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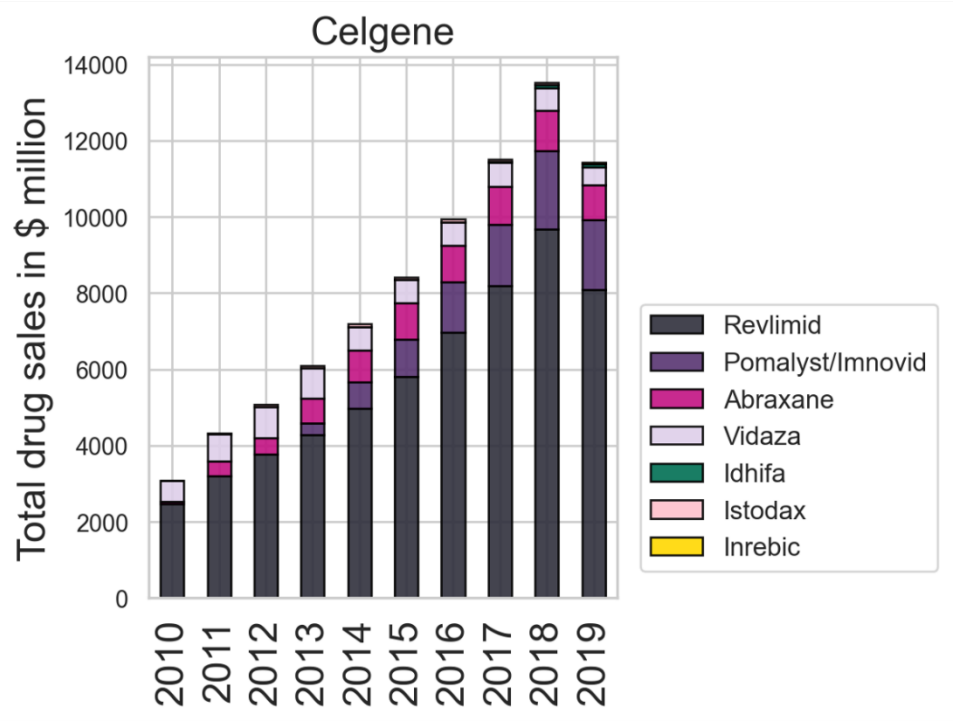
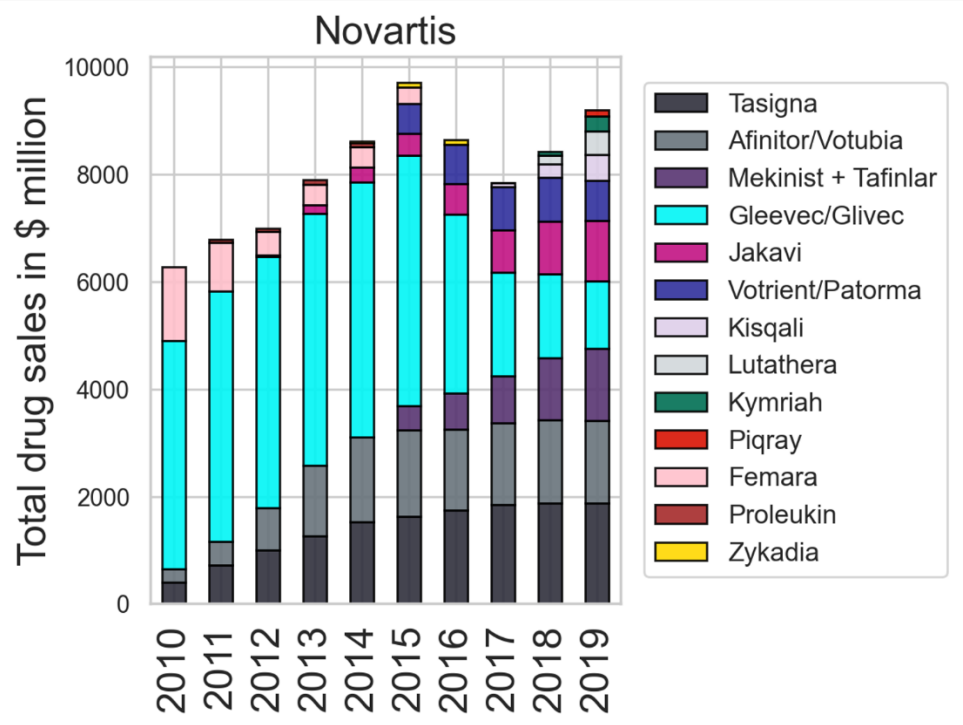
## Supplementary information

# The most successful oncology drug portfolios of the past decade

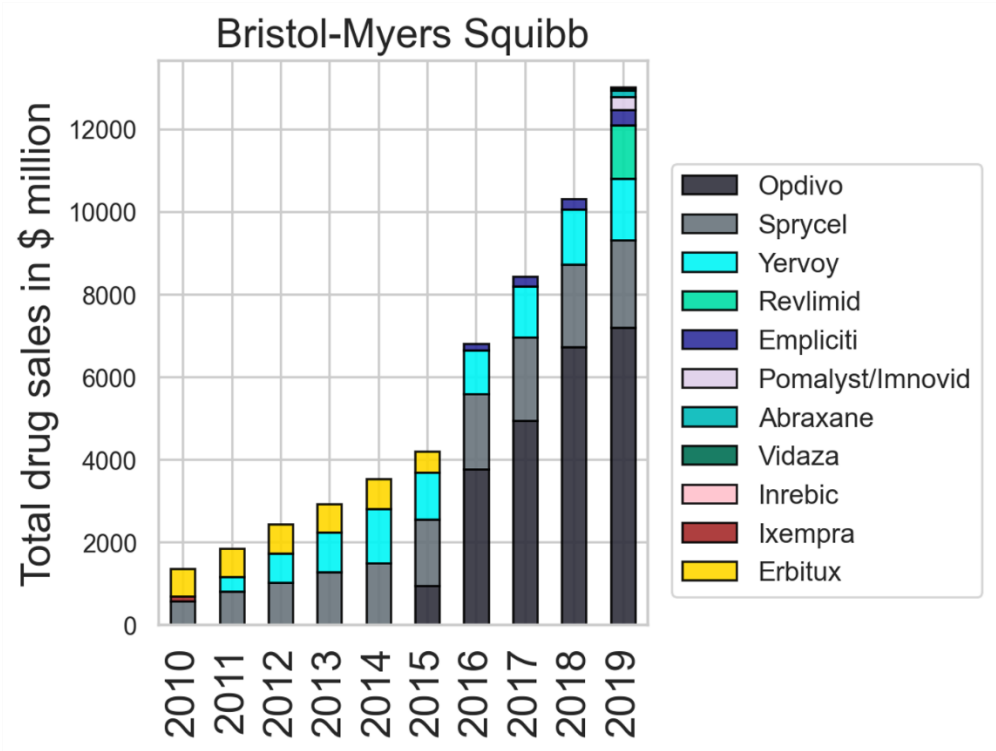
In the format provided by the authors



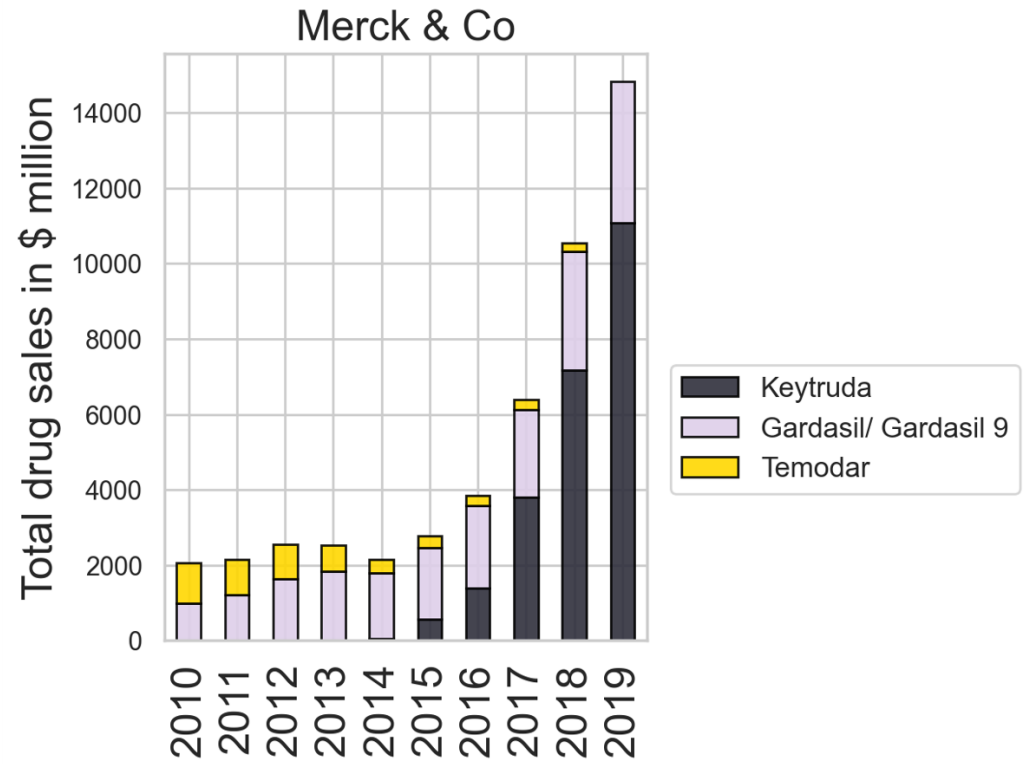

**Supplementary Fig. 1**: A breakdown of individual oncology drug sales during 2010–2019 for Celgene.



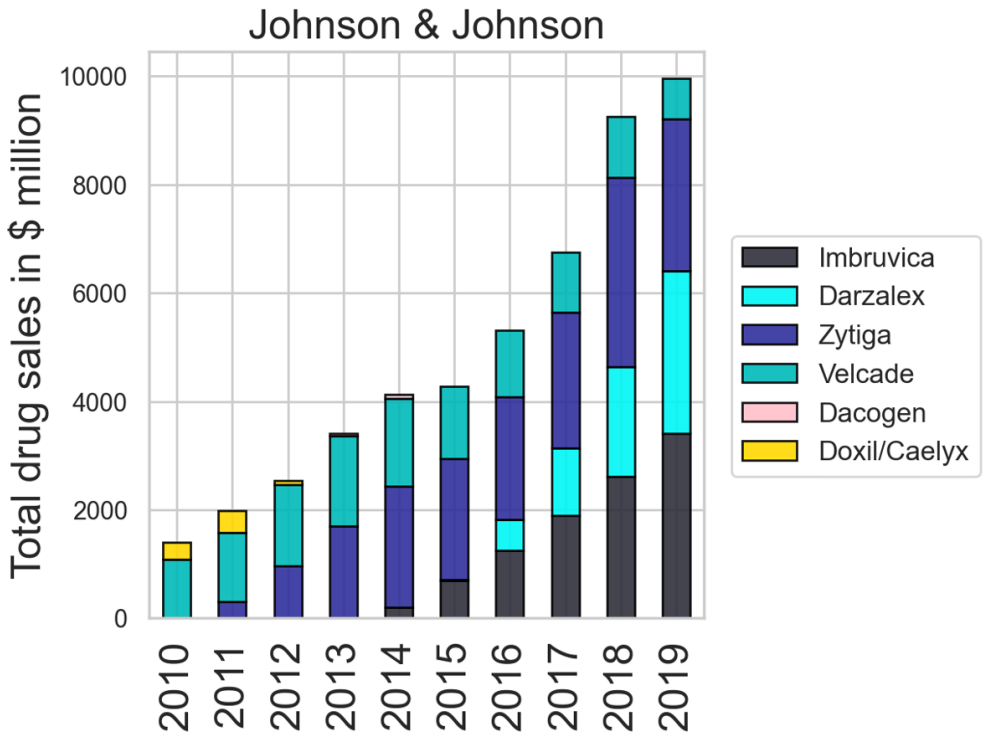

**Supplementary Fig. 2**: A breakdown of individual oncology drug sales during 2010–2019 for Novartis.



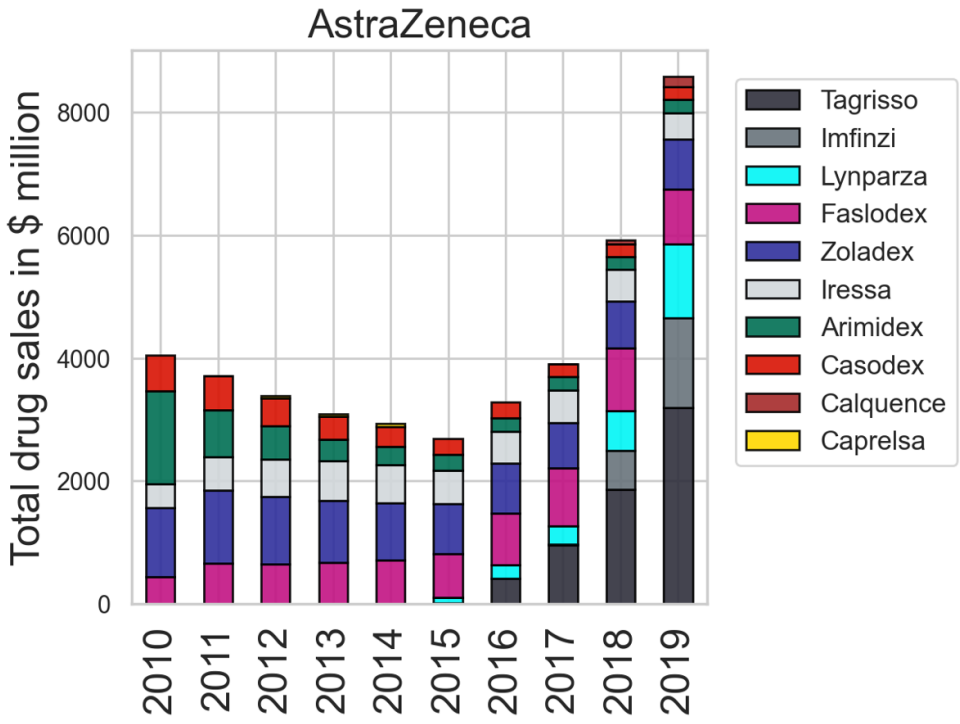

**Supplementary Fig. 3**: A breakdown of individual oncology drug sales during 2010–2019 for Bristol-Myers Squibb.



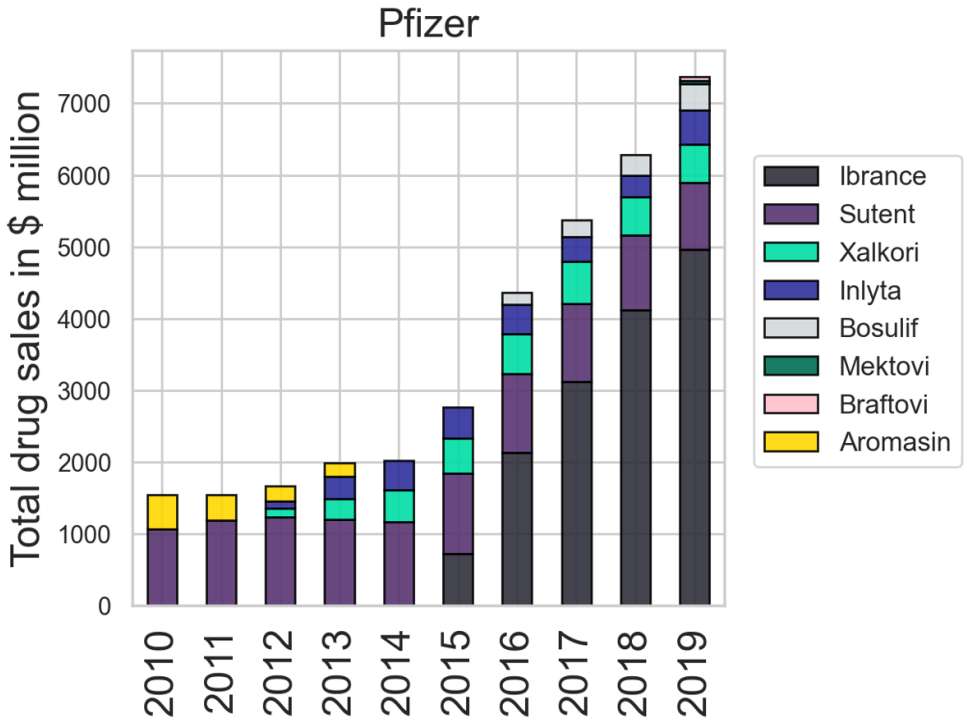

**Supplementary Fig. 4**: A breakdown of individual oncology drug sales during 2010–2019 for Merck.



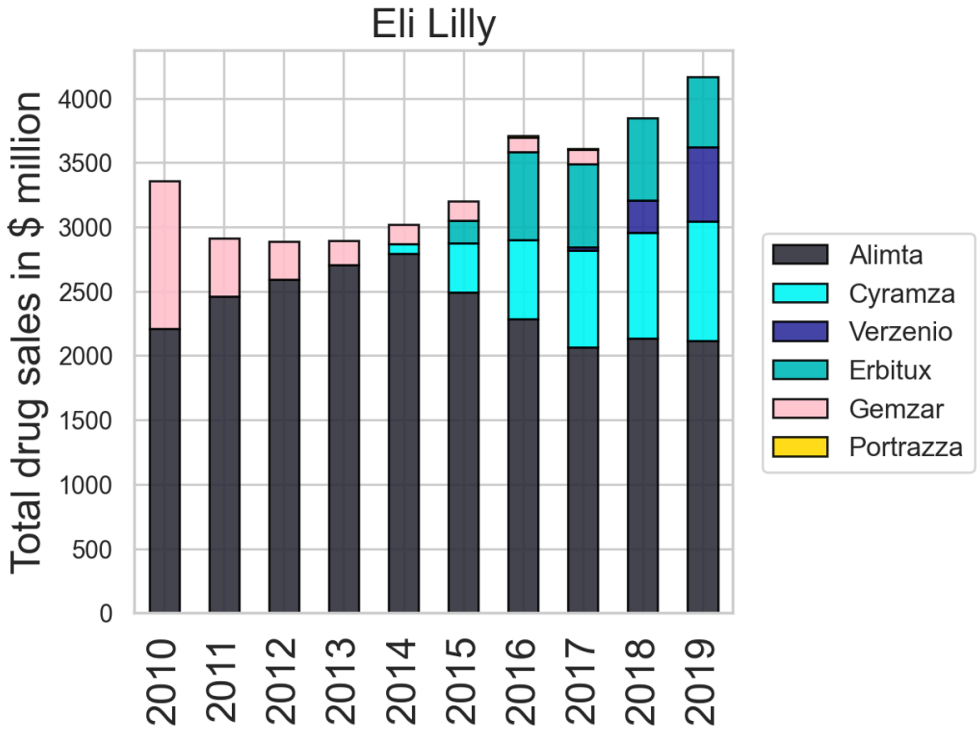

**Supplementary Fig. 5**: A breakdown of individual oncology drug sales during 2010–2019 for Johnson & Johnson.



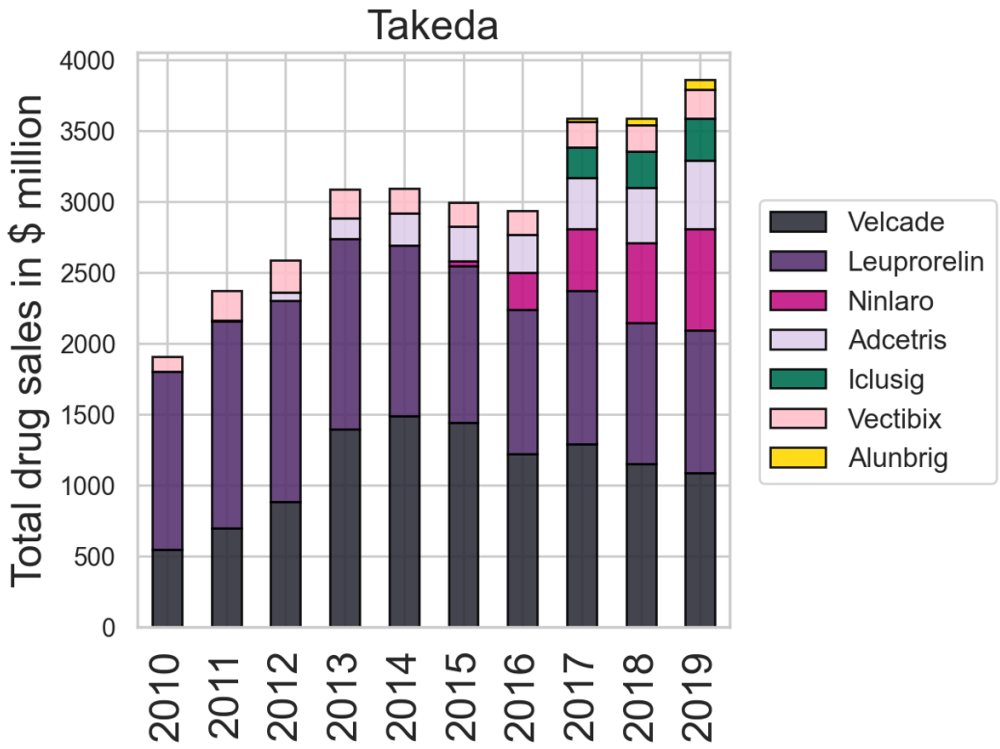

**Supplementary Fig. 6**: A breakdown of individual oncology drug sales during 2010–2019 for AstraZeneca.




**Supplementary Fig. 7**: A breakdown of individual oncology drug sales during 2010–2019 for Pfizer.




**Supplementary Fig. 8**: A breakdown of individual oncology drug sales during 2010–2019 for Eli Lilly.




**Supplementary Fig. 9**: A breakdown of individual oncology drug sales during 2010–2019 for Takeda.

## Methods

The data were pulled from the Drug Sales and Consensus Forecast database of GlobalData's Pharma Intelligence Center using 'Global' as the region of sales, and 'oncology' as the main therapy area. Agents were selected only for drugs marketed in at least one country, and generic molecules were excluded, resulting in a list of 170 marketed oncology drugs. This database relies on public announcements/financial reports of individual drug sales by the marketing companies. Unfortunately, drug sales by certain companies are not always reported individually, which undoubtedly results in the current analysis being an underestimate. However, all interested parties have to rely on the same publicly available data (or lack thereof) to estimate drug sales.

Drug sales were grouped by the reported company and plotted in Figure 1a. Since the source of drug sales is company statements, mergers and acquisitions have not impacted our analysis, and the sales of those drugs were simply assigned to the reporting company. For instance, in 2019, Revlimid sales were reported by Celgene in the first three quarters of the year and by Bristol Myers Squibb (BMS) in the last quarter. Hence, Revlimid sales in 2019 were partly attributed to Celgene and partly to BMS.

Drug sales were plotted separated by the reported company in Figure 1b and Supplementary Figure 1a.

Drugs may have reported sales from various marketing companies (in the case of co-marketing, or marketing rights in a different country). In this case, drug sales were summed in order to estimate the blockbuster status of each drug, since blockbuster status refers to the drug itself, regardless of the parent company. These data were then used to plot Figure 2a.

Drugs were separated by class of therapy according to the following parameters and the sales data were aggregated to plot Figure 2b.

- Immune checkpoint inhibitors – Separated by Key Molecule Type (monoclonal antibodies) and Key Target [Programmed Cell Death Protein 1 (PD1 or CD279 or PDCD1) or Cytotoxic T Lymphocyte Protein 4 (Cytotoxic T Lymphocyte Associated Antigen 4 or CD152 or CTLA4] included
- Kinase inhibitors – Separated by Key Molecule Type (Small molecule) and Key Target (to include kinases)
- Targeted mAbs – Separated by Key Molecule Type (monoclonal antibodies) and Key Target [Programmed Cell Death Protein 1 (PD1 or CD279 or PDCD1) or Cytotoxic T Lymphocyte Protein 4 (Cytotoxic T Lymphocyte Associated Antigen 4 or CD152 or CTLA4) were excluded]
- Other IO – Inclusion of CAR-T cells/Separated by Key Target (including Interferon or Interleukins)
- Other targeted – Separated by Key Molecule Type (Small molecule) and Key Target (to exclude kinases)
- Chemotherapy – Separated by Target (Inclusion of all DNA associated targets, Tubulin, Proteasome)
- Hormonal agents – Separated by Target (Inclusion of androgens, estrogen, aromatase, gonadotrophin-releasing hormone receptors)
- Cancer vaccines – Separated by Key Molecule Type (inclusion of Vaccine), Provenge also included

The increase of targeted therapy sales is described as 6% — an increase of $33 billion out of the total $58 billion oncology market in 2010 (57% share) to $89 billion out of the total $141 billion oncology market in 2019 (63% share).