

Pharma finance and research: the life sciences connection

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The life sciences groups that Part G described are among the largest private investors in artificial intelligence in Switzerland, although their investment serves research and development more than finance. Roche, through its research organisation and its subsidiary Genentech in South San Francisco, has built a programme it calls "lab in the loop", in which models generate hypotheses for drug design that laboratory experiments test and that the results then improve. Genentech acquired the machine learning firm Prescient Design in 2021 and announced a collaboration with the chip maker NVIDIA in 2023.¹ Novartis has pursued a similar strategy through partnerships, including an alliance with Microsoft established in 2019 and a collaboration with Isomorphic Labs, a company of the Alphabet group, announced in January 2024.²

Whether such programmes will shorten the long and costly path from target to approved medicine remains uncertain. Several compounds discovered with substantial use of machine learning entered clinical trials in the early 2020s, yet the proportion that reaches the market has not yet been shown to differ from that of compounds found by conventional methods. Careful observers therefore treat the claims of the industry with caution.³ For the financial centre, the effect matters in two ways. Investment in artificial intelligence changes the composition of research spending and the profile of the specialists whom the groups recruit in Basel. If the technology succeeds, it could also change the economics of licensing and biotech venture finance, which Part G, Chapter IV described, because smaller teams with access to models and data could generate drug candidates at lower cost.

The groups also use artificial intelligence in their finance and treasury functions. Shared service centres for accounting, procurement and payroll, several of which serve worldwide operations from Basel or from lower-

cost locations abroad, are natural candidates for automation. Treasury departments use forecasting models for cash flows and currency exposures. Tax departments, which face the reporting requirements of Pillar Two described in Part G, Chapter III, use data tools to collect and reconcile information from many jurisdictions.⁴ These applications are less visible than drug discovery, although their effect on employment in the region may well prove larger.

1 Notes

1. Roche and Genentech, annual reports and press releases on the acquisition of Prescient Design (2021) and the collaboration with NVIDIA (November 2023); descriptions of the "lab in the loop" approach in Genentech publications. To be verified. ↩
2. Novartis, press releases on the strategic alliance with Microsoft (October 2019) and the research collaboration with Isomorphic Labs (January 2024), and annual reports. Status to be verified. ↩
3. On the clinical pipeline of AI-discovered compounds and early evidence on success rates, see the review articles in Nature Reviews Drug Discovery and Drug Discovery Today since 2022. To be verified. ↩
4. On the corporate finance and tax functions of the pharmaceutical groups, see Part G, Chapters II and III; on the use of AI in shared services and tax reporting, see the publications of the large audit and consulting firms. Status to be verified. ↩

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