

BY THE NUMBERS Switzerland

BY KATHARINE SANDERSON

Boasting the world's most competitive economy — on the basis of factors such as business climate, institutions, infrastructure, higher education and innovation, according to the non-profit World Economic Forum — Switzerland also hosts some of Europe's finest universities, such as the ETH Zurich and the Ecole Polytechnique Fédérale of Lausanne. It also maintains a thriving pharmaceutical and biotech industry, along with impressive mountain scenery, fine watches and high-quality chocolate. Switzerland hosts the headquarters of several major drug-makers. The Basel area alone is home to the bases of Novartis, Roche and Actelion, and Geneva hosts headquarters for the pharmaceutical company Merck Serono.

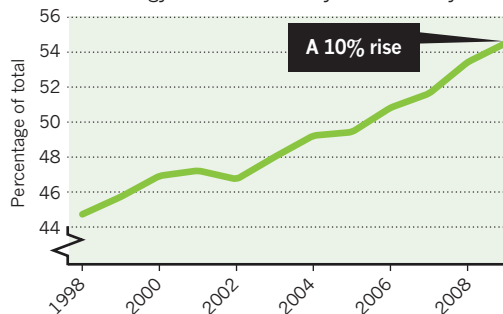
BIOTECH AND PHARMA

- Some **245** pharmaceutical companies operate in Switzerland, employing **35,400** people, including researchers.
- Revenues from Swiss biotech companies rose from **8.09 billion** Swiss francs (US\$8.37 billion) in 2007 to **9.34 billion** Swiss francs in 2009, an increase of **15.4%**.
- The number of biotechs in Switzerland rose from **119** in 2001 to **162** in 2009. Biotech employees totalled **19,071** in 2009. Between 20% and 30% of those are researchers.

SOURCE: EUROPEAN COMMISSION

EMPLOYMENT IN SWITZERLAND

The number of employees in science and technology has risen steadily over recent years.



NANOTECHNOLOGY SWISS NANOSCIENCE INSTITUTE

- Based in Basel.
- Set up by the Swiss National Science Foundation.
- Produced **23** patents and **7** start-up companies.

IBM EUROPEAN RESEARCH BRANCH

- Based in Rüschlikon, Zurich.
- Building a 6,000-square-metre nanotechnology research lab, in collaboration with ETH Zurich, due to begin operations May 2011.

RESEARCH AND DEVELOPMENT (R&D) EXPENDITURES

- Around **3%** of Switzerland's gross domestic product goes to R&D. Private industry accounts for **73%** of that amount.
- The Swiss government, industry and academia collectively spent **16.3 billion** Swiss francs on R&D in 2008, up **24%** since 2004.

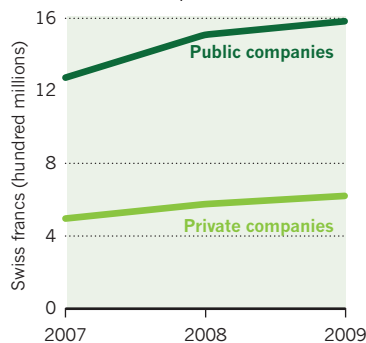
INTERNATIONAL RESEARCHERS

- More than **50%** of professors hired between 2005 and 2008 in Switzerland's **12** research universities are from outside Switzerland.
- **45.7%** of professors and **50.3%** of assistants and scientific personnel are non-Swiss.
- Up to **56%** of professors are predicted to be non-Swiss by 2018.

SOURCE: SWISS BIOTECH

SWISS R&D IN BIOTECH

R&D expenditure in Swiss biotech companies



Q&A Ralph Eichler



Ralph Eichler is president of ETH Zurich in Switzerland, which was 15th in the Times Higher Education's recent top world universities list — the highest ranked non-US and non-UK institution.

ETH ZÜRICH/GAMSTUTZ

Why are half of Switzerland's researchers from other countries?

There is an international tradition. As we are a small country we have to search for the best talent worldwide. We also fund high-risk projects. The quality of life is an added value. There is low crime, political stability, a good education system and the security that comes with a good economy. People who come to work in Switzerland tend to stay here.

How does the ETH create successful spin-out companies?

A London School of Economics study found that 88% of ETH-founded companies survive more than five years. The ETH has a programme that links students to experienced business people to help them create a business plan. The students stay in the university for two years after graduating, setting up and running companies, and then have to become independent. This process, which is about 12 years old, clearly works.

What career advice would you give young Swiss scientists?

Whether in industry or academia, you should go abroad. About 80% of Swiss industry is geared towards exports, so we have to know the culture of different countries. I would never hire a professor who has not worked outside Switzerland. Good ETH researchers should go away and prove themselves in a second, different environment.

Do you have any trouble recruiting?

The biggest difficulty is the 'dual-career' issue. The ETH offers a dual-career programme, in which the partners of prospective employees are given support to find work. But it can still be a problem. **K.S.**