Q&A Horst Domdey

Bavarian biotech

After starting one of Germany's first biotech companies, biochemist Horst Domdey co-founded BioM, a non-profit organization that has managed and developed Munich's biotechnology cluster since 1997. He talks to Nature about nurturing the entrepreneurial spirit in "a country of competitions".

When you co-founded BioM in 1997, what were you trying to accomplish?

In those days, Munich was nowhere — just a tiny spot on the biotechnology map. There were just 30 companies, which were not well financed. But Munich had research capacity. Two elite universities, three biologically-oriented Max Planck Institutes, and the Helmholtz Centre Munich — it was, and is, a great place for excellent science. Together with Ronald Mertz from what is now known as the Bavarian State Ministry for Economic Affairs and Media, Energy and Technology, we entered Germany's BioRegio contest to become a model region for biotechnology, and we were one of the three winners. Using the prize money of €25 million (US\$28 million), we developed a concept for how to turn the handful of companies into a bioregion. In the beginning, we got a lot of help from the state of Bavaria, as well as from the federal government. The government put some of the money that they had made from

selling stocks in big companies into science and innovation initiatives. Most of it went into infrastructure such as scientific buildings, but some was also put into incubators.

What was your strategy for creating a bioregion?

First, we decided that the prize money would go only to biotech start-ups. The strengths of the Munich biotech cluster lay in drug development — an area where you really have the chance to become renowned. Second, we wanted to build a close network between all partners, which included the emerging biotech industry, the pharmaceutical industry, finance institutions, and universities and research institutes. Third, we wanted to address the challenge of how to turn a scientist into a business person. We combined the money provided by local and national government with money from the pharmaceutical industry and banks to generate something like a seed fund to finance start-up companies. Altogether,

we funded more than 40 start-ups, half of which were successful. There are now 250 life-sciences companies in Munich, of which 120 are small- or medium-sized companies.

What do you think is the best approach to commercializing academic research?

Investors have realized that scientists are not the best business people. You need different management. We still identify the best science, but now we find a serial entrepreneur or an existing company who knows how to transform the research into a commercial product. The scientists still play a very important part: the companies rely on them as advisers. But unlike when I was in academia around 20 years ago, scientists don't have to leave the university to commercialize their research.

How do you balance the needs of the different stakeholders in the cluster?

The biggest question in starting a new company is who owns the intellectual property.

ANDREAS BROECKEL

Universities do not have enough money to finance all the patent applications that their researchers want to file. The Technical University of Munich only files a patent if there is at least a letter of intent from a company that they will license it. That's easy in engineering, where vehicle manufacturers such as BMW and Audi are waiting in line. But it's not possible in the life-sciences area. There is a tendency in Germany for university tech-transfer offices to take a stake in the start-up of 20% or 30%. That doesn't leave the founders with that much ownership, which discourages them from proceeding with the start-up. Why should a scientist find time to write a business plan for something when he knows that it's difficult, if not impossible, to receive funding or financing for the business? That is concerning, and it doesn't make sense because German universities are taxpayer-funded and so do not have to make money on commercial enterprises. And, if the start-up is successful, the government receives a lot of money in tax revenue.

How do you help companies in your cluster to succeed when there is limited venture capital?

One of the most interesting scientific ideas we have seen in the past few years was a type of cancer immunotherapy related to dendritic and T cells, invented at the Helmholtz Centre. The idea received €500,000 through one of our competitions. We wrote a business plan, formed a company — Trianta Immunotherapies — and looked for investors, but didn't find any. So we decided to circumvent this problem by connecting the Helmholtz scientists to Medigene, a local company that I helped found. Trianta was merged into the established company, and the founder of the start-up became the chief scientific officer of Medigene. The company raised more than €60 million to invest in the start-up on the international capital markets thanks to already being listed on the stock exchange. Another company, CorImmun, which received funding through a national programme coordinated by BioM, developed a peptide that can be used to treat a severe form of heart failure. The peptide neutralizes an autoantibody that binds to a receptor in heart cells, causing the heart to experience a constant state of adrenaline shock. The company was so successful that in 2012 it was acquired by Janssen, part of Johnson & Johnson.

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What else do you think would help to boost commercialization?

I think that start-ups should be thought of less like companies and more like projects. You have an early-stage product, then you put it in the

Deep frozen cells are removed from storage at German biotechnology company Medigene.

hands of an experienced project manager with all kinds of connections, who brings in the different partners. So we would form lean, virtual companies — investors don't want to finance Christmas parties and annual leave. But this sort of thing is harder to do in Germany than in places such as the United States or the United Kingdom because of the country's tough employment laws.

How will BioM shape the future of the Munich cluster?

In contrast to other cluster organizations, we always knew that we were a cluster-development organization rather than just a cluster-management organization. Development is the fun part. We try to identify the trends, and bring companies and research institutes together to work on them. In the past few years, we've convinced the companies in our region that personalized medicine is the treatment of the future. I admire what Genomics England has been doing with its 100,000 Genome Project, and I'm trying to convince politicians and those that have the money to do something similar in Germany.

We have the freedom to identify trends and bring them to industry and academic institutions. I think that's important, especially in a country where sometimes things take longer than elsewhere. We need advocates in Germany who recognize new developments early and can convince the politicians to support, and the scientists to work, in the field.

Have you encountered political resistance in Germany?

When scientists in Germany tried to start genetically engineering organisms in the late 1980s, they had to fight representatives of the Green Party. The party even opposed producing insulin using recombinant bacteria, which

was commercialized in the United States in 1982. Then, in 1990, the German government passed a law to regulate genetic engineering, which satisfied the Greens, but created a huge bureaucratic burden for scientists. The next big challenge was agricultural biotechnology, or green biotechnology as we say in Germany. There, green biotech lost. The field is more or less dead. But the opponents are happy, at least — they no longer accuse the biotech industry of being one of the biggest dangers in Germany.

Are you optimistic about the future?

We have excellent science, but we do not have the investors that we need. We get companies started, but it's extremely difficult to raise the €10 million to €30 million needed to develop the technology. Scientists who could launch new businesses say, why should we, when we have no chance of being financed later? The entrepreneurial spirit is drying out. And that's what we have to change.

What do you see as the missing ingredient?

I think to have a successful biotech industry, we need local investors. If we provide incentives to those who have the money to invest in technology, then we would have a much better chance. The government has not solved this problem, and that's affecting not only biotechnology, but all areas that need venture capital. Whenever a company is successful, that financial success almost never stays in Germany because the funds are coming from elsewhere — either a non-German company buys the start-up, or the money comes from investors outside the country. So it's not German investors who are successful at the end of the day. ■

INTERVIEW BY CHELSEA WALD

This interview has been edited for clarity and length.