Ralf Huss – Chief Executive, BioM

Money follows the science, and the science here in Bavaria is excellent

21.07.2026

Tags: Germany, BioM, Bavaria, Munish, Investment, R&D, Biotech, Clinical Trials

Ralf Huss, Chief Executive of Bio^{M}, discusses how Bavaria has built one of Europe's leading biotechnology ecosystems by connecting researchers, entrepreneurs, investors and global pharmaceutical companies. He highlights Bio^{M}'s role in supporting more than 500 companies, accelerating start-ups through funding and incubation, and advancing fields such as cell and gene therapy, AI-driven drug discovery and quantum computing, while positioning Munich as a global innovation hub.

Could you begin by introducing yourself?

I am a trained surgical pathologist who started out in immunology and basic research, working alongside three Nobel laureates over the course of my career in Switzerland, the United States and here in Germany. After completing my board certification, I joined Roche as global head of pathology and tissue biomarkers, before moving into a new field and founding my own company in cell-based gene therapy. I then moved into the early use of artificial intelligence in diagnostics, at a time when nobody actually called it artificial intelligence, working alongside the Nobel laureate in physics Gerd Binnig. Having moved from academia into industry, I then returned to academia, becoming deputy chief of staff at the University Hospital in Augsburg, just north of Munich. In 2023, I took over my current position as head and chief executive of Bio^{M}, the biotechnology cluster organisation for the state of Bavaria.

What does Bio^{M} represent today, and what are its objectives?

Bio^{M} has existed for almost 30 years, and we will celebrate our thirtieth anniversary next year. It emerged from an initiative of the Federal and later the Bavarian Ministry of Economics, which sought to leverage the innovation coming out of genetic engineering and gene technology at the time, alongside the earliest developments in PCR and sequencing. The first companies emerging from academia built a campus close to the Gene Centre and the Max Planck Institute for Biochemistry, home to several Nobel laureates and prestigious scientists, including Axel Ullrich, who helped identify HER2 as a target in breast cancer and other cancer types. Bavaria invested early in the innovation and commercialisation of such discoveries, and built this innovation campus on that foundation.

Bio^{M} is responsible for organising, connecting and building networks throughout Bavaria, with Munich at the centre. We oversee about 550 companies of varying sizes and interests across the state, including northern Bavaria and beyond. Our role is to bring together local scientists and researchers with investors, mentors, policymakers and global partners, including pharmaceutical companies interested in joining our network, with the shared aim of identifying the next major advance for the markets of tomorrow.

How is Bio^{M} **organised in practice, and what value does it bring to the companies it supports?**

We function as a network organisation of around 30 people with different responsibilities. What matters most is that we know our partners well and know almost everybody involved. We organise local and global events, and for the past 15 years we have run the m^{4} Award, a pre-seed award supporting new academic ideas in therapeutics, diagnostics or enabling technologies. It is a genuine award, with no strings attached, no shares taken and no dilution. It is funded every other year with EUR 2.5 million by the Bavarian State Ministry of Economic Affairs and coordinated by Bio^{M}. Of the 38 projects we have identified and sponsored over the past 15 years, close to 20 companies have grown out of that support and raised close to one billion euros in capital combined.

Naturally, not all of them still exist, as is always the case, but we have had some genuine unicorns. Tubulis is our most recent example, acquired by Gilead for up to five billion USD. Their

headquarters sitss just two floors below my office, and I will be meeting the co-founders later today. We maintain close interaction with companies like this and try to learn from and support them as much as we can.

Interestingly, Tubulis was rejected in their first application for the m^4 Award and succeeded only on their second attempt, but they had already passed through our bootcamp by then. We run international bootcamps, in part in partnership with an incubator in Sweden, and for the past two years we have had our own physical incubator, MAxL, the Munich Accelerator Life Sciences and Medicine, where pre-seed teams, whether or not they have received the award, can take their first steps: performing key experiments, building a team, finding the right partners and executives, and developing a go-to-market approach. I believe we have a fairly unique setup spanning pre-seed investment, pre-seed partnering and pre-seed labs, alongside mature start-ups within an incubation campus, where established companies that have been through the full journey are willing to reinvest their knowledge and experience in the next generation.

Where is investment concentrated at the moment, and what excites companies most among the emerging technologies?

We have seen a clear shift in focus over the years. When Bio^M started nearly 30 years ago, the emphasis was entirely on genes: identifying and modulating them, and developing platform and enabling technologies. More recently, we see continued strength in cellular and gene therapy alongside growing use of mRNA technology. Although BioNTech itself is based in Mainz rather than Munich, a great deal of related technology originates here, and we have a substantial cluster known as the Centre for Nucleic Acid Therapies in Munich (CNATM).

We are also seeing significant growth in AI-based protein design, using the tools available here to design entirely novel proteins and molecules, including enzymes with new functions, rather than simply improving on what already exists in nature. Notably, a number of major technology companies have moved to Munich, including Google, Microsoft, Apple, OpenAI, Antrophic, Nvidia and others. This has created a deep interaction between technology and biotechnology, a triangle formed together with our two leading universities: the Ludwig-Maximilians-Universität Munich, the largest in Germany, and the Technical University of Munich, ranked the most entrepreneurial university in Europe. Together, we are building bridges to remain at the forefront of these fields.

What would you highlight as Munich’s key strengths for investors considering the region?

We benefit from strong government commitment and an enormous pool of talent, drawn from around the world to complete master’s degrees and doctorates here, including from Asia, the United States and across Europe. This is a genuinely multilingual community, and all our lectures are conducted in English. We actively support the founding and growth of companies of every kind, with particular support for female founders, and we have a strong community of investors and partners with real experience, including firms such as EQT, TVM, Forbion, Sofinnova, and Wellington, alongside private banking partners.

Could we use more capital? Certainly. Could we use more corporate partners? Absolutely. But I believe money follows the science, and the science here is excellent. My message, particularly to international and global corporates, is simply to come and see it for themselves, and to talk to the founders. Roche has a research site close by, Daiichi Sankyo has moved in, AbbVie is here, and Gilead has acquired Tubulis. There is a great deal happening, and our professors, group leaders and scientists remain very open to collaboration.

You have now been in this role for a little over three years. Looking ahead, what are your objectives for the next two to three years, and how ambitious are they?

For a cluster organisation, it is genuinely difficult to set fixed targets, because you never know what the next major development will be. That said, we would like to bring in more global partners and bring more medicines to market, and we are working to accelerate early clinical trial entry so that innovation moves more quickly from discovery through to clinical approval. Bavaria has also developed what we call the Quantum Valley initiative, giving partners access to quantum computing resources, reflecting our broader cross-disciplinary, cross-technology approach.

We grew from 16 new founded companies in 2024 to 26 new start-ups this year, and we would like to double that number annually going forward, effectively becoming a foundry for the ideas emerging from our master’s and doctoral students, an area where we are already seeing real success. The goals are ambitious, but I believe they are achievable. It is a matter of getting the stone rolling, and eventually that momentum builds into something much larger.

Beyond Tubulis, are there other success stories you would highlight?

Certainly. CatalYm, for example, recently secured investment from a US venture firm for a new type of immune-modulating agent, and continues to grow. ITM is another strong example, largely self-funded rather than reliant on venture capital, working in radionuclide therapies, as is Nuclidium, which focuses on radioisotopes. We also have companies such as Formycon, working in biosimilars, and Immunic, which is listed on NASDAQ. Several of these companies have raised or been valued at more than 100 to 200 million USD over recent years. We may not be Silicon Valley yet, but we are clearly on that trajectory.

Global attention on biotech tends to focus on the US and increasingly China. Why do you think Europe's success stories remain underappreciated, and what needs to change?

This is a question we ask ourselves constantly. Germany is well known for its automotive industry, for better or worse, but not yet for biotechnology innovation, and that is something we need to actively communicate. Last year, during Oktoberfest, we hosted several US family offices who were genuinely surprised by what we had to offer, unaware of the depth of groundwork taking place in this field. In terms of Nobel laureates per capita, we are broadly on a par with the United States, but in terms of translating that into companies, raising investment and economically leveraging that research, we remain well behind.

Another example is a company recently acquired by WuXi AppTec, which has since lost part of its German identity in the process, much as Tubulis became part of Gilead. We need to keep explaining what we do, invite people to see it for themselves and form their own view. It is a matter of patience, but also of clearly communicating what we have to offer.

Having worked across both industry and academia, what excites you most about the next five to 10 years in the sector?

What excites me most is the cross-disciplinary work now underway, something artificial intelligence is already demonstrating. I believe this is an area where Germany and Bavaria excel. We carry an engineering instinct, but we are equally scientists, clinicians and entrepreneurs, and I think we are particularly strong at this kind of convergence. We may not be the fastest at scaling or developing, but we are very good at generating new ideas grounded in solid science and research, and I believe we will see genuinely important developments emerge from this environment.

We are currently doing a great deal of work at the nanoscale, including what we call an accubator, a nanofluidic lab-in-the loop device that uses artificial intelligence to generate new molecules essentially every second, then validates and optimises them using with an AI-in-the-loop system. Making this available through MAxL to scientists or pre-seed teams who could not otherwise afford it, to the point of first clinical proof of concept, is what excites me most. I believe we will see something entirely new and innovative emerge from this over the coming years.

Is there a final message you would like to share?

Bavaria and Munich represent an excellent synergy and a wonderful place to live. We are close to the mountains, and while we are a relatively small city, we remain a capital. We have an international airport, about 150,000 students and close to 3,500 professors, the Max Planck Institutes, Helmholtz Munich and Fraunhofer, deep foundations in basic science, and a strong base of technology companies. Our government fully supports what we are doing. It is genuinely worth coming to explore, to ask questions, and to take a closer look at what we are achieving. We are entirely open to becoming part of global networks and taking this collaboration to the next level.

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