

# Biotechnology Clusters in Germany

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## Overview of Medical Biotechnology in Germany

Germany is the world's largest medical biotechnology nation behind the US and the country with the highest R&D spending in Europe. A unique ecosystem provides ample opportunities in innovation areas including AI-driven drug discovery, gene therapy development and the commercialization of personalized medicine solutions. With the largest amount of biotech companies in Europe (1,020 in 2024), world-class research infrastructure and internationally renowned scientists, Germany has firmly established itself as an international medical biotechnology hub. A major success factor continues to be the close cooperation between biotech companies, research institutes, technology parks, and their local communities – effectively coordinated by Germany's biotech cluster organizations.

## R&D Hotspot Germany

Biotechnology companies generated EUR 11 billion in revenue in 2024 while spending EUR 4.6 billion on research and development. Every year companies participate in thousands of research projects with partners from industry and research institutes. The resulting scientific output underscores Germany's reputation as one of the best ecosystems for biotechnology R&D worldwide.

## Future Trends in Medical Biotechnology

The future of medical biotechnology in Germany is shaped by several emerging trends. Key areas include the integration of AI and machine learning in drug discovery and development, advancements in gene editing technologies like CRISPR, and the growth of personalized medicine and precision therapies. Furthermore, the rapid advancement of next-generation mRNA and RNA-based therapeutics is expected to open new avenues for treating complex diseases beyond infectious disorders. Sustainable biomanufacturing and the rise of biotech start-ups are expected to further drive innovation and growth in the sector. International companies can profit from Germany's robust market environment by collaborating with local research institutions and biotech firms.

## Germany is Europe's #1

### in number of patents

(2,371 patents in the period of 2022 - 2024)

### in R&D spending

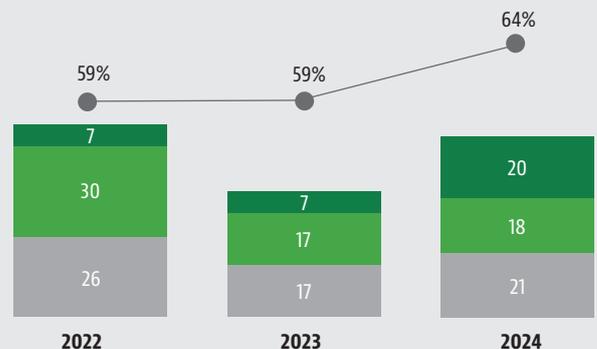
(EUR 4.6 billion in 2024)

### in number of companies

(1,020 in 2024)

## Share of new medication registrations in Europe

- Biosimilars
- Original
- Chemical and other medicines
- Share of biopharmaceuticals including biosimilars



Source: European Patent Office 2025; Boston Consulting Group 2025; Vfa 2025; Ernst & Young Biotechnologie-Report Deutschland 2025

# Medical Biotechnology Hubs in Germany

**Science and industry need to work together closely to successfully commercialize innovations. Germany's bioclusters are proving to be important new technology impulse givers in this respect.**

The BioRegions are regional initiatives for the advancement of modern biotechnology in Germany. Over the past three decades, these biotechnology clusters have developed to become Europe's leading R&D hubs. Each region facilitates collaboration between universities, R&D institutes and private sector companies. Around 25 BioRegions are active members of *AK Bio regio* (The Council of BioRegions in Germany), whose goal is to advance the German biotechnology sector by coordinating and promoting local activities. *AK Bio regio* promotes exchange between regional initiatives and relays its expertise to political decision makers. Investors benefit from easy access to networks and funding for research projects. The BioRegions also include technology parks tailored to the specific needs of biotechnology companies. Commonly known as "Bioparks," these centers offer the ideal infrastructure – including lab space and clean rooms as well as a range of services – for both start-ups and well-established companies alike.

## Top Biotechnology Regions in Germany

**Germany's medical biotechnology sector is flourishing, with major contributions from prominent regions such as Berlin, the greater Munich area, and the Rhine-Neckar region (e.g. Heidelberg). These innovation hubs are propelling growth and advancements, positioning Germany as a global leader in medical biotechnology.**

### Berlin-Brandenburg

The Berlin-Brandenburg area is a vibrant medical biotechnology hub. Known for its dynamic start-up scene and strong research institutions, the region boasts numerous biotech companies and accelerators that foster innovation and collaboration.

Berlin-Brandenburg's biotech landscape is characterized by its focus on cutting-edge research and development in areas such as immunotherapy, molecular diagnostics and personalized medicine. Key players in the region include Glycotope (which specializes in glycosylation-based cancer therapies) and 3B Pharmaceuticals (known for its work in peptide-based diagnostics and therapeutics). T-Knife is also making significant strides in T-cell receptor-based immunotherapies for treating cancer. Recent innovations in Berlin-Brandenburg include advancements in AI for personalized medicine; with start-ups like Ada Health utilizing AI to provide personalized health information and care as well as the development of organoid-based therapies which are being explored for their

potential in personalized treatments. The region benefits from strong cooperation between Berlin and Brandenburg, facilitated by initiatives such as HealthCapital, which supports networking and project development. The BiotechPark Berlin-Buch and the Science and Technology Park Adlershof provide essential infrastructure for biotech companies. Additionally, the *biotechnologieverbund berlin-brandenburg* (bbb – "Biotechnology Association Berlin-Brandenburg") fosters collaboration among scientists, researchers and industry professionals. Research institutions in Berlin-Brandenburg such as *Charité – Universitätsmedizin Berlin*, Humboldt University, and several Max Planck Institutes, provide a robust foundation for scientific advancement. These institutions collaborate closely with biotech companies, thereby facilitating the translation of research activity into clinical applications. Notable projects in Berlin-Brandenburg include the development of novel immunotherapies for cancer and advanced molecular diagnostic tools.

### Bavaria – Greater Munich Region

Bavaria, particularly the Munich region, is a powerhouse in medical biotechnology, with a robust ecosystem supporting start-ups and established companies alike. The region is known for its high investment in research and development, making it a fertile ground for innovation.

The Munich area is home to major biotech companies such as Roche, which is investing heavily in gene therapy development, and Daiichi Sankyo, which is establishing an international innovation center. Sandoz is also expanding its biosimilar development capabilities in the region. These companies are at the forefront of developing new therapies for a range of diseases including cancer and autoimmune disorders.

Recent innovations in Bavaria include the integration of AI and big data in drug development. This is significantly speeding up the process and improving patient outcomes. Start-ups in the region are also pioneering new therapies for conditions including hair loss and chronic lung diseases.

Bavaria's research institutions, including the Ludwig Maximilian University and the Technical University of Munich, are renowned for their contributions to biotechnology. These universities, along with non-university research centers like the Helmholtz Center for Environmental Health and several Max Planck Institutes, drive forward the region's scientific excellence. Key projects in Bavaria include advancements in gene therapy, radiopharmaceuticals and personalized medicine.

## Rhine-Neckar

The Rhine-Neckar region, centered around Heidelberg but stretching to Stuttgart and the greater Frankfurt area including Mainz, is one of Germany's strongest biotech clusters. It boasts a rich network of research institutions, university clinics and biotech companies, driving innovation in life sciences.

The region is home to prominent companies – such as AbbVie, Boehringer Ingelheim, and Merck – that are leaders in developing therapies for a wide range of medical conditions. BioNTech, specialized in immunotherapies and mRNA-based vaccines, played a crucial role during the COVID-19 pandemic. The young company developed Comirnaty, the first approved mRNA vaccine in record time, and partnered with Pfizer to bring it to market worldwide.

These companies benefit from the region's strong infrastructure and collaborative environment which support the translation of research into clinical applications. Recent innovations in Rhine-Neckar include the establishment of BioLabs Heidelberg, a life sciences incubator that supports start-ups with lab space and expertise.

Research institutions in the Rhine-Neckar area, including the DKFZ and EMBL, are at the forefront of scientific discovery. These institutions work closely with biotech companies to advance research in areas such as personalized medicine, molecular diagnostics and cancer therapies.



**Interactive Biotechnology Cluster Map**

Germany's biotechnology clusters span the entire value chain. Simply scan the QR code to visit our interactive biotechnology cluster map in order to find the right partners for your business in Germany.

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