

Switzerland – A National Biotech ‘Cluster’ With Regional Specialities

a report by

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Switzerland lies at the heart of one of the leading biotechnology regions, which also encompasses the neighbouring parts of France, Germany and Italy. Anchored by world-class research of home-based multinationals Novartis, Roche, Serono and Syngenta, the Swiss biotechnology industry is among the largest and most diversified in Europe. This enviable position is reinforced by cutting edge research carried out in a large and growing network of small and medium-sized biotechnology companies throughout the country. The country, with approximately 7.1 million inhabitants spread over 40,000km² has developed into a giant of biotechnology over the past few years.

Market Entry – A Great Place to Conquer Europe

The country has always been a good location for European business development. Due to the various cultures mixing in Switzerland and the multi-language skills, the wide business outlook comes with the education.

In addition to the languages, there is a company-friendly infrastructure and regulation base. All industries enjoy freedom of activities without stringent regulative hurdles. For instance, a company can be founded within 48 hours and in many regions, work permits are granted within two to three working days. Switzerland is also known for short product registration cycles and easy access to markets for medical devices and innovative drugs.

For example, through the Swiss Agency for therapeutic products, Swissmedic, the centre of competency for the pharmaceutical industry market entry is facilitated. Swissmedic is responsible for the authorisation and market monitoring of pharmaceuticals and grants licences for manufacturing, wholesale and retail operations.

Tax Friendly Environment

The tax environment is a key factor in deciding on a business location. The country offers a very favourable tax environment in general, with

moderate overall taxation. The average corporate tax rate on profit was 24.5% in 2003, one of the lowest in Europe. This tax system is fair and stable. It is the basis for competitive advantages for a company, and therefore the federation does not offer big incentives to start-up companies.

Access to the European Market

The EU is one of the countries' most important trading partners – three-fifths of the exports go to EU countries and four-fifths of the imports come from there. Switzerland has close contractual ties with the EU. 1972 saw the conclusion of the Free Trade Agreement, and seven bilateral agreements were signed in 1999. These agreements cover the areas of the free movement of persons, overland transport, air transport, agriculture, research, technical barrier to trade and public procurement. Further bilateral negotiations are under way. Swiss-based business therefore has an excellent platform for accessing the European market.

Compatible Legislation with the EU

Switzerland has created a legal framework that benefits the biotechnology sector and is compatible with EU regulations. The federal co-ordination centre for biotechnology provides all the necessary information on regulations and requirements. It also facilitates an efficient procedure for notification and licence application.

Well Developed Internal Network

Close and exemplary co-operation between the Swiss government, research institutes, finance and industry; personal networks across borders, private-public partnerships, institutional links between industries, research and finance are typical elements of the Swiss high-tech community.

Innovation Must Lead the Way

Switzerland has at its disposal both first-class university research and a strong position in modern industrial biotechnology. Together with improved

Box 1: The Regional Cluster Initiatives of Switzerland

Bio Alps: <http://www.bioalps.org>

Bio Alps is one of the bigger European centres of biotechnology research. The region is home to over 200 medical technology and biotechnology companies, over 500 research laboratories; more than 10 universities, university hospitals and technical schools. Research parks and technology transfer institutions also support the fast development of the life science industry.

Biopolo Ticino: <http://www.biopolo.ch>

The Biopolo Ticino acts as a one-stop shop and a portal for the life science in, to and from Ticino, to create a fully integrated life science cluster. One of the goals of the Biopolo Ticino is to align, network and integrate the life science value chain in Ticino, the southern part of Switzerland.

Bio Valley Basel: <http://www.biovalley.ch>

Bio Valley – Basel Area is a major center for pharmaceuticals, chemical and modern biotechnology industries. More than 30,000 people are working in life sciences (including biotechnology). Some 40% of the world’s pharmaceutical industry is established in the Bio Valley region. In the center of Europe, bordering to France, Germany and Switzerland, the organisation is a strong partner for the industry.

Zurich MedNet: <http://www.zurichmednet.org>

Zurich MedNet is the locally and internationally integrated life science cluster in the Greater Zurich Area. It includes more than 400 medical and biotechnology companies, universities, technical colleges and technology transfer institutions. The region features numerous diversified research parks, business parks and several incubators to support the prosperous development of biotechnology companies.

financing possibilities and sound legislation, these strengths offer a good basis for further development in this field. Biotechnology has already produced important results in the areas of health, nutrition, environmental protection, raw materials and speciality chemicals. Switzerland is in a strong position to keep pace internationally with future rapid developments in biotechnology. To do so, the country will have to build firmly on its existing strengths, and improve the transfer of technology between universities and industry. Appropriate training incorporated in the educational projects by potential scientific entrepreneurs must be given serious consideration.

With an annual overall expenditure of CHF10.7 billion (US\$5.7 billion) in 2002, the country has one of the world’s highest levels of research expenditure relative to a gross domestic product (GDP) of 2.6%.

The innovation promotion agency Commission for Technology and Innovation (KTI/CTI) funded by the Federal Office for Professional Education and Technology (OPET)

The OPET is the federal government’s competence centre for professional education, Universities of Applied Sciences and Innovation Policy. Promoting Innovation is the ‘leitmotif’ of the OPET. It seeks to contribute to safeguarding and developing the high innovation potential of the Swiss economy and making Switzerland an even more attractive location for qualified employees and investors.

Where biotechnology is concerned, Switzerland is known to offer fertile ground for research and development (R&D) and the subsequent formation of promising biotechnology companies. It is a great place to live and work offering a wide and competent scientific network based on prestigious institutes of higher education. (Universities, Swiss Federal Institutes of Technology, Universities of Applied Sciences) and both world-scale companies and innovative SMEs. To date, there are over 7,000–8,000 jobs held in the industrial biotechnology sector, and the number is growing.¹

The CTI wants to increase the speed of transition from science to market, exploiting the high potential in scientific expertise and commercialisation capacity that

1. Excluding international numbers from Serono, Novartis and Roche.

can be found in the country. The CTI has various industry and technology focus. Two are presented here.

CTI Life Science

CTI Life Science funds innovative projects carried out by higher education in co-operation with industrial partners eager to exploit the results and contribute to the growth of the sector (CTI funds 50% of the entire project costs in form of project contributions to employees of the academic partner. The other 50% are borne by the industry partners.)

CTI Biotechnology

CTI Biotechnology promotes the Swiss biotechnology industry by further optimisation of know-how and technology transfer, facilitates and optimises the economic exploitation of innovative techniques and products emerging from basic and application-oriented biotechnology R&D.

A great company example is Prionics in 1996, when the University of Zurich launched a research project financed by the Swiss National Fund. The objective was to develop a rapid bovine spongiform encephalopathy (BSE) test – a challenge for Bruno Oesch's research team. They successfully reached this objective by developing the prototype for a rapid and reliable BSE test. Armed with an exclusive licence, Oesch, Markus Moser and Carsten Korth founded the Prionics, a spin-off company. Today Prionics AG is the world leader in fast and reliable BSE tests and employs more than 100 people.

The academic structure of the country is comprised in a federalistic way, which reflects the governmental system. The two Swiss Federal Institutes of Technology in Zurich (Eidgenössische Technische Hochschule (ETH) Zurich) and Lausanne (Ecole Polytechnique Fédérale (EPF) Lausanne) and the research institutions Paul Scherrer Institute (PSI), Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), Empa and Swiss Federal Institute for Environmental Science and Technology (EAWAG) ensure that the ETH institutes play a leading role in basic and applied research, teaching, innovation and services in the public sector. These institutions also achieve world-class results in the promising, future-oriented disciplines of life sciences, nanotechnology and communications technology.

These academic centres command an excellent history, image and faculty. The universities are funded by the cantons (Switzerland has 26 cantons.

Not every canton has an own university, mainly because of historical development or short distances between the universities. The universities vary in size and faculty programs significantly. The universities of Basel, Bern, Geneva, Fribourg, Lausanne, Neuchâtel and Zurich offer extensive curriculums in the field of life sciences, medical and biotechnology.

With demanding timetables to organise higher education in a more effective comparative way, five universities of applied sciences are currently, more than ever, active in the field of biotechnology and enjoy a better integration with the universities and federal Institutes of Technology. This results in a better vertical technology transfer program and faster product innovation cycles. The universities of applied sciences work horizontally together through the BioteCHnet, a special network of the five institutions.

Fast Access to Valuable Information

Currently, access to good information is more important than ever. Through an initiative led by the government, academia, techtransfers, economic development agencies and industry, the first national information portal on Biotechnology started in 2003.

Nurturing the Spin-outs

Switzerland has not been leading the development of science parks and incubators. The concept of sharing infrastructure and renting models for small space has only been learnt by endonic success models from the US or Finland. The country therefore had to catch up in this field. Since the incubator is often the first home of a company generated in academia after it spins out, it was recognised by various private and institutional opinion leaders, that this deficit in the value chain should be eliminated. Currently, there is a vast mix between solely private science parks to almost state-supported incubators. Typically, the model of public private partnership (PPP) is the best, since it allows the best mix of decisions and rapid time development.² The technology transfer agencies, regional economic development agencies and cluster initiatives have been of great value in the development of this indispensable side of the infrastructure for a modern and successful biotechnology industry. With a network of more than 40 business incubators and science parks, Switzerland currently has a good infrastructure for young and innovative companies. A dense network of universities and research institutes guarantees a constant exchange of ideas and easy access to a highly qualified, motivated workforce.

2. A fine and fairly complete overview of the science park and incubator scene is available at http://www.swissbiotech.org/infrastructure/real_estate/index.html

Center of Finance

The improved drive in Swiss biotechnology is reflected in the country’s financial community. The last three years have seen the creation of a number of funds focusing on private equity and venture capital financing. Many of them explicitly seek opportunities in the life sciences field. Although the financing community is fairly prudent with investments in economically difficult times, the financing sector remains strong. With more than 40 venture capital firms and sector-specific investment funds, Switzerland offers an excellent climate for biotechnology and other life science companies.

Venture capital specialists note that a series of companies are attractive for investors such as Actelion, Basilea, Berna and Cytos in the public sector, and in the private sector Arpida, Prionics, Glycart and Debiopharm just to name a few.

With 133 private and seven public companies, Switzerland has the highest number of biotechnology companies per capita in Europe and the Swiss biotechnology industry has the second highest valuation in Europe after the UK (April 2004).

The financial community has rewarded the generally high quality of Swiss biotechnology industry over the past years by considerably and constantly investing into companies with promising projects under way. Ernst & Young notes that even in harsh investment times, significant amounts of venture capital flew into Swiss biotechnology companies (2001; CHF 106 million, 2002; CHF 148 and 2003; CHF 130 million). Ernst & Young’s recently published Swiss biotechnology report shows these figures and gives additional information on the industry. Ernst & Young produced the report jointly with KTI/CTI, seco, Swiss Exchange (SWX) and Swiss Biotech.

The Swiss Private Equity & Corporate Finance Association (SECA) is the representative body for Switzerland’s private equity, venture capital and

corporate finance industries. Currently, approximately 200 members are active in the association. SECA has the objective to promote private equity and corporate finance activities in Switzerland. Private Equity refers to equity investments in privately-held, non-quoted companies. Corporate finance services are advisory services related to mergers, acquisitions, buy-outs and the financing of companies. Members of SECA include equity investment companies, Banks, Corporate Finance Advisors, Auditing Companies, Management Consultants and Private Investors.

Going Public in Switzerland – A Good Idea

A listing in Switzerland is highly attractive. The SWX Group, already home to the shares of a host of Swiss blue-chip life-science companies, such as Roche, Novartis, Serono and Nestlé, is also a very alluring marketplace for other public companies. Listed companies benefit from the influential role played by institutional investors and the substantial presence of foreign participants. The SWX provides innovative international companies with access to the Swiss capital market. A public offering in one of its segments affords issuing companies a high degree of global visibility among investors, particularly those with a heightened interest in specific sectors. An initial public offering (IPO) in Switzerland is an attractive means of obtaining equity financing, particularly for companies in medtechnology, biotechnology, pharmaceuticals and micro- and nanotechnology.

The listing requirements of the SWX’s various market segments and their requirements for maintenance of listing are designed to meet the needs of both investors and issuers. While the legal requirements for initial public offerings reflect European standards, the listing costs in Switzerland are well below the international average. In the Swiss financial marketplace, it takes less of an effort to attract investors. Communication is much easier in small geographical areas. ■