SWISS BIOTECH REPORT 2006

USEFUL ADDRESSES ON BIOTECHNOLOGY IN SWITZERLAND

Central database of the Swiss biotech sector	www.swissbiotech.org
Swiss foreign investment agency	www.locationswitzerland.ch
Swiss export promotion agency	www.osec.ch
Swiss innovation promotion agency	www.kti-cti.ch
Central database of the Swiss life sciences sector	www.swisslifesciences.com
The Swiss Federal Institute of Intellectual Property	www.ige.ch
Investors and finance	
Swiss private equity and corporate finance association	www.seca.ch
Investor database	www.swisslifesciences.com
SWX Swiss Exchange, the Swiss stock exchange	www.swx.com
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. . . a successful biotech location

Dear Reader

Switzerland is a prime location for biotech companies. The 2006 edition of the Swiss Biotech Report provides a good overview of the opportunities available and serves as an information gateway to the Swiss biotech community.

Having identified biotechnology as a key factor in future development, the Swiss government has undertaken various efforts to create an attractive business environment for this sector. Biotechnology enjoys a favourable regulatory and administrative environment in Switzerland: Product registration cycles are short and innovative drugs, biotech products and services enjoy easy access to the markets. On the administrative side, the Federal Coordination Centre for Biotechnology (www.contactbiotech.ch) acts as a one-stop processing centre for notification of activities and applications for authorisation.

What makes this country such a successful biotech location? In a technology-friendly environment, Switzerland boasts a qualified and highly motivated workforce. Stable political and social conditions, a flexible job market as well as an effective infrastructure and attractive tax framework – all of these make Switzerland a rewarding choice for any innovative company.

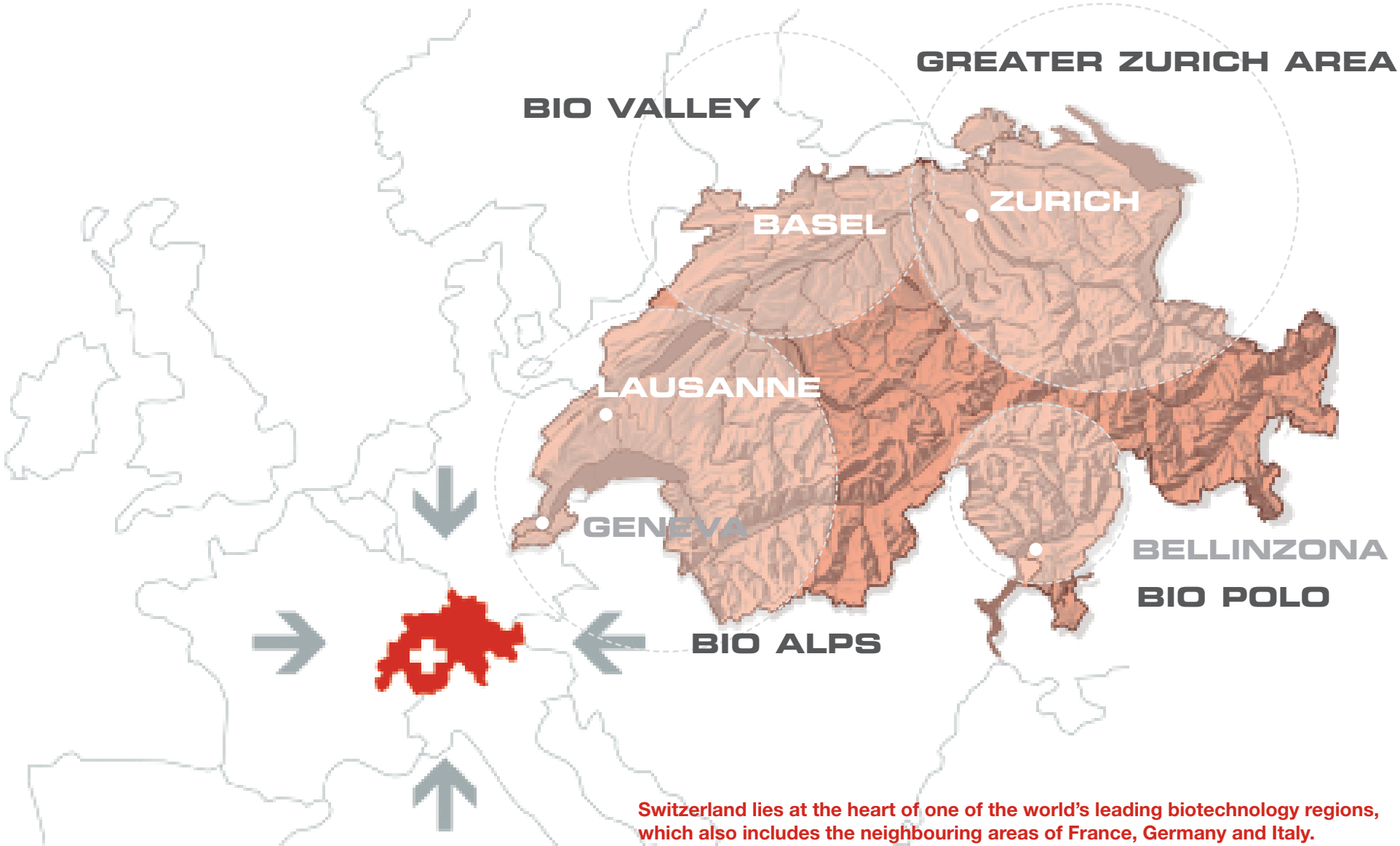
The country also offers an efficient technology transfer between higher education institutions and industry, thus enabling innovation, high quality and sustainable growth.

The proximity to the country's prestigious pharmaceutical and chemical industries and international knowledge clusters make Switzerland an ideal place to set up your biotech business.

The unique combination of advantages described here together with innovative and vibrant research and business communities make Switzerland a true biotech gem in the heart of Europe.

Joseph Deiss, Minister of Economic Affairs

04 BIOTECH COUNTRY SWITZERLAND



Switzerland lies at the heart of one of the world's leading biotechnology regions, which also includes the neighbouring areas of France, Germany and Italy. The Swiss biotech industry is among the largest and most diversified in Europe.

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06 A PRIME BUSINESS LOCATION... >>

LOCATION SWITZERLAND With 138 biotech companies and 91 biotech suppliers, Switzerland boasts the highest biotech density worldwide compared with the number of inhabitants. In 2005 the Swiss biotech industry generated a turnover of almost CHF 6 billion with a workforce of over 14'400.

Located in the heart of Europe, the Swiss biotech industry is in close proximity to important biotech areas in neighbouring Germany, France and Italy and is therefore a perfect gateway to the EU markets that include well over 450 million consumers.

Why is Switzerland the best location for your biotech business?

- A sophisticated scientific environment with leading-edge competence in life sciences, nano- and microtechnology and biotech equipment

The innovative products of Swiss biotech companies regularly win international prizes.
Three Swiss companies have recently been honoured with the European Biotechnica Awards: In 2004, Prionics won first prize, with Cytos coming in third, and Speedel finished second the following year (2005).

Out of a total of 523 European biotech products in development pipelines (of listed companies only), 109 come from Switzerland. This second-place ranking in European terms illustrates the country's innovative capabilities.

The basis for this ongoing success is the intensified collaboration and exchange of knowledge within a network of institutes, universities and private companies. "SystemsX", the national initiative in systems biology founded by the Swiss Federal Institute of Technology in Zurich, is just one example. In cooperation with the Universities of Basel and Zurich, this programme reformulates research problems in order to speed up the generation of clinically applicable results which can then be used by the industry. "SystemsX" has announced a further collaboration with Roche in the area of diabetes. This innovative industry/academic partnership translates systems biology research into improved medicines in order to find new pathways for diabetes drugs.

- A highly skilled and quality-conscious workforce, experienced in precision operations – a world leader in terms of productivity. For the US biotech company Isolagen, which specialises in autologous cellular therapies, the highly qualified multilingual workforce was a decisive factor in its choosing Bevaix in the Canton of Neuchâtel as a new location.

According to Isolagen's chairman Frank DeLape, "The acquisition of the campus is the result of a comprehensive search for a facility capable of providing us with the logistical flexibility and scalability to expand our international operations. This site was selected for several reasons including the highly educated, multilingual workforce, its location in the Zurich-Geneva life science and biotech corridor and excellent transportation infrastructure, making it easy to reach all locations within the European-Middle Eastern-Asian region."

- A stimulating environment for young, innovative start-ups with science parks and incubators

Innovative ideas and new products can be easily launched in Switzerland. Take the Eclosion science park near Geneva, for example: This revolutionary project boasts a new structure that allows accelerated development for new companies in high-tech sectors. Government and private sector efforts combine in a dynamic and innovative framework: The state provides funding for the operations of the incubator and private investors provide the capital necessary to create the new firms. The park is located in the Center for New Technologies in Plan-les-Ouates, where Serono Pharmaceutical Research offers space at very favourable conditions. Each of Switzerland's business regions has its own science parks.

... FOR LIFE SCIENCE COMPANIES

- Access to the European market and to more than 450 million consumers of products and services from Switzerland

Good contractual relations with the European Union and the country's central geographical location provide Swiss-based companies with an excellent platform from which to access the European market. For these reasons, Millenium Biologix AG selected its Zurich site as the starting point for its European expansion. The company's investment in Switzerland includes R&D laboratories, production facilities, a marketing unit and a regional office for regulatory affairs. The importance of its Swiss site will grow with the planned launch of new clinical products.

- Attractive fiscal system and encouraging administrative and regulatory framework

A very favourable tax environment with moderate overall taxation is a key advantage of a business location in Switzerland. The maximum corporate tax rate was 21% in 2005, which is one of the lowest in Europe. The biotech industry benefits from an encouraging administrative and regulatory framework for companies, as well as low payroll taxes. Additional advantages are short product registration cycles and easy access to markets.

- Leading financial centre in Europe and beyond

The SWX is a leading European stock exchange as far as the market capitalisation of listed life science companies is concerned. In addition, the sector-specific index family that includes SXI LIFE SCIENCES® and SXI BIO+MEDTECH® increases both visibility and liquidity for domestic and foreign biotech companies.

- Wide choice of venture capital and private equity funds

Switzerland, with over 40 venture capital firms and private equity funds, various science parks and incubators, is a very inviting environment for innovative start-up companies. For example, the Basel-based company Speedel was able to raise a total of CHF 227 million in private risk capital through several rounds of financing. The value of the company increased from round to round, and in September 2005 it was admitted to listing on the Swiss Exchange (SWX), reaching an initial capitalisation of CHF 950 million.

The total venture capital flown into Swiss biotech companies amounted to CHF 295 million in 2005, which gives Switzerland an excellent third-place ranking in Europe.

- www.swissbiotech.org: your entry portal to the Swiss network in biotechnology

A database of over 800 Swiss life science and biotech companies provides free and direct access to the Swiss biotech knowledge network. R&D cooperation between institutions of higher education and the private sector are further promoted by Switzerland's four regional biotech clusters BioValley, Greater Zurich Area, BioAlps and Biopolo Ticino.

LOCATION SWITZERLAND...

...the Swiss foreign investment agency, informs potential investors on Switzerland as a business location and works together with the cantonal business promotion representatives in selected markets and industry clusters to actively pursue marketing for Switzerland as a business location.

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For further information please visit
www.locationswitzerland.ch
www.swissbiotech.org

08 INDUSTRY STATEMENTS

ERNESTO BERTARELLI, CEO SERONO

"Our goal is to complement our existing businesses and in-house projects and contribute to our long-term growth."

Based in Geneva, Serono is a global biotech leader with eight biotechnology products. In addition to being the world leader in reproductive health, Serono has strong market positions in neurology, growth and metabolism and has recently entered the psoriasis area.

What are the advantages for a global biotech company such as Serono to have its headquarters in Switzerland?
Ernesto Bertarelli: As a centre of first-class scientific research, especially in life sciences, Switzerland has proven to be an excellent location for a global biotech company. There are many examples of fruitful cooperations with Swiss universities or federal institutes of technology as well as with start-up companies. For example, in 2005 we established a partnership with the Universities of Geneva and Lausanne to create a joint professorship for research in reproductive endocrinology and we signed an agreement with the Geneva-based product development company NovImmune that grants us exclusive rights to develop and commercialise two fully human monoclonal antibodies. Switzerland's favourable environment has been supportive to our growth since we moved our headquarters here in 1977. I am convinced that the spectacular growth of our company is a result of political, social, environmental and cultural factors that come together here.

How is Serono reacting to the consolidation process that is taking place in the European biotech industry?
Ernesto Bertarelli: In the biotech industry, size is not the determining factor of success. Creativity, innovation and dynamism are the keys to discovering new drugs. At Serono, we continue to make good progress in R&D. Supplementing our in-house R&D effort is a very active programme in business development. Our focus includes new indications within therapeutic areas where we already have a presence, as well as targeting new therapeutic areas with high unmet medical needs such as autoimmune disease and oncology. Our goal is to complement our existing businesses and in-house projects and contribute to our long-term growth.

The biotech sector, which is highly dynamic and competitive, puts a premium on flexibility and continuous innovation. How do you ensure that Serono maintains a competitive edge?
Ernesto Bertarelli: At Serono, we cultivate a very competitive and challenging internal culture while at the same time emphasising teamwork. We are guided by a strong vision and the capability to reinvent ourselves to adapt to changing competitive factors. We work in an entrepreneurial spirit in multiple centres of excellence around the world in which people interact and cooperate with one another very effectively.

ALICE HUXLEY, CEO SPEEDEL

"Switzerland is an excellent location for any entrepreneur looking to build a successful biotech business."

The biopharmaceutical company based in Basel, develops therapies for cardiovascular and metabolic diseases. The company is a world leader in the field of renin inhibition, an innovative approach in the treatment of cardiovascular problems.

How do you rate the Swiss biotech industry in a European context?
Alice Huxley: The numbers speak for themselves – the world's highest density of biotech companies per population, second in Europe in terms of revenue and market capitalisation of the sector, about CHF 1.4 billion invested in R&D per year. These excellent figures reflect the key factors which enable the Swiss biotech industry to flourish: leading-edge scientific expertise, a highly skilled and quality-conscious workforce, an established world-class pharmaceutical industry that acts as both a springboard and as a customer for new companies, a networked infrastructure for innovation to thrive, extensive financing sources with knowledge and commitment in the sector. In short, Switzerland is an excellent location for

any entrepreneur looking to build a successful biotech business!

How does Speedel respond to the consolidation process taking place in the European biotech industry?
Alice Huxley: Industry consolidation is a natural process of evolution: It can be the result of two weak companies joining forces to hopefully benefit from shared resources, it can occur when a small young company becomes so successful that it attracts the attention of a larger established firm with deeper pockets, it may reflect the fashion of that year for a particular technology or disease expertise that becomes the "must-have item" irrespective of cost. Speedel's current strategy is to remain independent and to become profitable, using our core strengths of focused innovation and smart drug development for treating cardiovascular and metabolic diseases. However, we recognise that Speedel is not immune to the forces of consolidation – and we are ready to respond either offensively or defensively as appropriate.

The biotech sector is highly dynamic. Flexibility and innovation are among the major factors in staying competitive. How does Speedel guard against taking it easy?
Alice Huxley: We live daily by our motto: "at the heart of value creation". Whatever we do, it has to be judged against that benchmark of creating value for patients, partners and investors. Our entrepreneurial culture is characterised by being resultdriven, ethical, people oriented, focused and trustworthy. Speedel's future success will depend on our ability to maintain these qualities even as the organisation grows in scale and complexity.

URS TUOR, CEO GLYCOVAXYN

"The investment horizon of investors has been drastically shortened, and having product candidates in phase II has almost become a precondition for venture capital investments."

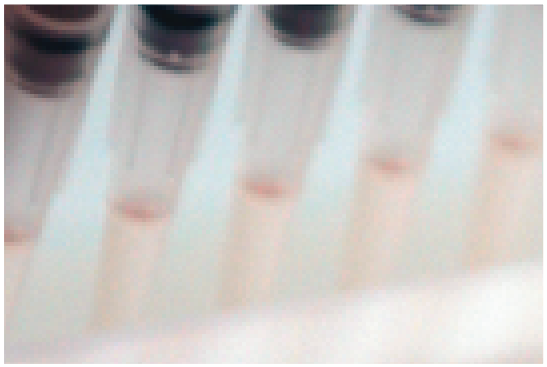
The company was incorporated in November 2004 as a spin-off of the ETH Zurich. Today the biotechnology company operates in its own facilities near Zurich. GlycoVaxyn is dedicated to the development of novel biotechnological methods for the production of glycoconjugates in bacterial cells. It offers a solution for producing therapeutic glycoproteins faster and at lower cost.

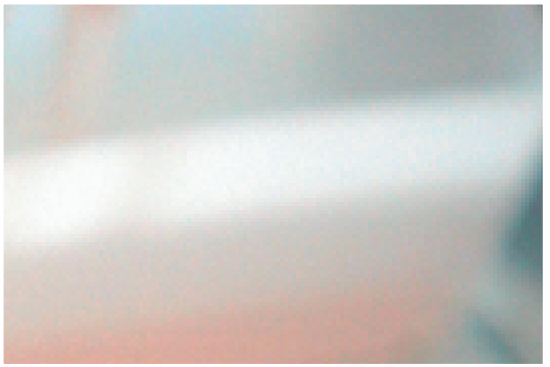
How do you, as the CEO of a young start-up company, evaluate Switzerland as a biotech business location?
Urs Tuor: Very positively as regards the low-cost access to infrastructure and accessible networks with experts from the biotechnology field.
Numerous other biotech start-ups are open to exchanging information and sharing their experiences. Although there are sufficient venture capital investors and financial resources for follow-up and expansion financing, institutional and public funding for early-phase technology development is only available on a limited basis. Business angels who could fill this need are still too rare due to the lack of expertise and capital.

What are the crucial factors that allow a young company to raise capital or enter into partnerships with large companies?
Urs Tuor: The investment horizon of investors has been drastically shortened, and having product candidates in phase II has almost become a precondition for venture capital investments. Venture capital investors have pulled out of the seed and early-stage field almost completely. Reliable proof-of-concept data are critical for survival in order to obtain start-up financing or to enter into R&D collaborations with larger industrial partners. In addition, the composition of the management team is always a decisive criterion, which means that young companies will probably have deficits in one of these areas, which they will have to cope with.

Flexibility and innovation are among the most important factors that allow a company to remain competitive. How do you prevent your company from getting sluggish?
Urs Tuor: As a very young and still small start-up, we do not have this problem, at least not yet. Discussions with industry representatives are for us the best way to develop ideas for new applications and projects and if possible to implement them ourselves or within the framework of cooperative arrangements.

For further information please visit
www.serono.com
www.speedel.ch
www.glycovaxyn.ch





THE INNOVATION PROMOTION AGENCY CTI What role does the CTI, the national innovation promotion agency, play in connection with Switzerland's efforts to promote research and technology?

Oreste Ghisalba

Alongside the Swiss National Science Foundation (SNF), the CTI is Switzerland's most important national organisation for the promotion of research. Whereas the SNF focuses mainly on fundamental research, the CTI has a dual focus on promoting applied research and development projects (aR&D) through public-private partnerships and on establishing and developing start-ups. In addition, CTI also has the goal of assuring the efficient and result-oriented transfer of knowledge and technology.

Through its Life Sciences section, the CTI provides the biotech sector in Switzerland with the following forms of support:

- Backing for regular CTI aR&D projects based on a public-private partnership model (50/50 funding as a basic rule)
- Facilitating a straightforward and seamless transition from SNF to CTI funding, for example for follow-up projects to innovative R&D approaches stemming from the National Centers of Competence in Research (NCCR)
- Discovery Projects (new CTI initiative) promoting R&D approaches for which it is not yet possible to find a completely committed business partner. These projects have an extremely high innovation and market potential yet still involve a high risk of failure.
- Help in setting up new companies through CTI Start-up

In addition, the strategic CTI Biotech initiative makes a significant contribution towards optimising the general R&D structural conditions for biotechnology in Switzerland – based on the principle of "help for self-help", wherever possible. Its main goals are to eliminate recognised structural deficiencies, to efficiently utilise dormant synergy potentials, and to create new synergies and networks. This is matched by efforts to stimulate interest in new research areas and application fields. A stepped-up dialogue among stakeholders leads to significant new impulses for the successful future development of the Swiss biotech sector as a whole.

CTI Start-up provides valuable professional assistance to entrepreneurs who are forming start-ups and spin-offs: scientific and business coaching on how to optimise business areas and business plans, and support in project management, partnering and networking. Companies that successfully complete this optimisation process are awarded the CTI Start-up label, which improves their chances of securing financing. Over one-third of the more than 100 CTI Start-up label companies to date are from the life sciences sector. Another service that CTI launched in 2004 was venturelab, an entrepreneurial training programme.

INTERNATIONAL APPROACH

CTI is actively involved in creating an international image for Swiss biotech players from the business and academic communities (under the marketing label Swiss Biotech). This is important because the Swiss biotech scene needs to effectively sustain opportunities on the international stage, to and to open up new

markets. In addition to the United States, the region of Central and East Asia (Japan, China, Korea, Singapore, India, etc.) is a key market for biotech products and services from Switzerland and also for new joint ventures and R&D partnerships.

The agency's so far most important international success was achieved in Japan. In the autumn of 2005, a memorandum of understanding was signed between the Japan Bioindustry Association (JBA) and the Swiss Biotech Association (SBA) on the occasion of Switzerland's participation in Bio Japan 2005. The task now facing the CTI is to actively implement the agreement with JBA. For this purpose, the agency has also entered into an agreement with the Japan External Trade Organization (JETRO) in Geneva to promote closer cooperation between the two countries.

CORE BIOTECH COMPANIES AND BIOTECH SUPPLIERS

One strength of the Swiss biotech industry is that the number of core biotech companies and biotech suppliers, and their activities, are well balanced. Both types of companies and their effective interaction are important to the success of the biotech industry as a whole. There is still considerable potential for optimisation as regards strategic R&D collaborations between small and medium-sized enterprises specialising in biotech.

The CTI makes a contribution in this area, too, by increasingly lending its support to small and large-scale collaborative projects that involve several business partners and/or several academic partners. A current example of this type of a more complex a R&D approach is the CTI-funded TERRAFORS project. Participants in this project include the environmental biotech firm Madep, the instrument and equipment manufacturer Infors and the Institute of Microbiology at the University of Neuchâtel. The common goal was to develop, validate and launch a new solid-phase spherical bioreactor for use in a variety of application fields, including environmental biotechnology. The business areas of the two companies complement one another, resulting in a nice win-win situation. The bioreactor concept stems from research done at the University of Neuchâtel and by the spin-off company Madep. When it came time to implement the concept within the framework of the partnership, Infors was responsible for designing the equipment and instrumentation. Infors has a commercial interest in marketing the TERRAFORS bioreactor for a wide range of R&D applications. Madep uses the reactor to optimise actual biological environmental clean-up processes (such as customised bioremediation of contaminated soil). The TERRAFORS solid-phase bioreactor was launched in 2005 and has now also won the Swiss Technology Award for 2006.

Prof. Dr Oreste Ghisalba is Head of CTI Biotech.

CTI THE INNOVATION PROMOTION AGENCY...

...promotes projects in applied research and development (aR&D) that are carried out jointly by private-sector businesses and academia. The organisation provides funding solely for the academic participants in the form of salaries for around 1,000 researchers each year. In addition, CTI Start-up supports the establishment of high-potential growth companies with an international focus. By building a bridge between the lab and the market, CTI furthers the innovation process that drives the economy. Businesses benefit doubly from this mission: both from project results and from the supply of qualified, market-oriented R&D professionals. For the period 2004 through 2007, CTI's funding amounts to approximately CHF 400 million.

KTI/CTI
THE INNOVATION PROMOTION AGENCY

For further information please visit
www.kti-cti.ch
www.ktistartup.ch
www.venturelab.ch

12 AN EXPONENTIAL INCREASE IN STRENGTH

SANTHERA The company which was formed in 2004 as the result of the merger between Graffinity Pharmaceuticals and MyoContract is living proof that a merger between two smaller companies that complement one another in terms of products and personnel can uncover previously hidden reserves of strength.

In mid-2003, both the management and the investors of Graffinity Pharmaceuticals AG, a German company based in Heidelberg, agreed that – in order to compete successfully in the market in the future – the company would have to change its business model. At that time, Graffinity Pharmaceuticals had a technology ready to be launched on the market, as well as a preclinical programme for type 2 diabetes, but expanding these two projects into a profitable business within a short time frame was not feasible. "We therefore took the view that an M&A transaction was the best route to provide us with the late-stage products which we needed," explains Santhera's CEO Klaus Schollmeier, who was at that time CEO of Graffinity.

At the same time as Graffinity was reassessing its future, the management of MyoContract AG in Basel was also involved in intensive discussions about how the company should progress. In order to get its first product into phase III clinical development, it was clear that MyoContract needed both additional investment as well a more rounded and experienced management team. Management decided to pursue a double strategy: either to complete another round of venture capital financing or to take the opportunity of a merger with a complementary biotechnology firm as a way to create a more robust platform for its future growth.

From left:
PD Dr Thomas Meier, CSO
Barbara A. Heller, CFO
Dr Helmut Kessmann, CBO
Dr Klaus Schollmeier, CEO

OUTSTANDING COMBINATION

Graffinity and MyoContract eventually made contact with one another, partly due to to the Graffinity team's experience in M&A. "It quickly became clear that there was an excellent fit between the two businesses and that together we could create a company with a really exciting future," says Schollmeier. Nothing stood in the way of a merger, and so in July 2004 the two companies came together to establish Santhera Pharmaceuticals AG, which is headquartered in Liestal, Switzerland. "Being located near to Basel, the strongest major pharmaceutical and biotech cluster in Europe, provides us with a major competitive advantage," says Schollmeier who assumes the position of CEO at Santhera.

Today Santhera is one of Europe's leading late-stage private companies and is focused on the identification, development and marketing of new therapies for neuromuscular diseases. The pipeline currently includes one product in clinical phase III for the treatment of Friedreich's Ataxia, one product in phase II for the treatment of Duchenne Muscular Dystrophy, and three late-stage preclinical development projects for the treatment of Duchenne Muscular Dystrophy, Cancer Cachexia as well as type 2 diabetes. In order to maintain a tight business focus, Santhera looked for a partner for its type 2 diabetes programme based on its expertise with DPP-IV inhibitors. In mid-2005 Santhera succeeded in signing a potentially very lucrative licensing deal for the development and commercialisation of these novel compounds with the Swedish company Biovitrum, which specialises in this therapeutic area. The final step in creating the new Santhera took place in late 2005 when it spun off its screening technology service division, which was still based in Germany, through a management buy-out.

For further information please visit
www.santhera.com

NETWORKS In order to make the Swiss biotech industry more innovative and responsive to the market, a number of universities, companies, trade associations and the CTI, the national innovation and promotion agency, have joined forces in recent years to develop various projects and competence networks.

Thanks to the pharmaceutical industry's long-standing history in Switzerland, the country has an outstanding network of suppliers as well as innovative basic research institutes at the universities. The universities of applied sciences, which have really succeeded in establishing themselves over the last few years, have likewise developed a very good reputation in the area of life sciences. In order to utilise these strengths even more effectively, various initiatives have recently been formed with the aim of improving networking between the various players in the Swiss biotech sector.

NATIONAL COMPETENCE NETWORKS

By establishing national competence networks like Swiss Biotechnet (see article on pages 14–15) and Swiss Foodnet, the national innovation and promotion agency CTI has played a very active role in shaping applied life science research and development at both the traditional universities and the universities of applied sciences. This has made it possible to implement many high-quality projects and attract a mounting number of interested business partners. Another milestone was the formation in 1998 of a powerful and effective professional association for the bioindustry – another project in which the CTI was also actively involved. Thanks to its goal-oriented and efficient management and a growing membership, today's Swiss Biotech Association is becoming ever more dynamic and important in stature, while also establishing a political lobby for the biotech sector.

Since 2004, the Swiss Biotech Association and Swiss Biotechnet have also been involved in a joint CTI project entitled "Industry solution for simplified knowledge management in biotechnology".

The CTI set up a knowledge and technology transfer (KTT) system in 2005. This structural tool is designed to provide the biotech sector with important new ideas and fresh impetus. In future, technology transfer should function according to a push-pull model so that the business community (primarily small and medium-sized enterprises) can be more actively integrated into the process than before.

A good example of this is the "w^6 consortium" whose members include not only the Swiss Biotech Association, which has taken on the role of industry pool for the life sciences, but also partners from industry and science. The aim of w^6 is to strengthen technology transfer between universities and business in order to further improve existing activities and integrate them more effectively into a network.

The consortium has therefore set itself the following strategic goals:

- To support existing projects and innovative models that stimulate the pull process; to dismantle barriers, particularly between small and medium-sized companies (the business community in general) and the universities; and to promote the push process.

- To guarantee high-quality services in support of the KTT projects on behalf of all the participating academic partners in the push-and-pull area.
- To identify and utilise synergies and opportunities for cooperation between universities of applied sciences and the traditional universities.
- To expand competence and contact networks for all the partners involved.

Another successful networking example is the “SystemsX” national project, an initiative to support and promote systems biology. This project combines the world-renowned expertise of the Swiss Federal Institute of Technology in Zurich (ETH Zurich), and its focus on the areas of technology and science, with the excellent biological, medical and nanotechnology research centres of the University of Basel and the acclaimed life sciences department of the University of Zurich. By combining and integrating the competencies of a number of Swiss universities and institutes, the foundation has been laid for an interdisciplinary approach to systems biology.

Unlike modern biology, systems biology studies the complex processes of an entire biological system rather than mere molecular details. Support is required from many different disciplines, in order to gain an understanding of the system as a whole. Information technology is needed, for example, in order to handle the enormous amount of data. Other influential disciplines are physics, engineering sciences, mathematics, chemistry and bioinformatics. And now industry has been added to this concentrated transfer of know-how. Roche, for example, has announced a collaboration agreement with “SystemsX” in the area of diabetes.

For further information please visit
www.whoch6.ch
www.kti-cti.ch
www.swissbiotechassociation.ch

MORE VALUE THROUGH GREATER IMPLEMENTATION

SWISS BIOTECHNET Greater enterprise value can be delivered through innovation. And innovation comes about when ideas are implemented. Swiss Biotechnet is a strong partner in this process.

Daniel Gygax

Every analysis confirms it. A company with a high degree of innovation in its portfolio will generate higher business value over the long term. For example, the share price of DSM rose by 46 per cent in 2005, at a rate far outstripping growth in that sector. The ability to produce innovative products smoothly and efficiently is therefore crucial for business. Swiss Biotechnet can make an important contribution to these processes by bringing together the expertise of the Swiss universities of applied sciences into one network, which is easily accessible to industry. The total volume of projects implemented in the area of bioanalytics production of biomolecules and tissue engineering has grown to over CHF 20 million in the last five years.

ATTRACTIVE SERVICE PROVIDER

In tandem with the implementation of innovative research projects, the network is making a name for itself as the provider of custom-tailored training and continuing education programmes.

One specific, intensive course was developed for Hoffmann-La Roche AG, for example, at which laboratory and chemical technicians receive further training in

biotechnological processes – from mammalian cells to pharmaceutical products. The network took on the job of Swiss coordinator in order to utilise the specific core competencies of the universities of applied sciences.

HIGH QUALITY OF APPLIED RESEARCH PROJECTS

Swiss Biotechnet supports companies in research at all stages of development and production, from the individual cell to bioreactors and purified biomolecules. One example is the improvement of liquid cultures in disposable plastic containers for Wave technology, a project carried out by the Professors Regine and Dieter Eibl at the University of Applied Sciences (UAS) in Wädenswil. Manufacturers of therapeutic antibodies (such as Avastin) who are dependent on the production of high-quality cell cultures can benefit from this technology. Professor Christiane Zaborosch of the Zurich University of Applied Sciences in Winterthur and scientists from the UAS in Sion assists companies in carrying out the subsequent purification processes. In this case, the network contributes expertise relating to the purification of monoclonal antibodies from cell supernatants, including analysis of the binding strengths of the purified antibodies, an expertise which is available at the UAS of Northwest Switzerland in Muttenz.

IMPLEMENTATION CENTRALISED AND EASY

Supporting business-critical applications is always of key importance in Swiss Biotechnet research projects. Professors Angelika Viviani of the University of Applied Sciences in Wädenswil and Ursula Graf of the Zurich University of Applied Sciences in Winterthur worked together with Berna Biotech AG on a project to produce an innovative vaccine against hepatitis B. This is produced in cell cultures to which no cattle-derived growth additives are added, as had previously been the norm. The new vaccines are therefore free of potential protein impurities. This logical change in the culture medium means, however, that alternative methods of cell growth improvement must be found and that the subsequent purification operations must also be modified. Here too, the network acted as a catalyst by providing the newest findings from various research laboratories so that the latter could be utilised for these applications of great economic significance. It goes without saying that quality controls are always part of the process. Companies can therefore activate the innovative power of Swiss Biotechnet on several levels: for collaborative research projects as well as for comprehensive and custom-tailored continuing education courses.

Professor Daniel Gygax is President of Swiss Biotechnet and Head of Bioanalytics at the University of Applied Sciences of Northwest Switzerland.

SWISSBIOTECHNET...

...helps industry partners in gaining access to expertise at Swiss universities of applied sciences and in applying that know-how to their own production operations. In addition to innovative research projects, Swiss Biotechnet is becoming increasingly well known as a provider of custom-designed continuing education programmes for companies.

BiotecHnet

For further information please visit www.swissbiotechnet.ch

PARTIAL REVISION OF SWISS PATENT LAW...

BIOTECH PATENTS The economic and scientific significance of biotechnology has increased enormously and will continue to grow. Now that its patent law is being revised, Switzerland will increasingly benefit from the growing importance of this field.

Heinz Müller

The patenting of biological material or even of living organisms is not a new phenomenon. Although the number of patent applications has increased sharply in the last few decades with the expansion of molecular biology, a living organism was patented way back in 1873. This US patent was issued to Louis Pasteur and covers not only the method for preparing a sterile yeast culture for beer manufacture but also the yeast itself. The first patent applications for plants followed at the end of the 19th century, and the first patent applications for genetically modified organisms were filed in the early 1980s.

PATENT PROTECTION HIGHLY IMPORTANT

Since that time, biotechnological inventions have been the subject of numerous international, European and national patents, some of which have been filed by Swiss companies. Because the economic importance of the biotech industry has grown enormously in the interim, the significance of patenting biotech inventions has also increased enormously and often represents one of the most important assets of a start-up company.
Current Swiss patent law, however, does not sufficiently take into account the fact that inventions in the area of biotechnology involve biological material. Biological material is reproducible, often highly complex, and sometimes cannot be adequately described so that specimens must be filed with a patent application in order to guarantee disclosure and reproducibility. For this reason, certain sections of the current law must be revised and amended.

The goal of these changes is to provide effective and appropriate protection for biotechnological inventions. A patent law revision focusing on the patenting of biotechnological inventions has therefore been set in motion. The plan was to harmonise patent law with EU Biotechnology Directive No. 98/44/EC, which the European Patent Office (EPO) has also made part of its guidelines.

The changes listed below are intended to guarantee patent protection for biological material and methods – protection that is justifiable on social and ethical grounds and is also appropriate for the pharmaceutical and biotech industries and for academic research.

EFFECTIVE PROTECTION

A patent is a legal right granted by a government for a limited period of time to prevent others from making, using or selling an invention. Patents are both an incentive and a source of revenue for research and development, in particular for those areas involving high-cost, high-risk inventions such as for biotech inventions. Furthermore, patent protection gives companies the competitive edge necessary to survive in today's fast-developing and continually changing marketplace.

THREE NEWLY FORMULATED SECTIONS

Three newly formulated sections covering the area of biotechnology will be explained below on the basis of the draft revision of patent law as adopted by the Federal Council in its legislative message of 23 November 2005.

a) Are genes patentable?

According to Directive 98/44/EC, isolated genes as such are patentable. In Switzerland, however, naturally occurring genes would be excluded from patenting under the new law. This is a restriction of patentability that goes substantially beyond the practice applied by the EPO. However, it would continue to be possible to patent "derived sequences" such as the cDNA produced by PCR, under the condition that at least one function of these sequences is known. This means that the properties and applications of sequences that are derived from gene sequences must already be described in the patent application. Adding them later is no longer possible. This is intended to prevent speculative patent applications.

b) Are human beings and their body parts patentable?

Respect for human dignity shall be guaranteed in that the human body as such, in any given phase of its formation and development, is excluded from patentability. This also corresponds to Directive 98/44/EC. In addition, human physical components in their natural environment shall also be excluded from patenting, again in agreement with the EU directive. They are also excluded because they are only discoveries and not patentable inventions.

This applies to all living things in general: The subject of a patent is not the living organism in its natural environment but a technical teaching as to how human beings can utilise nature in a new way for commercial purposes. The technical beneficial effect makes the discovery an invention under patent law. On the other hand, isolated and perhaps technologically modified components of the human body outside their natural environment (such as isolated and possibly genetically modified blood cells) are patentable.

c) Which ethical values are considered in patenting?

Except for inventions whose exploitation would violate public order or morality, patent law takes into account generally binding moral and ethical values when issuing patents. However, only violations of fundamental and therefore permanent values justify denial of a patent since there are often as many as 10 years or more between the time the patent application is filed and the date the invention is first exploited or used. Value systems and standards can change during that time. It would therefore be unfortunate or regrettable if a patent were denied for an invention whose exploitation becomes unproblematic during the potential protection period of 20 years due to a change in social or political values and standards.

These fundamental values are not only mentioned in the general clause quoted above but are also illustrated by explicit exclusion criteria in the new patent law. Examples are the cloning of human organisms, chimeras with human germ cells, modification of human germ line cells or unmodified human embryonic stem cells. These exclusion criteria also correspond to Directive 98/44/EC.

Professor Heinz Müller is an expert in patents and technology at the Swiss Federal Institute of Intellectual Property and a lecturer in Medical Biochemistry at the University of Basel.

THE SWISS FEDERAL INSTITUTE OF INTELLECTUAL PROPERTY...

...is the federal competence centre for all matters dealing with patents, trademarks, designs and copyrights. The broad range of services offered by the institute can be divided into three areas: property rights, information products and training. The issuance and administration of property rights is the institute's core business. Information products such as research into technological developments (novelty searches) and trademark searches are important market-oriented services for our clients. In addition to these services, we offer training courses in all areas of intellectual property rights.

Eidgenössisches Institut für Geistiges Eigentum
Institut Fédéral de la Propriété Intellectuelle
Istituto Federale della Proprietà Intellettuale
Swiss Federal Institute of Intellectual Property

For further information please visit www.ige.ch

SECA Because of its outstanding stories of value creation, the Swiss biotech sector attracts a significant amount of venture capital. A lot of this funding comes from members of the Swiss Private Equity and Corporate Finance Association (SECA), whose aim is to support biotech companies in their quest for growth from early stage and IPO to M&A activities.

Maurice Pedergnana

The members of SECA take a positive view of the Swiss "ecosystem" – the word used to describe the favourable regulatory and legal framework for running a business in Switzerland. In this country, a large number of university and medical research facilities, and pharmaceutical companies can be found as R&D partners and as a source of experienced management, as well as spin-offs. Alongside the pharmaceutical firms clustered in the Basel area, larger biotechnology companies also provide a market for early-stage drug licensing cooperation agreements, an increasingly important factor in the financing of biotechnology ventures.

HIGH DEMAND FOR JOB GROWTH

The Swiss biotechnology sector has delivered several outstanding value creation stories – namely Actelion, Basilea and Glycart Biotechnology – with many more still to be told by promising firms making their way to the market. As a result, the sector attracts a significant amount of venture capital today.
Statistically, biotechnology and life science projects attract the lion's share of venture capital in Switzerland. One sign of the popularity of this particular sector is the high demand for industry professionals and job growth. Switzerland provides an outstandingly attractive business climate for biotechnology companies. Amgen, the world's biggest biotech firm, chose to locate its headquarters for its international commercial operations outside of the United States, Canada and Japan in Switzerland (with 300 employees) – but not its newest production plant: It feared it would not be able to immediately find the more than 1,100 employees required for its aggressive ramp-up plans. With a consolidation trend well underway among biotechnology companies in Europe and Switzerland, SECA members have a role to play. This includes corporate finance companies with experience in mergers and acquisitions in the life science sector as well as individual members offering due diligence, analysis and other pre- and post-transaction services.

POOL OF EXPERTS

The majority of investors in early-stage ventures in the Swiss biotechnology sector are SECA members, including HBM Partners AG VI Partners, Global Life Science Ventures AG, Vinci Capital, Index Venture Management SA, BioMedinvest AG, and Nextech Venture, as well as international companies such as 3i Group plc and Apax Partners.
Pan-European venture funds, such as Sofinnova, HealthCap, NeoMed and Life Science Partners, while not members, are also networked into the organisation. These players invest not only in Switzerland, but also abroad, and subsequently bring this expertise to young biotech companies in the region.
The SWX Swiss Exchange is the favoured market for Swiss biotech companies going public. The exchange is home to both Swiss-based companies and international life science companies that have a primary or secondary listing here. In 2005, two out of the eleven companies to complete an IPO or achieve a listing were venture-backed biotech companies, namely Arpida and Speedel.

A SWX listing is supported by a large number of stock market analysts and fund managers who understand the capital requirements of biotech firms and the markets in which they operate, as well as the availability of legal advisors and investor relations companies.

SOURCES OF FINANCE FOR BIOTECHS

The Swiss financial community has responded as the biotech sector has grown. The past three years have seen the creation of a number of funds focusing on private equity and venture capital financing. Although the financial community is 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.

The Two Most Important Associations in Biotech

- SECA Swiss Private Equity & Corporate Finance Association
  www.seca.ch
- CTI Investors Association
  www.cti-ia.ch

A Selection of Venture Capital Funds

- Adamant Biomedical Investment Ltd
  www.adamantinvest.com
- Aravis Partners AG
  www.aravis.ch
- Aventic AG
  www.aventic.com
- BB Biotech AG
  www.bbbiotech.com
- BioMedinvest
  www.biomedinvest.ch
- ErfindungsVerwertungs AG, Basel
  www.eva-basel.ch
- Gebert Rüf Foundation
  www.grstiftung.ch
- Genevest
  www.genevest.ch
- Global Life Sciences Ventures
  www.glsv-vc.com
- HBM Bioventures
  www.hbmbioventures.com
- Index Ventures
  www.indexventures.com
- Nextech Venture Ltd.
  www.nextechventure.com
- New Venture Technologies
  www.newventuretec.com
- Novartis Venture Fund
  www.venturefund.novartis.com
- Partners Group, Zug
  www.partnersgroup.ch
- Varuma AG
  www.varuma.ch
- VenturePartners AG
  www.venturepartners.ch
- Vinci Capital
  www.vincicapital.ch
- VI Partners
  www.ventureincubator.ch
- W. A. De Vigier Foundation
  www.devigier.ch
- Zürcher Kantonalbank Start-up Finance
  www.zkb.ch

A Selection of Equity Funds for Life Sciences

- Clariden Healthcare Equity Fund
  www.clariden.ch
- CS Equity Fund Global Pharma
  www.creditsuisse.com
- Lombard Odier Inv. Life Sciences
  www.lombardodierdarierhentsch.com
- Sarasin – HealthSar
  www.sarasin.ch
- Swisscanto (LU) Equity Fund Health Care
  www.swissca.com
- UniSector – BioPharma
  www.union-investment.com/ch
- Vontobel Global Trend Life & Health
  www.vontobel.ch

A Selection of Equity Funds for Biotech

- Clariden Biotechnology Equity Fund
  www.clariden.ch
- CS Equity Fund (Lux) Global Biotech
  www.creditsuisse.com
- Lombard Odier Immunology Fund
  www.lombardodierdarierhentsch.com
- Pictet Global Sector Fund (L) – Biotech
  www.pictet.com
- Swiss Life Funds – Equity Biomedical
  www.swisslife.com
- UBS Equity Fund – Biotech
  www.ubs.com

SECA...

...is the Swiss platform for professionals active in venture capital, private equity, and corporate finance activities, as well as the legal, investor relations, and accountancy services that support such activities.
SECA's 200 members represent four interest groups: innovation and venture capital, private equity, corporate finance and legal and tax. It offers members monthly panel discussions and sponsors annual events for investors and entrepreneurs as well as publishing a series of research-based books and statistics.

S • E • C • A
Swiss Private Equity & Corporate Finance Association
Schweizerische Vereinigung für Unternehmensfinanzierung

Maurice Pedergnana is Secretary General of SECA.

For further information please visit www.seca.ch

20 LICENSED FOR SUCCESS

HELSINN This family-owned company, based in Lugano, focuses on the in- and out-licensing of valuable biotech and pharmaceutical compounds up to the highest quality standards – a unique business approach that is the key to the Group's success.

From left:
Enrico Braglia, Joint Managing Director
Gabriele Braglia, President of the Board
Riccardo Braglia, Joint Managing Director

Helsinn's mission is quite intricate: The company in-licenses, finances, develops, manufactures, then out-licenses and supports innovative, value-added pharmaceutical products. "We are able to take early-stage products and foster them all the way through to the point where they secure a market position," explains Enrico Braglia, Joint Managing Director of Helsinn along with his brother Riccardo.
The company, founded in 1976 by Gabriele Braglia, the father of Riccardo and Enrico, is wholly owned by the Braglia family. "In the beginning, Helsinn was purely a licensing company, but in the 1980s it branched out into clinical development and manufacturing activities."

FDA APPROVED

"We develop and manufacture high-quality Active Pharmaceutical Ingredients (APIs) and drug products on behalf of third parties, too." For this reason, the company has built state-of-the-art facilities in Switzerland and Ireland. "We have more than 100 m^3 of reactor capacity in our plants in Switzerland and Ireland, and our Swiss facilities have been successfully inspected by the FDA," says Enrico Braglia. "Our plants also provide drug products in oral and topical dosage forms for our contract manufacturing partners and our licensees."
During the last five years, R&D investment has totalled over CHF 160 million. Helsinn achieves net revenues of CHF 300 million, is present in more than 70 countries and employs 450 people. Its specialists have broad expertise in the areas of pain and inflammation (Nimesulide), oncology (Becatecarin), supportive care (Palonosetron) and gastroenterology (Klean-Prep).

HIGH-QUALITY COMPOUNDS

Helsinn's business approach differs from that of other pharmaceutical groups engaged in licensing. The company acquires the rights to new compounds when these are at the clinical stage of development. "We then complete development up to European and US FDA standards and subsequently market the products through our worldwide network of partners." Its 100 partners in 70 countries include large pharma and local companies. "Our proven expertise and the fact that we always deliver valuable compounds, while also offering our partners a complete package of services and support, has earned us a very good reputation in the pharmaceutical industry." Alongside Helsinn's long experience and proven track record, the high quality of the company's compounds is also attributable to its being in private ownership. Which means, as Braglia explains, "we are not under pressure from the stock markets and can thus devote our attention to developing one product at a time, with no great urgent need to pinpoint possible new in-licensing candidate compounds."

Although the family is of Italian origin, the Braglia brothers are not considering moving the company's registered office. "The favourable tax conditions, a highly skilled and quality-conscious workforce, a dense network of universities and research institutes and the central geographical location guarantee us an attractive environment for our business"

For further information please visit
www.helsinn.com

SWISS BIOTECH ASSOCIATION Thanks to a vigorous forward strategy, membership in this national industry association continues to grow. More than 130 companies are already benefiting from various national and international projects.

Domenico Alexaxis

One of the most important strategic goals of the Swiss Biotech Association (SBA) is to create added value for its members. For example, the association is currently working on an Internet-based platform that will provide biotech companies with an easy and inexpensive method of procuring information. Preparations are underway to expand the platform to include international recruitment and resource-sharing application. The non-profit project is being supported by the CTI (the national innovation promotion agency), the University of Applied Sciences in Wädenswil and three SME companies, and the SBA.

STRATEGIC CONCENTRATION OF FORCES

A project entitled "ProBio – Swiss Biotech Center" (SBC) aims to bundle the strengths of the national research and development community and thus provide fresh impulses for new biotech processes. What makes this project outstanding is successful linking of interests from the academic sector (EPFL, UNIL, CHUV, etc.) with those of the universities of applied sciences and industry – primarily small and medium-sized companies (SMEs). The initiative's goal is to support its partners in their efforts to obtain suitable material for clinical trials by creating a suitable infrastructure for the production of biomolecules in accordance with GMPs (good manufacturing practices) – under realistic financial conditions and within realistic time frames. The initial development phase has already been completed. Depending on its economic success, the project will be further expanded in the coming years at the centre in Monthey (BioArk).

EUROPE AND SWITZERLAND — RESEARCH NETWORKS

The SBA also offers support to its members across national boundaries, since economic cooperation between Switzerland and Europe opens up major opportunities for companies and research organisations alike.
In order to understand the decision-making structure in Brussels and to make rapid progress in biotech research, more and more specialised knowledge is required. With research and innovation becoming more global, the importance of international networking and sharing of expertise will continue to increase. The Swiss biotech industry is well positioned in the global landscape, but constant effort and innovation are required in order to maintain this position. The SBA therefore provides direct and non-bureaucratic access to up-to-date information and competent support in the area of European research and innovation programmes.

biopolo TICINO

BaselArea
Leader in Life Science industries

bioalps

Greater Zurich Area
Expanding business horizons
Zurich MedNet

"WHITE BIOTECHNOLOGY" WORKING GROUP

Leading chemical companies are exploring the opportunities that have been opened up by modern biotechnology, especially in the field of "white" or industrial biotechnology. And they are also applying these technologies, wherever it makes sense. The SBA takes such initiatives seriously and has formed a working group specifically dedicated to white biotechnology. The Swiss Industrial Biocatalysis Consortium is an important partner in this effort. The group includes leading multinational companies that support white biotechnology as a pillar of economic growth. The planned activities are in agreement with OECD strategies.
In partnership with the Swiss Biotechnet (see pages 14/15) the SBA develops training programmes and useful support tools for the industry. It is of importance that the industry specifies its training needs so that the academic side can create tailor-made education. This strategy ensures that the industry gets the right workforce with the right education. The SBA profits from the marketing alliance "Swiss Biotech" (see box) in a multiplied form. Thanks to Swiss Biotech, the sector is internationally visible. The project-specific participating companies (most of them young and internationally less savvy) find a comprehensive partner which is helping to put them in the public window. The participating Life Science Regions are important internal carriers of the dynamics in the Biotech sector, thus enhancing the common understanding of the industry. This and more knowledge is brought into Europa Bio, the European Biotech Association, where the SBA is an active member.

Domenico Alexakis is Executive Director of the Swiss Biotech Association.

SWISS BIOTECH...

...is an alliance of four leading Biotech regions of Switzerland (Bio Alps, BioPolo Ticino, Basel Area and Greater Zurich Area). They have combined efforts to streamline interests of the national biotech sector. The SWX Swiss Exchange holds a leading position in terms of lifescience listings and offers companies from that industry – be they located in Switzerland or abroad – access to an internationally recognised financial marketplace. The initiative was co-founded by the SBA which also manages the executive office of Swiss Biotech.

Swiss Biotech Association

SWISS BIOTECH

For further information please visit
www.swissbiotechassociation.ch
www.swissbiotech.org

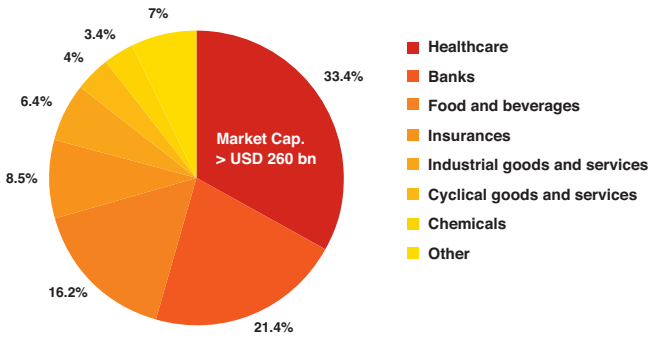
CONDITIONS FOR RAISING CAPITAL ... 23

ROUNDTABLE Yvonne Wegmann (SWX Swiss Exchange), Harry Welten (Arpida), Irene Püttner (Bank Sarasin), Thomas Bieri (Investment Banking Department UBS) and Maurice Pedergnana (SECA) discuss the biotech sector's potential.

In 2003, there was hardly any money for biotech companies. Things were looking up somewhat in 2004. How do you assess the year 2005?

Yvonne Wegmann: After the IPO window swung open in 2004, there was a decrease in IPO activity in the United States in 2005, but conditions in Europe have continued to improve. A total of 13 biotech companies went public in 2005 on regulated European markets.

Harry Welten: In general, we can see that financing activities in the biotech sector are on the upswing. In spite of the inherent risks, investors show increased interest in this sector. We can only hope that this trend will continue and that investors will remain interested in biotech.



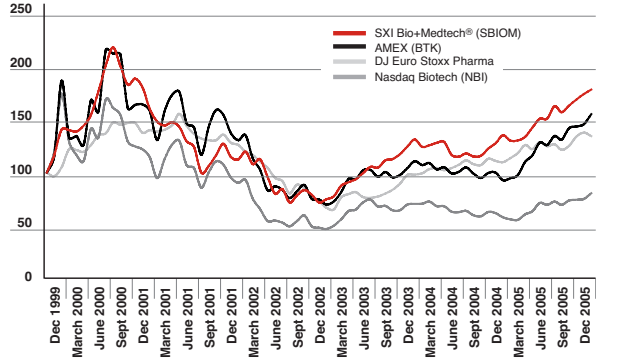
Figures based on SPI companies/source: SWX Swiss Exchange

SWX Industry Breakdown as per 31 Dec. 2005

Irene Püttner: It was striking that the price of some European IPOs in 2005 was at the lower end of the price scale and several announced IPOs were pulled back. In the US, only half as many IPOs were completed in 2005 as in 2004. I would therefore describe it as a moderately good year.

Maurice Pedergnana: The biggest driver of the market in Switzerland is a new understanding and trust in this particular asset class, especially by institutional investors. In 2005 private equity became part of the most famous Swiss pension fund benchmark, the Pictet LPP index 2005 family, with 2.5, 5.0 or 7.5 per cent of all assets allocated in private equity. Sentiment towards private equity has never been more positive and the Swiss biotech industry has certainly profited from this trend.

Thomas Bieri: Conditions for raising capital have continuously gotten better for European biotech companies. The average transaction raised less than 50m, which is rather small. This is because the valuation levels at which investors are willing to invest in a



Figures based on SPI companies/source: SWX Swiss Exchange

SWX Industry Breakdown as per 31 Dec. 2005

EUROPE'S LEADING STOCK EXCHANGE FOR LIFE SCIENCE COMPANIES

The life science companies listed on the SWX enjoy a high degree of visibility among investors. Over the last few years, Switzerland has emerged as a specialist in this sector, attracting international recognition and demand.

- The SWX is the largest marketplace in Europe in terms of the market capitalisation of listed life science companies.
- Around one-third of the total market capitalisation of the SWX is attributable to companies active in this particular sector.
- Companies such as Novartis, Roche, Serono and Actelion create an environment of global renown
- The issuing banks in Switzerland have great placing power – Swiss financial institutions manage more than one-quarter of the world's moveable assets.
- Special sector indices (SXI®), plus an above-average number of analysts covering the market, guarantee transparency and high visibility.

At SWX, life science companies have access to an experienced and expert community of international investors specialising in this specific sector.

an SWX Group company

SWX SWISS EXCHANGE

For further information please visit www.swx.ch

Maurice Pedergnana (General Secretary SECA), Harry Welten (CFO Arpida), Yvonne Wegmann (Vice President SWX Swiss Exchange)

biotech IPO continue to be relatively low. But the Swiss stock market stands out as a positive force since the biggest European biotech IPOs in both 2004 and 2005 were on the Swiss Exchange.

How does the Swiss biotech market look compared with other markets?

Yvonne Wegmann: The SWX Swiss Exchange has the highest market capitalisation in the life sciences, biotechnology and medtech sector, accounting for more than a third of its total capitalisation. Companies seeking capital in Switzerland have access to knowledgeable and highly experienced sector-specific investors. They also benefit from the formidable placing power of the Swiss banks and comparably easy access to analyst coverage. With more than 35 per cent of its listed companies being foreign, the SWX is Europe's most international marketplace, yet it provides exceptionally high visibility for each individual IPO.

Harry Welten: The Swiss Exchange knows our industry and markets and supports them very effectively. The cooperation with the stock exchange is not as highly regulated as in the US. Certainly there are specific criteria that have to be met here as well, but even smaller companies can satisfy them easily.

Thomas Bieri: Switzerland offers numerous locational advantages for biotech IPOs. There is very good access to risk capital and private equity. The large number of professional investors in the areas of pre-IPO financing makes it easy for young biotech firms to grow their companies. When a new stock is floated on the Swiss Exchange, it is possible to attract not only professional institutional investors but also a large number of powerful high-net-worth individuals who are always looking for attractive opportunities in the growth segment. This group of investors does not exist in other markets to the same degree. Important additional advantages are the reasonable regulatory environment, the company-friendly legal situation and the relative tax advantages.

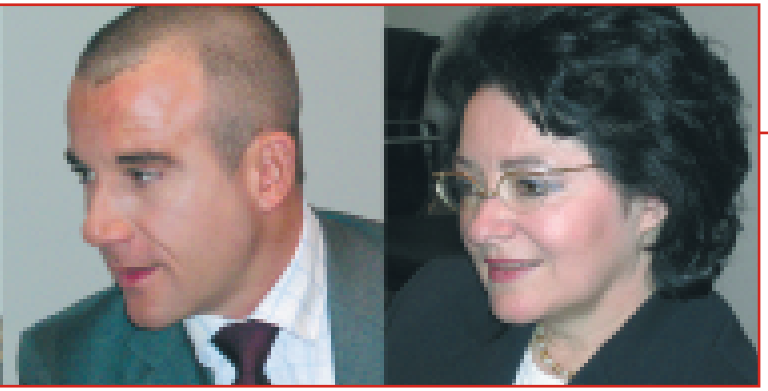
Has the attitude of Swiss investors changed over the past few months?

Thomas Bieri: Biotech IPOs differ from IPOs in other sectors. In most cases, these companies have high potential but there are uncertainties and it may take years until a sustainable cash flow is established. Assessing the future opportunities of biotech companies therefore requires extensive expertise. This is why there are only very few entities in Europe who can act as lead investors in a biotech IPO. Most of them are in the UK and in Switzerland. In order to complete a successful IPO, other investor segments must be convinced by a company's investment case, particularly from the country in which the IPO is to be staged (anchor market concept). The fact that Switzerland has seen some successful biotech IPOs in the last two years shows that there is an above-average number of investors in Switzerland who show an interest in biotech and that their attitude has changed in favour of greater risk tolerance.

Irene Püttner: The shares of the companies listed on the SWX have advanced considerably in the last few months. The success of the publicly traded companies generally also offers a solid basis for new IPOs. The companies profit from an above-average sector exposure among investors and thus from a better understanding of the industry. This is based on a long tradition and on a high concentration of global pharma, medtech and biotech companies and internationally recognised universities.

Yvonne Wegmann: The demand for life science and biotech securities traded on the SWX Swiss Exchange has been on a steady increase. The SXI Bio+Medtech® sector index performed outstandingly in 2005, increasing by 37.93 per cent and outperforming the total market (SPI®). The index also achieved an outstanding performance when compared to European and US benchmarks. In contrast to biotech IPOs in many other of European markets, biotech IPOs carried out on the SWX in 2004 and 2005 achieved their price targets in spite of the difficult environment and raised enough capital to finalise clinical development.

Harry Welten: Biotech is a trend sector. At the present time, the mood of investors is positive, which has a corresponding impact on the publicly traded biotech companies. But we should not forget that external



Thomas Bieri (Executive Director, Investment Banking UBS), Irene Püttner (Fund Manager Bank Sarasin)

factors like oil prices, interest rates, etc., can curb this appetite again.

Maurice Pedergnana: The deal flow and fundraising are still on the upswing. High prices also put real pressure on general partners to add value to their investments, and competition among limited partnership funds is growing.

How do you assess the valuation of the biotech sector?

Thomas Bieri: Valuations are always highly relative. Although the tech and biotech sector in Europe is generally valued somewhat lower than its US counterpart, these differences vary and have become smaller in the last two years and there are also big valuation differences within Europe. It is generally more difficult to make specific valuation comparisons in the biotech sector than in other industries since most companies show losses and thus the traditional market multiples such as the P/E ratio cannot be applied.
The valuations of biotech firms therefore reflect not so much a company's specific numerical benchmarks but primarily base on investors' know-how, belief in the potential of a company and willingness to incur risks. It is precisely these investor characteristics that tend to exist more widely in Switzerland than on average, and this can have a positive impact on valuation in the case of an IPO.

Maurice Pedergnana: We will see further growth in 2006, judging by current trends. Some players have been paying high premiums to win deals. High prices also put real pressure on GPs to add value to their investments and competition among LP funds is growing. But I am positive considering the long-term success rate of biotech investments in Switzerland.

Irene Püttner: I agree that companies in Europe tend to be undervalued and that this is strongly tied to perception and willingness to incur risks, which is influenced by the culture. European investors are convinced by a company's track record, whereas US investors take greater risks at an earlier stage. Moreover, the US biotech industry has a 30-year history and therefore more mature companies that have scored big successes. But we are well on our way in Europe.

Yvonne Wegmann: From the perspective of the companies, valuation levels must be viewed in relation to IPO costs. Regulatory burdens and costs for listed companies have increased significantly in the last few months in the US, which makes both going and being public much more complicated and costly there than in Europe.

The Swiss and European biotech industries are on the right track. What kind of potential do you see for the future?

Thomas Bieri: The success of an industrial sector ultimately rises and falls with a few big success stories. The European biotech industry is still young, and the really big success stories have not yet occurred. If the success of the biotech business model can be exemplified in the future by a few specific success stories, this should boost the potential of the entire industry.

Maurice Pedergnana: In Switzerland, SECA provides access to a professionalised network related to the private equity industry. This reduces transaction costs and establishes a favourable environment for further deal flow. And there is a new management generation that wants to take advantage of intense competition among investors.

Irene Püttner: On the company or stock level, progress in the development of technologies and products will continue to be crucial. In addition, the global pharmaceutical industry has recognised the potential of the biotech industry and is willing to reach deep into its pockets to finance innovative products. This and the good track record of some listed companies is strengthening investor confidence.

Yvonne Wegmann: The maturity level of the Swiss and British biotech industries is the highest in Europe, considering pipelines and company sizes. In Switzerland, the liberal environment in the four biotech clusters, the various successful technology transfer initiatives, the proximity to the large pharmaceutical companies, and the well-functioning private and public capital markets provide an excellent foundation for successful further development of the biotech industry. In addition, the pipeline of both Swiss and foreign IPO candidates at the SWX continues to be very promising.

Harry Welten: The challenge is to expand on the progress made to date and to make continued efforts, especially in the area of financing.

INDUSTRY INSIGHT The Swiss biotech industry is one of the strongest in the world. More new companies were established in 2005 than in the previous year, and increasing professionalisation has made the industry a serious success factor for the Swiss economy.

Jürg Zürcher and Markus Blaser

Compared with other countries in Europe where the biotechnology sector has reported largely stagnant or declining numbers, the Swiss biotech industry continued to move forward in 2005. A slight increase of new established companies (12 compared to 10 in 2004 and 11 in 2003) faces two bankruptcies and four mergers in 2005. This was in contrast to 2004, when the consolidation wave resulted in the demise of 10 companies.

Numerous signs indicate that the climate for biotech firms in Switzerland is getting better all the time. Thanks to the attractive conditions offered by organizations in various cantons promoting their area as a business location and to the tireless efforts of the Swiss Biotech Association (SBA), the biotechnology scene is also expanding on the local level. For many years it was concentrated in three regions – Basel, Zurich and the Arc Lémanique (Lake Geneva area) – but now there are a number of local initiatives designed to create biotech hubs outside these major urban areas. Examples are Ticino (Bio Polo) and Valais (Swiss Biotech Center).

INCREASINGLY PROFESSIONAL ENVIRONMENT

With more than 14'400 jobs and sales of about CHF 6 billion, the Swiss biotech industry is no longer an exotic by-product of the Swiss economy but a sector that has to be taken seriously. One result is that both investors and company founders are becoming more and more professional. Both groups approach the establishment of a new company in a more structured fashion than it was the case several years ago. Companies are no longer founded as a hopeful experiment. Ideas are thoroughly analysed and strategies are planned professionally from the very beginning.

On the other hand, investors' risk tolerance also remained rather low in 2005. While it is relatively easy for large or established companies to find new sources of financial support, it is still difficult for small start-ups to raise risk capital. Nonetheless, several small growth firms such as Lausanne-based biopharmaceutical company Apoxis succeeded in obtaining a significant amount of venture capital in 2005.
Five years ago, most Swiss biotech companies followed a classical IPO strategy like many of their European peers, but this focus has changed somewhat in the interim and strategies are becoming more individual. In addition to Arpida and Speedel, two companies that went public this past year, activity on the mergers and acquisitions front has gained momentum. The vaccine manufacturer Berna Biotech merged with the Dutch company Crucell, and Prionics, a Zurich-based company, has acquired the diagnostics product line of Pfizer's Animal Health business and at the same time has spun off a subsidiary called Neurotune.

In addition, the successful sale of the Zurich start-up Glycart to Roche (a sevenfold payback for investors after four years) showed industry and investment specialists that a trade sale can also offer advantages and that companies do not necessarily need to go public.
Flexibility is in great demand, and not just at the smaller companies. The large exchange-listed biotech and life science companies have realised that no strategy can be chiselled in stone. Adjustments are required on a continuous basis. Reports of a sale of the family-owned company Serono persist, and the negative test results for Actelion's potential blockbuster drug Tracleer have had an adverse effect on the company's share price. The investment community is waiting with great interest for further news about these companies.

BIOTECH CAPACITIES ARE BEING EXPANDED

The discovery of the biotech firms by the large Swiss pharmaceutical and chemical companies has breathed new life into the industry. In recent months these corporations have invested millions of francs in biotech capacities in this country. Both Roche and Novartis maintain significant biotech research and production facilities in Switzerland and the chemical group Lonza plans to expand its biotech production operation in Valais on a massive scale. Syngenta, an agrochemical group, is also focusing its strategy more and more on biotech trends.

The big life science companies are using relatively easy methods like acquisitions, alliances and licensing agreements to ensure that they will have an inno-

vative pipeline over the long term. But the small companies are also profiting from these networking arrangements. It gives them access to global markets and additional research expertise.

The result of the national referendum at the end of November 2005 showed that the Swiss population has strong reservations about the build-up of green biotechnology (agricultural sector), whereas red (human and animal health) and white (industry) biotechnology enjoy wide acceptance.

Thanks to attractive tax models, well-educated people, prestigious basic research and a legal environment that tends to be more favourable than in other countries, Switzerland continues to be an attractive location for international biotech companies. This is also shown by the fact that several foreign biotech and chemical companies such as Biogen Idec or Amgen have moved their international sales headquarters to Switzerland.

Another proposition for Switzerland as a research location and also for the entire biotechnology sector is the outstanding cross-linkage between industry, on the one hand, and universities and research institutions, on the other. Initiatives like the Competence Center for Systems Biology at the Swiss Federal Institute of Technology (ETH) in Zurich, which is also supported by the Universities of Zurich and Basel, represent a milestone in the development of European basic research. The combination of internationally recognised expertise in the areas of engineering and science (ETH Zurich) with research centres for biology, medicine and nanotechnology (University of Basel) and the life sciences (University of Zurich) creates the foundation for an integrated approach to systems biology and is also extremely attractive to pharmaceutical giants like Novartis and Roche. Swiss Biotechnet is another example of a successful networking project (see article on pages 14–15).

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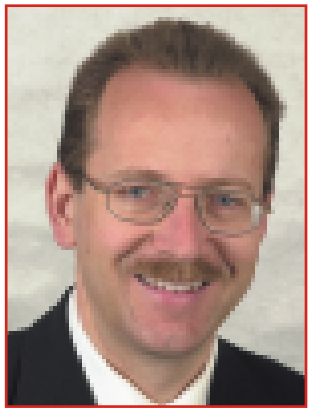


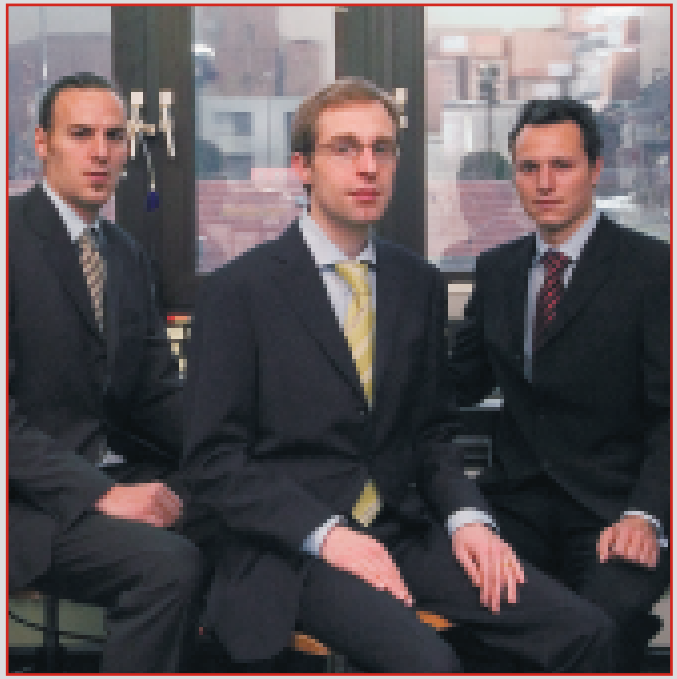
Jürg Zürcher (left) is Industry Leader for Health Sciences at Ernst & Young Switzerland. He is a Swiss Certified Accountant and partner of the firm.

Markus Blaser is a Swiss Certified Accountant specialising in biotech companies and a senior manager at Ernst & Young Switzerland.

For further information please visit www.ey.com/ch

COMPETITION FOR ANTIBODIES

MOLECULAR PARTNERS Repeat proteins have the potential to replace antibodies in therapeutic and diagnostic applications. The spin-off from the University of Zurich has developed a pioneering technology in this area.



From left:
Christian Zahnd, Michael Stumpp, Patrick Amstutz
Executive Directors, Molecular Partners AG

For years now, research on antibodies has been on the upswing. The goal: More and more diseases will be controlled or conquered in the future thanks to the high specificity of antibodies. One of the most prestigious basic research centres in this area is at the University of Zurich. Professor Andreas Plückthun's group, which is located there, enjoys an outstanding reputation, and not just in research circles. Molecular Partners is already the second company he has founded. The first was Morphosys, which is based in Munich and is now a listed company.

NEW DRUGS THANKS TO SPECIFICALLY TARGETED PROTEINS

The scientific bases for the Molecular Partners technology were developed in the late 1990s. At that time, a team working with postdoc Patrik Forrer began to design a new class of molecules similar to antibodies, based on repeat proteins. With the resulting designed repeat protein (DRP) technology, it is now possible to produce designed ankyrin repeat proteins (DARPins) to combat any given cell structure. "They behave just like antibodies but are much more stable and easier to produce than conventional antibodies," explains Christian Zahnd, member of the management team. "An additional factor is that the DRP technology enables us to open doors that have long been closed to us in the antibody field where patents are so hard to come by." DARPins can be used as reagents in the research market, in diagnostics or for therapeutic applications.

In 2005, the young company received both the Swiss Technology Award and the De Vigier Prize (worth CHF 100'000) for the technology that it had developed.

"This not only gave us some cash but also involved publicity and a comprehensive due diligence process, two things that were very beneficial," explains Zahnd. At the present time, Molecular Partners has not relied on a single franc of outside capital. The seven company founders have invested their own money as start-up capital. In addition, CTI discovery has helped the company get off the ground. "CTI discovery is financing several research positions for us at the university. These people are more or less our outsourced R&D department."

TWO-PHASE STRATEGY

The company finances current costs by entering into initial small-scale deals with large pharmaceutical companies. "That is the first part of our strategy. In addition, we are optimising our technology so that we can form development partnerships with large companies in a second phase. As soon as we enter into these types of agreements, we will grow and move out of the space provided for us at the University of Zurich," explains Zahnd.
At that point, the young entrepreneurs will also bring professional investors on board. These should be delighted with the company: After all, the seven founders have placed great importance on a high level of professionalism, right from the outset. The technology is patented, and the young entrepreneurs are receiving advice from experienced consultants.

For further information please visit
www.molecularpartners.com

POWERFUL PARTNERSHIPS

ALLIANCES Price pressures, patent expirations and more stringent regulatory conditions make it difficult for the big life science companies to continually launch new products. Alliances with innovative biotech firms can provide a solution to this problem.

No matter whether it's Roche, Novartis, Pfizer or Johnson & Johnson, big pharma is under enormous pressure to keep putting new medications on the market. Although about USD 40 billion are being spent worldwide on research and development, the products are no longer gushing forth from the pipelines in large quantities. More stringent approval requirements, price pressures and loss of patent protection make life more and more difficult for the big life science companies and are also a stress factor for the research and development divisions.

BENEFITS FOR BIG PHARMA AND FOR BIOTECH COMPANIES

Developing new active ingredients not only costs time and money but requires innovation and flexibility. In order to ensure that they can maintain a full pipeline, the big life sciences companies are now entering into alliances or licensing agreements with small, highly specialised biotech firms more frequently than before. The number of collaborative arrangements between pharmaceutical companies and biotech enterprises increased in recent years to 328 (2005) from 200 (2003), on a Europan level. Thanks to lean structures and innovative researchers, many of whom come directly from the universities, the biotech sector has become a highly sought-after supplier for the drug giants. The biotech companies develop the products and subsequently cooperate with the pharmaceutical industry when it comes time to launch them. These collaborative arrangements have benefits for both sides. The big companies secure a lucrative source for their pipeline, and the smaller biotech companies gain access to global markets and additional research expertise.

SWISS PARTNERSHIPS IN 2005

But cooperative arrangements or alliances are not the only hot topic. Activity in the area of mergers and acquisitions has also picked up: from 39 in 2003 to 66 in 2005 on Europan level.
The pharmaceutical giant Roche made an important acquisition in the summer of 2005 when it acquired Glycart, a biotechnology company established in 2000. "This acquisition is an excellent strategic fit with our Therapeutic Protein Initiative and our focus on developing clinically differentiated proteins and antibodies for areas of unmet medical need, such as oncology," stated Franz Humer, Chairman and CEO of the Roche Group after the agreement had been signed.
Giant buys "innovative garage shop" – this story is typical for the Swiss biotech landscape where universities spin off scores of companies on an annual basis. This is what happened with Glycart, which originated at the Swiss Federal Institute of Technology (ETH) in Zurich. It was there that the firm's founders developed the GlycoMab technology, a method for enhancing the efficacy of therapeutic antibodies. The technology has the potential to generate better antibody therapeutics in areas such as oncology.
Although Glycart has been fully integrated into the Roche Pharma research organisation, its Zurich location has been maintained. This indicates that Roche would like to continue profiting from the dynamism of the lean young company.

Another important alliance between a Swiss pharmaceutical company and a biotech company is the collaboration agreement between Novartis and ESBA-Tech that was signed in March 2005. This gave Novartis access to the HTS technology developed by ESBA-Tech, a technology based on yeast cells that helps to identify molecules that can potentially be used to fight cancer.

PROGRAMMED DEATH FOR TUMOUR CELLS

From left:
René Goedkoop MD
Vice President
Clinical Development
Jean-Pierre Rosat, PhD
Chief Ececutive Officer
Eric Lucien, MBA
Vice President
Corporate Development

APOXIS A "by-product" of the innovation environment at the University of Lausanne, this biopharma company is on its way to becoming a leader in the area of cancer treatment using controlled apoptosis.

Apoptosis – programmed cell death – plays an important role in the potential conquest of cancer. One goal of cancer research is to trigger controlled apoptosis in degenerate cells. But the search for possible therapies for autoimmune diseases is also headed in this direction.
This is a trend that professors Lars E. French and Jürg Tschopp recognised early on. They are the founders of Apoxis, a biopharmaceutical company in Lausanne. The results and developments produced by their research in this area formed the basis for the company, which only existed in their imagination until 2002. "The company became a real enterprise in 2002," explains CEO Jean-Pierre Rosat, who joined Apoxis at that time.

EFFICIENT PROCESSES

Rosat has founded numerous companies and has many years of management experience in the biotechnology area. The same is true of COO Cédric Haenni, who joined Apoxis in 2002. It was clear to both the company founders and the new management team that the company needed professional structures from the outset. "Next to a good pipeline, smooth and efficient processes are crucial for the success of a biopharmaceutical company," explains Rosat. The close collaboration with Tschopp's laboratory at the University of Lausanne means that there is a sustainable and successful source of innovation to feed the development pipeline.
Apoxis has discovered two new molecules in the tumour necrosis factor (TNF) family, which have been out-licensed to Biogen Inc. In-house projects include development of molecules that can specifically activate apoptosis of tumour cells. One of these proteins, has shown promising results in hard-to-treat cancers.
In other projects, molecules developed by Apoxis have shown the ability to inhibit apoptosis in animal models and can potentially be used to treat many auto-immune diseases. Moreover, preclinical studies have also validated a new approach for treating a genetic disease based on a single protein injection soon after birth.

SPIRIT AND SOLID EXPERIENCE

Management's current goal is to transform the company from a research and development firm into a product-oriented enterprise. "Although 28 out of almost 40 employees are researchers, they are not just doing basic research but are hired to develop products," explains Rosat. "We will begin the clinical phase with two of our products in 2006, and if everything goes well one of them will be ready for the market by 2009."
Apoxis is currently involved in a third round of financing. The Lausanne company already raised EUR 7.5 million in 2003 and EUR 15 million in 2005 from HealthCap (the lead investor), Banexi Ventures Partners, Novo Nordisk and three private investors, and Rosat is optimistic that the third financing round will also be successful. Although it can still be difficult to raise capital, Apoxis apparently meets many of the criteria that potential investors look at. "We have a professional management team with a mix of entrepreneurial spirit and solid experience in pharmaceuticals, and we have a certain maturity and a very promising pipeline."

For further information please visit www.apoxis.ch

MILESTONES IN MODERN BIOTECHNOLOGY 31

1869	**Friedrich Miescher discovers DNS (= nuclein)**
1936	**Tadeusz Reichstein develops new vitamin C synthesis sequence with biological key step**
1938	**Rudolf Signer, Bern, prepares for the first time DNA in pure form. This serves ultimately for the X-ray analysis and subsequent description of the double helix**
1951	**Tadeusz Reichstein receives the Nobel Prize for Medicine for the discovery relating to the hormones of the adrenal cortex, their structure and biological effects**
1953	James Watson and Francis Crick describe the double helical structure of DNA, which marks the beginning of the modern era of genetics
1966	The genetic code is cracked, demonstrating that a sequence of three nucleotide bases (a codon) determines each of 20 amino acids
1967	**Discovery of restriction enzymes (by Arber)**
1969	An enzyme is synthesised in vitro for the first time
1971	First complete synthesis of a gene
1975	**Vladimir Prelog receives Nobel Prize for Chemistry for his research into the stereochemistry of organic molecules and reactions**
1977	First expression of human gene in bacteria
1978	**Werner Arber receives the Nobel Prize for Physiology/Medicine for the discovery of restriction enzymes**
1982	First biotech drug approved by FDA: human insulin produced in genetically modified bacteria
1984	**Niels K. Jerne, Georges J. F. Köhler and César Milstein receive the Nobel Prize for theories concerning the specificity in development and control of the immune system and the discovery of the principle for production of monoclonal antibodies**
1984	The DNA fingerprinting technique is developed by Alec Jeffreys
1986	**Heinrich Rohrer receives the Nobel Prize for Physics for the design of the scanning tunneeling microscope**
1987	First approval for field test of modified food plants: virus-resistant tomatoes
1990	The first experimental gene therapy treatment is performed successfully on a 4-year-old girl suffering from an immune disorder
1991	**Richard Ernst receives the Nobel Prize for Chemistry for his contributions to the development of the methodology of high-resolution nuclear magnetic resonance (NMR) spectroscopy**
1991	**Launching of the Swiss Priority Programme Biotechnology (Swiss National Science Foundation)**
1995	The first full gene sequence of a living organism other than a virus is completed, for the bacterium Hemophilus influenzae
1996	**Rolf Zinkernagel receives the Nobel Prize for Medicine for discoveries concerning the specificity of the cell-mediated immune defence**
1997	First animal cloned from an adult cell: a sheep named Dolly in Scotland
2001	First complete map of the genome of a food plant completed: rice
2001	Swiss Biotechnet is created. A national competence network for biotechnology and applied R&D
2002	**Kurt Wüthrich receives the Nobel Prize for Chemistry for his development of nuclear magnetic resonance spectroscopy for determining the three-dimensional structure of biological macromolecules in solution**
2003	Human genome sequence completed in conjunction with the 50th anniversary of Watson and Crick's discovery of the DNA double helic
2003	Launching of CTI Biotech (strategic initiative)

■ Marked in red are scientific contributions coming from Switzerland

Source: Swiss Biotech Association (OG, DA), January 2006

32 APPENDIX: FACTS AND FIGURES

Switzerland has a very attractive biotech setting with many companies actively striving to become global player

Markus Blaser, Ernst & Young

By the end of 2005, the Swiss biotech industry consisted of 229* companies in total, whereof 138 biotech companies (consisting of 84 core biotech companies and 54 extended core biotech companies) and 91 biotech suppliers. Regarding the number of core biotech companies, Switzerland kept its rank as no. 6 in Europe and no. 10 worldwide since 1998. Hence, compared with the size of its population, Switzerland has the highest biotech density worldwide. Almost half of all Swiss biotech companies have been founded before 1995. There has been a steady flow of new biotech foundations ever since the early nineties, not only in times when the IPO window was open, but also throughout the years. This underlines that the biotech industry has developed into a quite mature industry in Switzerland. In fact, by the end of 2005, the industry employed more than 14'400 people, marking a steady increase in workforce.

The financial community has rewarded the generally high quality of the Swiss biotech industry over the past years by considerably and constantly investing into companies with promising projects under way. Even in the harsh time of the post-dotcom area, significant amounts of venture capital flowed into Swiss biotech companies (2001: CHF 106 million, 2002: CHF 132 million, 2003: CHF 125 million, 2004: CHF 194 million, 2005: CHF 295 million [incl. CHF 118 million pre-IPO financings raised by Speedel]).

Regarding its company size the Swiss biotech industry can be split up into three main categories: the 9 public companies with globally active and well-known biotech leaders such as Serono and Actelion and about 20 medium-sized companies with 50 to 100 employees (many of those companies more or less ready for IPO). All remaining companies are still rather small with less than 50 employees.

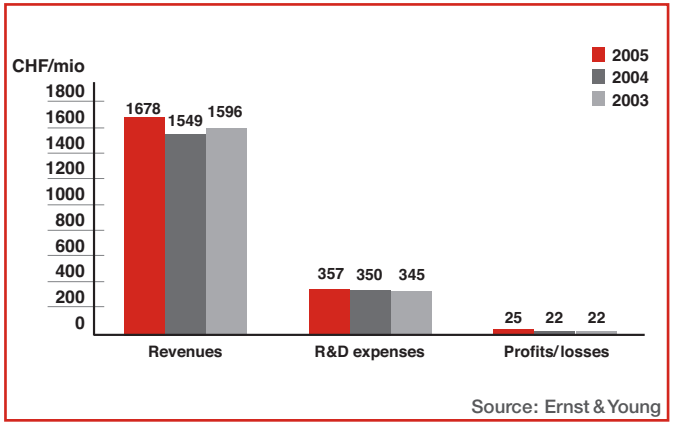
Geographically the majority of Swiss biotech companies are located in one of the three hotbeds in the Arc Lémanique area or in the regions of Basel or Zurich. In all three areas world-class universities and several biotech incubators are located. For many decades, the Swiss industry had a strong position in pharmaceuticals and chemicals. Consequently 86 per cent of the 138 Swiss biotech companies are active in the field of red biotech (human & animal health) and only 8 per cent in white biotech (environmental & industry) and 6 per cent in green biotech (agro & nutrition). More than 50 per cent of the Swiss biotech companies are active in Therapeutics, whereas one-fifth are involved in Genomics, Proteomics and Enabling Technologies.

* ELISCOs, meaning Entrepreneurial Life Sciences Companies. These are companies that use modern biological techniques to develop products or services to serve the needs of human healthcare or animal health, agricultural productivity, food processing, renewable resources or environmental affairs. Not included in these figures are pharmaceutical or agribusiness companies with secondary activities in biotech (e.g. Novartis, Roche, Syngenta, etc.), Swiss subsidiaries of foreign biotech companies and consulting companies.

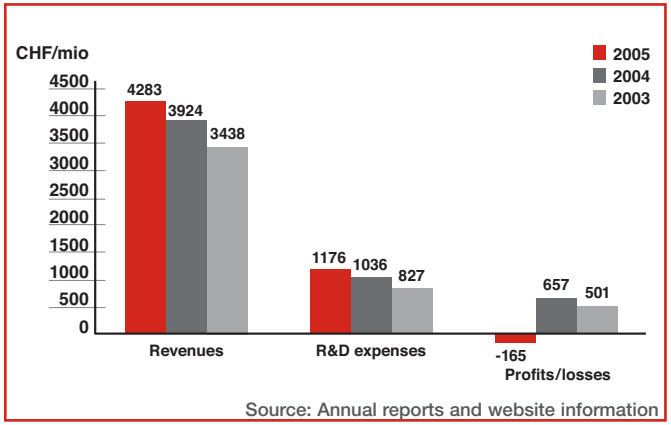
PRIVATE SWISS BIOTECH COMPANIES

PUBLIC SWISS BIOTECH COMPANIES

Revenues, R&D expenses, profits/losses >>

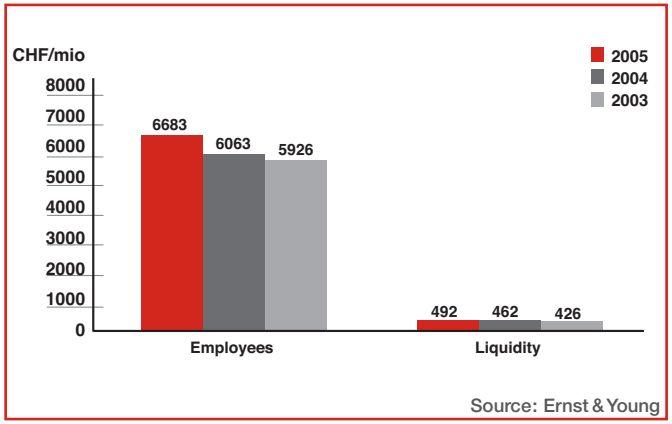


Source: Ernst & Young

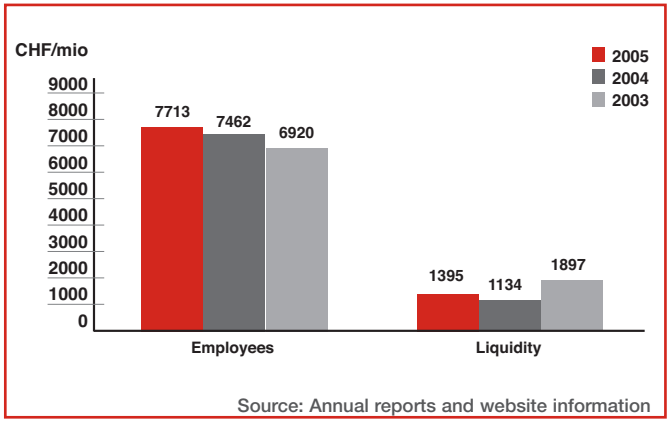


Source: Annual reports and website information

Number of employees, liquidity >>



Source: Ernst & Young



Source: Annual reports and website information

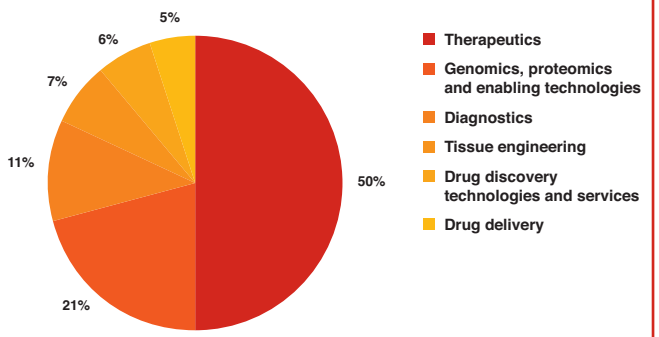
Please note:

- All figures are headquarter counted
- As some private companies do not disclose financial figures, the above figures represent Ernst & Young's best estimate

Please note:

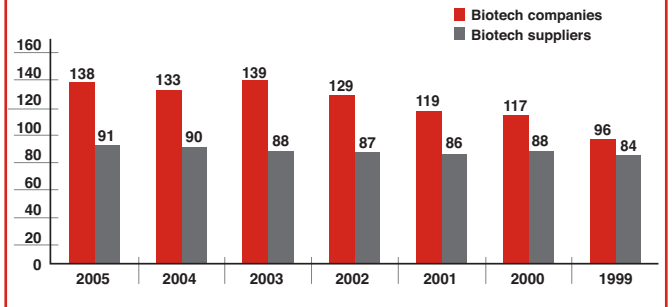
- All figures are headquarter counted
- The 2005 data in these tables are based on the information available in early March 2006, when this report was compiled. At this time, some of the companies had not yet disclosed the final financial figures for 2005. Therefore, some figures were carefully extrapolated on the basis of newest interim data publicly available (e.g. Q3 2005).
- Presented public profit/loss data includes Serono fine in the amount of CHF 903 million.

INDUSTRY SEGMENTATION OF THE 138 BIOTECH COMPANIES



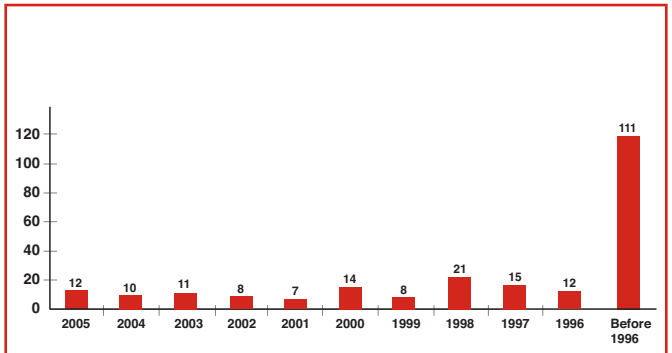
Source: Ernst & Young

NUMBER OF BIOTECH COMPANIES IN SWITZERLAND



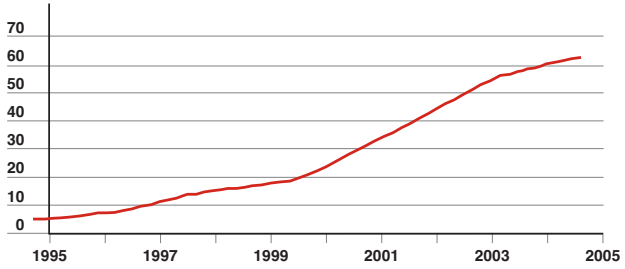
Source: Ernst & Young

YEAR OF FOUNDATION OF THE 229 SWISS BIOTECH COMPANIES



Source: Ernst & Young

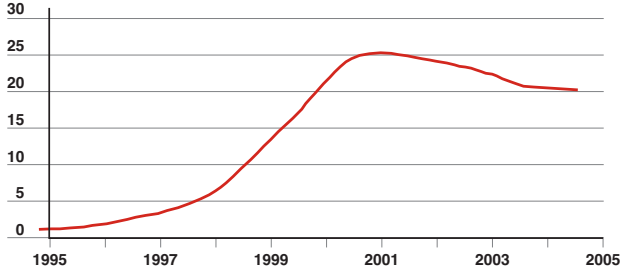
NUMBER OF PATENTS/YEAR WORLWIDE



Source: Swiss Federal Institute of Intellectual Property

Number of patents/year (patent families) worldwide from Swiss biotech companies. The companies are selected according to the Swiss Biotech internet page (www.swiss-biotech.org). Large multinational companies such as Roche, Novartis, etc. are excluded, since these companies also apply for numerous patents in other areas than biotechnology.

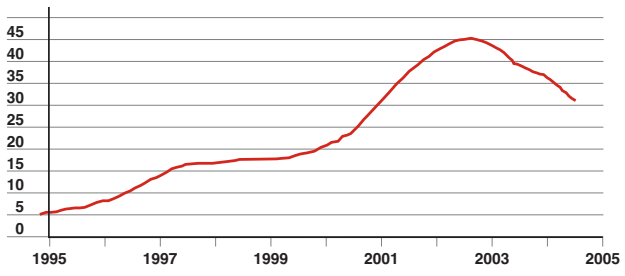
WORLDWIDE PATENT APPLICATIONS FROM SWISS UNIVERSITIES



Source: Swiss Federal Institute of Intellectual Property

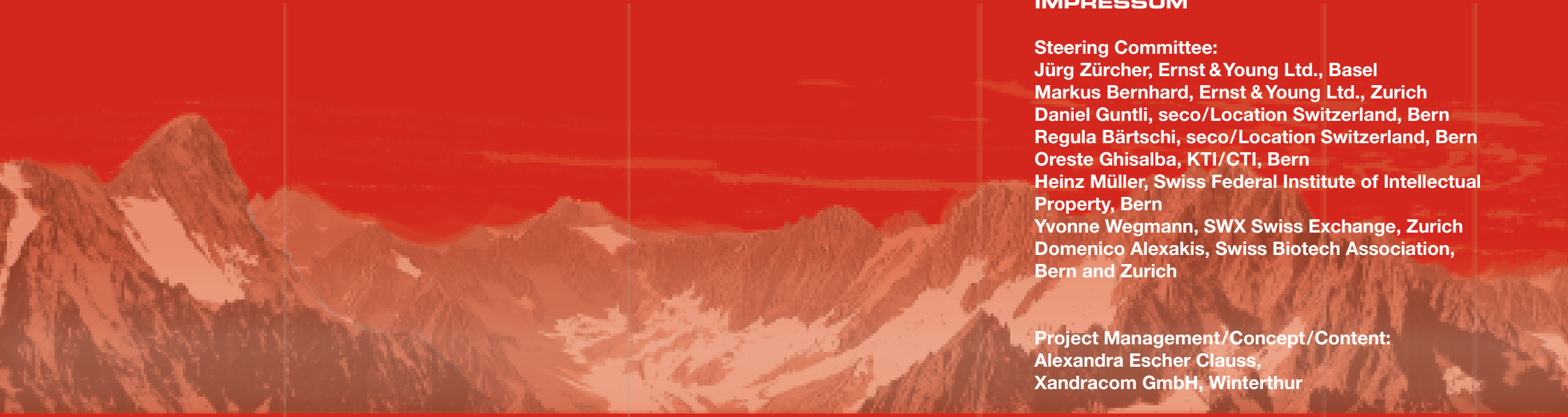
Worldwide patent applications (patent families) from Swiss Universities, the Federal Institutes of Technology and the Universities for Applied Sciences in the area of biotechnology. This graph shows a trend only without an emphasis on the total number of patent applications per year.

NUMBER OF PATENTS OF SWISS SUPPLIERS



Source: Swiss Federal Institute of Intellectual Property

Switzerland has an outstanding supplier base for biotechnology. A competent supplier base is key to the success of core biotech companies. In Switzerland, the supplier base has developed its strength over the past decades, building on the historic force of the sector. Depending on the industry segment of the suppliers, there are more than 800 specialists, according to the Swiss Life Science Database, www.swisslifesciences.ch. The graph shows the worldwide patent applications of Swiss suppliers and service companies for the biotech industry.



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