GRADUATE JOURNAL

Show us the money!

After attending the Biotechnology Industry Organization conference in San Francisco this month, I realized that a lot of modern biomedical research hinges on money. The more cash you have, the more science you can do.

Although the pace of scientific discovery can be slow, the creativity that drives it is not, with the best ideas for new research directions often coming quite early in one's career. I would bet that many Nobel laureates made their breakthroughs before the age of 42 — the average age today's PhDs get their first academic appointment.

This leaves young researchers with the challenge of getting maximum resources at the earliest possible stage of their career. But in academic science, seniority tends to rule the roost. Occasionally, visionary mentors will recognize and fully support a talented young investigator proposing a new approach to a long-standing scientific question. But these scenarios are not the norm, and many good scientific ideas must have been lost or delayed because their originator's career had not yet blossomed.

So in addition to thinking up new ways to drive future scientific discovery, young scientists will have to be even more creative to convince the world to 'show us the money' (or give us the resources) to put our new ideas in play. ■

Tshaka Cunningham is a fifth-year graduate student at Rockefeller University in New York.

BRICKS & MORTAR

Scandinavia's material gains

With the launch this month of two virtual centres dedicated to nanotechnology, Scandinavia is staking its claim as a hot spot for materials science. Based in Denmark and Norway, the facilities look set to create research and training positions for several hundred materials scientists.

In Copenhagen, the Technical University of Denmark unveiled NANO•DTU, which will be one of Europe's largest nanoscience centres. Currently it employs about 100 researchers, including postdocs and 40 PhD students. But this is likely to increase to help the university compete for the anticipated rise in government funds for nanotechnology, says physicist Jens Nørskov, the centre's director. "We are gearing up so that we will present ourselves as a good place to invest, should the Danish government choose to invest more in nanotechnology," he says.

The chief physical attraction at the centre is the newly built DANCHIP, a 1,000-square-metre clean room. Equipped with atomic force microscopy and nanolithography tools, the room will allow researchers to etch nanomachines as small as 10 nanometres.

Nørskov says that the new facilities, combined with a new BSc in nanotechnology, should help to attract undergraduates who lately have been shying away from physics and chemistry. "We're trying to make our curriculum interesting to young people," he says.

And in Norway, the University of Oslo has opened the doors on its Centre for Materials Science and Nanotechnology (SMN). Arising as the result of a reorganization in the faculty of mathematics and natural sciences, the centre features six research groups across four buildings.

The most tangible investment in the virtual centre is the Micro- and Nanotechnology laboratory (MINA-lab), a NKr232-million (US$33.7-million) 6,000-square-metre facility, with a clean room.

The SMN will employ 18 permanent staff, but with technicians, administrators, students and postdocs, the total effort will feature some 90 people. Like the Danish initiative, the SMN aims to improve international recruitment into Scandinavian nanotech. It will also focus on using nanotechnology and functional materials for sustainable energy production, one focus of the Norwegian government's research priorities. ■

Paul Smaglik is editor of *Naturejobs*.

MOVERS

Axel Ullrich, visiting scientist and director, Singapore Onco Genome Laboratory

'Right place, right time' could be the title of Axel Ullrich's biography. He moved to the epicentre of genetic engineering at the field's genesis, joined one of the most successful biotechnology companies in its early stages, and is now preparing to participate in one of the largest, centralized expansions in life-science research.

Plotting a course through such events has always come easily to Ullrich. After completing his PhD at the University of Heidelberg in Germany in the early 1970s, he watched genetic engineering begin to find its feet, and he knew exactly what to do. "I didn't even have to think about it," Ullrich says. "The United States was the place to go." Apart from being attracted by the scientific opportunities and better funding, Ullrich thought that living across the Atlantic would be a good way to learn English.

But it was not his command of a new language that impressed scientists around the world in 1977. It was his publication of the first transfer of a mammalian gene — encoding for human insulin — into bacteria, a result of two years' work at the University of California, San Francisco. "Holding the sequence of insulin in our hand for the first time was a great moment," Ullrich recalls.

A year later, Ullrich left the university to join the nascent company Genentech, a forerunner of the biotech industry. There he developed the first genetically engineered medicine, human insulin, made by bacteria, and also got increasingly interested in cancer research. His work helped to bring the cancer drug Herceptin to the market in 1998. But initially Genentech didn't pursue the drug, so Ullrich returned to Germany as a director at the Max Planck Institute of Biochemistry near Munich. "It was not easy for me to adopt to the more rigid German scientific community," he says. "But, in retrospect, it was the right choice."

This month Ullrich took on a new challenge. He moved as a visiting scientist to Singapore's 'Biopolis' to work for A*STAR — the Agency for Science, Technology and Research, which charts the course for the city-state's science and technology. There he will set up a group to carry out large-scale genomics dedicated to cancer-gene discovery. After his year is over, it will become apparent whether he was again in the right place at the right time. ■

CV

1988–: Director, Max Planck Institute of Biochemistry, Martinsried, Germany
1978–88: Senior scientist, Genentech, South San Francisco, California
1975–77: Postdoctoral fellow, University of California, San Francisco