# Miltenyi Biotec: Multidisciplinary and on track for robust growth

On 24 July 1989, the journal *Cytometry* accepted for publication an article based on the diploma thesis that its lead author had completed for the Institute of Genetics at the University of Cologne. A good month later, long before the paper appeared in print in 1990, the newly graduated physicist began to put his findings into practice. He founded the company Miltenyi Biotec with starting capital of DM 10,000 and, together with four employees, moved into a workshed on the edge of a forest in his hometown of Bergisch-Gladbach. The shed still stands there today, overlooked by the headquarter buildings of a global company that now boasts more than 4,500 employees and that achieved sales of €880 million in 2022, a good quarter more than in the previous year. In 2023, sales are expected to exceed €1 billion for the first time. From the very beginning, the company’s founder Stefan Miltenyi has financed this growth himself by always reinvesting the consistently high profits. He still owns 100 percent of the company – and has no intention whatsoever of taking it public.

The invention on which Stefan Miltenyi built his company was, like all great inventions, deceptively simple. It concerned a core area of biomedical research where there was immense need for improvement: the separation of target cells from complex cell mixtures such as blood cells. Fluorescence-based flow cytometry, the prevailing technology at the time, was prone to error and relatively slow. It could isolate about 10 million target cells per hour. In his thesis work, Miltenyi speeded up the process 400-fold using a device he constructed himself, which he called a magnetic-activated cell sorter (MACS). This involved attaching tiny magnetic beads to antibodies that docked exclusively to the surface of the T lymphocytes he wanted to isolate from a spleen cell sample. He then passed the sample through a column embedded in a strong magnetic field. The labelled T lymphocytes were retained inside the column, while all other cells were washed away.

Miltenyi’s products for magnetic-activated cell sorting were a big seller right from the start. Today, the company offers MicroBeads for hundreds of different cells. It is no exaggeration to say that it plays a vital role in driving scientific progress and improving clinical care. Miltenyi Biotec’s integrated portfolio has grown over the years – both organically and through acquisitions – to include more than 18,000 products: innovative instruments and reagents for sample preparation, cell separation, flow cytometry, cell culture, molecular analysis and preclinical imaging.

Its dominant position in the world market for cell separation promises Miltenyi Biotec a bright future. After all, given the increasing success of cell and gene therapies, this market has enormous growth potential. According to current projections, its total volume could triple in the next five years. MACS technology plays a key role in providing gene-modified cells for CAR T-cell therapies. In his CliniMacs Cell Factories®, Miltenyi has automated the highly complex process of manufacturing such cells on a single machine. Hundreds of clinical trials in cell and gene therapy already rely on Miltenyi products. As a company deeply committed to personalised medicine, it was only natural for it to enter the field of cell therapy development through the creation in 2019 of a new subsidiary, Miltenyi Biomedicine. It focuses on developing treatments for certain types of blood cancer. The furthest along is a tandem CAR T therapy for B-cell lymphomas, which is currently in Phase II clinical trials.

The company’s declared goal is to make cancer and other serious diseases history. Autonomous and independent of investor interests, the owner-run company encourages a creative working environment driven by a pioneering spirit and multidisciplinary thinking. It is not without reason that a quarter of all Miltenyi employees work in research and development.