ECKUITY
CAPITAL

SHARPENING R&D FOCUS

May 2023

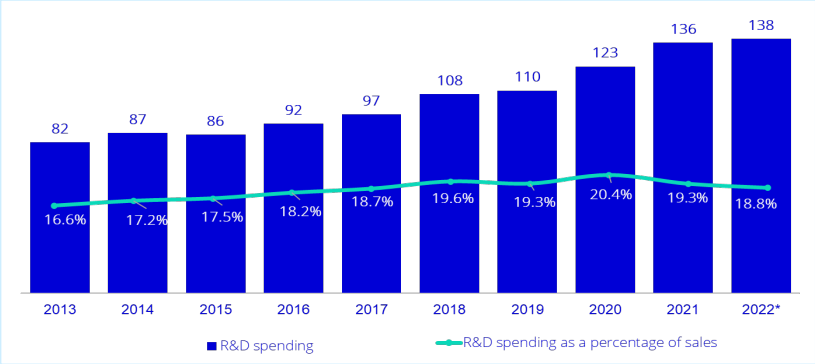
INSIGHTS

ECKUITY
CAPITAL

Big Pharma redefining R&D pipelines

The research and development pipeline has remained flat in 2022 with 6,147 products in active development, and growth slowing to 2% over the last two years.

Figure 1 - Large Pharma R&D Spending ($B) and R&D Spending as a % of Sales



Source: Company financial statements; IQVIA Institute, Jan 2023 (*Data till Sep 2022)

The upcoming ~$200B patent cliff and the stormy market conditions have significantly increased the pressure on Big Pharma to sustain pipelines while controlling costs. Most of the industry majors slashed their R&D budgets in 2022 with Pfizer, Merck, AbbVie, GSK, and BMS shaving off their R&D bills by 5-10%. Additionally, in Q1 2023 Novartis and BMS have also cut down their pipeline assets.

Where is Big Pharma placing its bets

Analyzing the top 10 big pharma pipelines (Q1'21 to Q1'23) across key therapeutic areas (refer Fig. 2) shows that Pfizer has significantly increased its pipeline, followed by Merck and GSK. Most of this growth has come through acquisitions – Pfizer purchased Seagen, Biohaven, and Global Blood Therapeutics, Merck added Imago Biosciences and Acceleron Pharma, while GSK snapped up Sierra Oncology and Affinivax. On the other hand, Novartis has trimmed its pipeline by ~15% as a part of its restructuring initiative to save at least $1 billion by 2024 and to remain focused on its 5 core therapeutic areas. From a therapeutic area point of view:

- Oncology continues to be one of the largest areas despite slowing growth and is seeing an increasing focus on targeted therapies, solid tumors, and next-generation biotherapeutics (CAR T, NK cell therapies, gene editing, nucleic acid vaccines, and bispecific antibodies). Pfizer, BMS, and Merck have aggressively added assets in their pipeline through acquisitions and collaborations. Total pipeline asset decline was driven mainly by Novartis, which has cut down ~39 assets across cancer. Novel mechanisms such as Antibody-drug conjugates (ADC) are emerging with significant efficacy across a

broad range of targets. Pfizer has recently acquired Seagen for $43B to take the lead in this space.

Figure 2 - Change in Top 10 Big Pharma Pipelines (Phase I to Phase III) across therapy areas from Q1 2021 to Q1 2023

Source: Eckuity Analysis; the top 10 big pharma companies are taken based on Q1 2023 revenues

- Big pharma's focus has continued to increase in **rare diseases**. Rare oncology still leads the pack of rare disease pipeline followed by rare neurological disorders and rare gastrointestinal conditions. AstraZeneca has doubled down its focus on rare diseases by acquiring Alexion in 2021 and LogicBio Therapeutics in 2022.
- **Immunology** continues its momentum with investments in novel mechanisms such as TYK-2 inhibitors and BTK inhibitors heating up. Sanofi has added assets in skin immunology through its acquisition of Origmm Biotech while Roche has grown organically. Pfizer, BMS, and Novartis have cut down some assets focused mainly on Ankylosing spondylitis and Sjogren's Syndrome.
- Big pharma is adding assets in the **Neurology** space with an increasing focus on novel dopamine receptor modulators and SV2A positive modulators to treat neurodegenerative and neuropsychiatric conditions. Roche is the new leader in the space after its collaboration with Weill Neurohub, followed by Novartis and J&J.

- Roche & AbbVie are the most active players in Ophthalmology whereas AstraZeneca is moving into this space. They are exploring neuroprotective MOAs and next-gen corneal regenerative therapies for dry eye, wet AMD, presbyopia, and diabetic retinopathy
- Cardiometabolic pipeline is witnessing moderately negative growth. Novartis and BMS have trimmed their pipelines while other big pharma like Merck and AstraZeneca are focusing on factor XI inhibitors and GLP-1/glucagon receptor dual agonists. However, Obesity seems to be a booming area as Pfizer and AstraZeneca are investing in various initiatives like danuglipron, lotiglipron, and GPR75 gene-targeting molecules.
- Respiratory investments are plateauing after Covid-19, however, RSV vaccines continue to remain a hot area. AstraZeneca has increased its focus and has acquired rights for the preclinical C4X Discovery NRF2 activator program with applications in COPD.
- Anti-infectives have seen a declining interest among the big pharma with Pfizer de-prioritizing this area, however, GSK has grown through its acquisition of Affinivax.

Oncology and Immunology continue to be attractive and present exit opportunities for early-stage companies as most Big Pharma have strong pipelines in the space. However, the innovation cycle is moving towards areas such as bispecific antibodies, ADCs, CAR T, NK cell therapies, and gene editing. While cardiometabolic seems to be plateauing, hot areas such as Obesity could be attractive bets for Big Pharma exits. Areas such as Respiratory, Ophthalmology, and Anti-infectives present narrower exit options as only 2-3 Big Pharma are focused in these areas.