

Future brightens for genomics in Germany

Munich. Despite the strength of its basic science, Germany got off to a late start in genetics-related research, largely as a result of public antagonism stemming from Germany's fear of its Nazi past. But a concerted campaign to influence public opinion, backed by achievements in medical genetics, has recently begun to improve the general situation.

The ministry of research (Bundesministerium für Bildung, Wissenschaft, Forschung und Technologie, or BMBF), as part of its campaign to develop advanced science in Germany, is currently completing the first study designed to determine the precise employment situation in biotechnology.

This study covers all areas of biotechnology — including medicine, nutrition, agriculture and plant genetics, environmental science, veterinary medicine — in both public and private sectors. It reveals that there has recently been a significant growth in employment, although this is expected to level off in 1998.

In particular, the study has found that about one third of all biotechnology researchers in industry employ genetic engineering. Conversely, those industries that pay special attention to genetic engineering are heavily research-oriented — and are the fastest growing.

Recent successes in medical genetics have helped to counter a level of deep-seated public opposition to genetics research not encountered in other countries. As a result, the prospects for German molecular geneticists are at last beginning to look up.

The detailed results of this survey will be published later this year. But some of the main trends have already been made known. Two months ago, for example, Heinrich Kolb, the parliamentary state secretary for economics, reported that the number of people employed in biotechnology in Germany had doubled in the past decade, to a total of almost 40,000. This figure includes scientists, technicians and others employed in industry, universities, and research centres.

Basic research in molecular genetics is now quite strong. It already receives considerable funding from the BMBF and the Deutsche Forschungsgemeinschaft (DFG), Germany's main grant giving body, and this seems likely to rise. Most of the funding supports medical and pharmaceutical research.

In addition, Germany is at last joining international efforts to decode the human genome. Full details will be announced

next month. But the main aim of a new, eight-year programme, expected to begin later this year, will be to identify and sequence medically relevant genes, and determine their function. Jürgen Rüttgers, the research minister, has emphasized that Germany's participation in the human genome project should provide direct benefit to medicine.

The BMBF will provide DM50 million (US\$70 million) per year to support the programme, making it the largest programme in the ministry's department of biology and medicine. An international advisory committee is due to meet this week to make recommendations for the project. Although no numbers have yet been specified, the programme is certain to create a considerable number of new jobs for molecular geneticists.

Boost to gene centres

The human genome programme is expected to boost the funding of many research centres, including the four 'gene centres' that were founded by the research ministry in the early 1980s, when genetics in Germany was perceived as weak. Funding for these centres, which were intended to provide young molecular geneticists with top-class facilities and academic independence, runs out this year.

The centre in Cologne has already been dissolved, and that in Berlin will dissolve at the end of the year. Many of their scientists have had to find jobs abroad or switch to other fields. But the other two centres, in Heidelberg and Munich, have obtained further funding from their host *Länder* and other sources, and have expanded. Ernst Winnaker, director of the Munich Genzentrum, says that the junior faculty from his centre are always very successful in finding permanent positions.

Despite an environment that is becoming more welcoming for medical genetics, public acceptance of agricultural biotechnology remains low. Indeed, the two gene centres that are being dissolved, all focus on plant genetics. So too does the Institut für Genbiologische Forschung in Berlin, which was founded in 1987, currently employs about 100 scientists, but will close at the end of next year, having tried unsuccessfully to obtain funding from the government of Berlin for the period after BMBF support runs out.

Nonetheless, there are about 100 small businesses involved in plant genetics in Germany. Of these, 70 have breeding programmes, and 30 specialize in marketing foreign and German products. Together, these companies employ around 300 scientists in research and development.

But the future of genetic plant breeding

Job market remains tight for many

Ralf Schnabel, a developmental geneticist, shares the same problem that many of his fellow scientists face at present: how to find a permanent job in an extremely tight market.

Schnabel, who is 40, hopes to be appointed a full professor within a couple of years. He has all the right qualifications; having completed his PhD in Munich, three years postdoctoral research in Cambridge, England, and four years leading a small group at the Max Planck Institute for developmental biology in Tübingen, he has been an independent group leader in the Max Planck Society's (MPG's) highly competitive programme for young scientists since 1991.



Schnabel: 'trying to remain optimistic'.

This programme, which has supported nearly one hundred scientists in the life sciences since it began about twenty-five years ago, provides young investigators with independence and the chance to build up their own research group, both opportunities that in Germany are usually possible only later in one's career.

Most graduates of MPG's programme for young investigators have gone on to further academic success. Indeed a few years ago, it was not uncommon to become a director at a Max Planck Institute or a university professor. But times are getting tighter.

Although he has been successful in his research career, Schnabel says he now feels under pressure to accept any job he can get. He is looking not only in Germany, but also in central Europe. If that fails, he says he will look further afield. Although there are few academic positions available, Schnabel says that he is "trying to remain optimistic".

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