the most at risk if future government policies negatively impact uptake of approved vaccines or lead to a higher bar for future vaccine approvals. Roughly 30% of GSK's 2024 revenue is expected to come from vaccines, and sales of vaccines are expected to be the primary growth driver for the company moving forward, increasing at a projected 6.0% compound annual rate from 2024 through 2029 versus 0.4% growth from GSK's non-vaccine businesses over the same five-year period. One modest silver lining is that GSK did not have any drugs selected to be among the first 10 negotiated drugs under the IRA.

R&D Spend (£s in Billions)



Clinical Drugs by Stage of Development



Sources: Evaluate Pharma, Visible Alpha, company filings, and William Blair Equity Research

Avid risks. We view the following as key risks for Avid in the next three to five years: 1) reputational harm stemming from quality-assurance problems with the FDA or other regulators; 2) a slowing in orders from the company's top customer; 3) a material reduction in biotech funding; and 4) a slower-than-expected ramp-up in cell and gene therapy work leading to facility underutilization and margin pressure.

Certara risks. We view the following as key risks for Certara in the next three to five years: 1) mix-related margin erosion if service contracts outpace software sales; 2) competitive pressures from CROs; 3) biopharma client unwillingness to share data; and 4) pressure to move toward a more unified software platform that could shift resources away from growth investments.

Charles River risks. We view the following as key risks for Charles River in the next three to five years: 1) a slowdown in the R&D spending environment; 2) a material reduction in biotech funding; and 3) increased competitive pricing for preclinical toxicology services.

Fortrea risks. Fortrea has a limited history of operating as a standalone business; the company could lose share because of execution issues and spin-related disruptions; the weak biotech funding environment could lead to a decrease in R&D spending by biopharmaceutical companies; the company has a high debt burden in comparison to its earnings; and outsourcing penetration rates could reach a ceiling.

ICON risks. We view the following as key risks for ICON: 1) a slowdown in the R&D spending environment due to lower end-market pricing or other exogenous factors; 2) a material reduction in the amount of biotech funding; and 3) increased pressure in the clinical CRO industry.

IQVIA risks. We view the following as key risks for IQVIA: 1) a slowdown in the R&D spending environment due to lower end-market pricing or other exogenous factors; 2) a material reduction in the amount of biotech funding; and 3) increased competitive pricing pressure in the clinical CRO industry.

Lonza risks. We view the following as key risks for Lonza's stock over the next one to three years: 1) a slowdown in the clinical development pipeline; 2) a reduction in the use of outsourcing for manufacturing; 3) increased competitive pricing pressure in the CDMO industry; and 4) quality-assurance issues arising from regulator or customer inspections.

Medpace risks. We view the following as key risks for Medpace: 1) a slowdown in the R&D spending environment due to lower end-market pricing or other exogenous factors; 2) a material reduction in the amount of biotech funding; and 3) increased competitive pricing pressure in the clinical CRO industry.

Simulations Plus risks. We view the following as key risks for Simulations Plus in the next three to five years: 1) a material reduction in biotech funding; 2) mix-related margin erosion if service contracts outpace software sales; 3) lack of continued regulatory support for biosimulation or an inability to expand use-cases; and 4) an inability to attract or retain high-demand talent, particularly in artificial intelligence.

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DOW JONES: 44025.80
S&P 500: 6049.24
NASDAQ: 19756.80

Additional information is available upon request.

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Coverage Universe	Percent	Inv. Banking Relationships *	Percent
Outperform (Buy)	71	Outperform (Buy)	9
Market Perform (Hold)	28	Market Perform (Hold)	1
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