




Switzerland's Competitive Advantages	
Editorial	3
by Doris Leuthard, Minister of Economic Affairs	
A Prime Business Location for Life Sciences Companies	4
State Secretariat for Economic Affairs SECO	
One Nation – One Biotech Cluster	5
Being Successful in Switzerland	7
“A Dynamic Atmosphere for R&D.”	8
Interview with Dr Michael Römer, Chairman, Merck KGaA	
“Change Just Happens with Us.”	9
Interview with Stefan Borgas, CEO, Lonza Group Ltd	
“We Established Ourselves in Record Time.”	10
Interview with Dr Bruno Oesch, Chairman of the Board, Prionics AG	
Developing Drugs Based on Genetic Chemistry	11
Evolva SA, Basel	
Creating Magic Bullets	12
NovImmune SA, Geneva	
Transforming Localised Therapy	13
Kuros Biosurgery AG, Zurich	
Advancing Antibody Fragment Therapeutics	14
ESBATech AG, Zurich	
A Unique Basis for R&D	15
Collaboration with Academia and the National Association swiTT	16
Swiss Technology Transfer Association	
Promotion of Scientific Research as a Locational Advantage	18
Swiss National Science Foundation	
Extensive Support for the Biotech Sector	21
Helping Academic Researchers Exploit Their Inventions	22
Swiss Federal Institute of Intellectual Property	
Success Factors Funding and Coaching	24
The Innovation Promotion Agency CTI	
Point-to-Point Relationship Between Industry and Academia	26
Swiss Biotech Association	
More Value Through Greater Implementation	27
Biotechnet Switzerland	
Major Financial Hub for Biotech Companies	29
Cross-Border Listing on SWX	30
SWX Swiss Exchange	
Overview of the Swiss Financial Centre	32
SWX Swiss Exchange	
Strong Performance of Swiss Biotech	33
Swiss Private Equity & Corporate Finance Association	
Swiss Biotech Community on the Move	35
Biotechnology – A Positive Force for the Swiss Economy	36
Ernst & Young	
Facts & Figures	38
Ernst & Young	

Impressum: **Steering Committee:** Domenico Alexakis, Swiss Biotech Association, Bern and Zurich. Urs Christ, Swiss National Science Foundation, Bern. Ulrich Geillinger, SECA, Zug. Oreste Ghisalba, CTI, Bern. Yvonne Gunsch-Wegmann, SWX Swiss Exchange, Zurich. Daniel Guntli, SECO/LOCATION Switzerland, Bern. Adalbert Koch, Ernst & Young Ltd, Zurich. Heinz Müller, Swiss Federal Institute of Intellectual Property, Bern. Herbert Reutimann, swiTT, Bern. Jürg Zürcher, Ernst & Young Ltd, Basel. **Project Management/Concept/Content/Layout and Design:** Heads Corporate Communication AG BSW, Zurich, www.heads.ch. **Print:** Druckerei Feldegg AG, Zollikerberg. **Photos:** Provided by Lonza Ltd (page 7, 15, 18, 21, 29 and 35), Prionics AG (page 16 and 22) and Flurina Rothenberger (page 9, 10, 11, 12, 13 and 14). Article No. seco SE-324-BRO-E-A4.

A portrait of Doris Leuthard, Minister of Economic Affairs, smiling. She has short dark hair and is wearing a black blazer over a striped scarf and large earrings. The background is a blurred indoor setting.

Switzerland – More than the Sum of Its Parts

Unity through diversity, that is what makes Switzerland special – its languages, cultures and religions. After all, it is a trait and great quality of our country to think across borders. Even given this tradition, no one in Switzerland would claim that the interdisciplinary approach is an easy option. People who are not restricted in their thinking at work are compelled to get involved in different cultures, ways of thinking and perspectives. To that end, respect, curiosity and stamina are necessary. The reward for this approach is solutions of higher quality with the potential for a lasting application.

If any area of the Swiss economy sets a clear example of such an interdisciplinary approach, it is our biotech sector. Its continually expanding and flexible interdisciplinary network generates added value and makes biotechnology one of our country's model industries. The excellent level of cooperation that exists between the private sector, academic institutions, investors and authorities is what makes Switzerland the first choice for biotech companies from all over the world. It is a matter of great importance to our government to support this dynamic sector on a regulatory and administrative level, and thereby promote further development and growth. It is qualities such as flexibility and dynamism typical of Swiss industry, and of the biotech sector in particular, that contributed to Switzerland being ranked the most competitive country in the world by the World Economic Forum at the end of 2006.

Doris Leuthard,
Minister of Economic Affairs

A Prime Business Location for Life Sciences Companies

State Secretariat for Economic Affairs SECO. With 137 biotech companies and 81 biotech suppliers, Switzerland boasts the world's highest per capita biotech density. In 2006, the Swiss biotech industry generated a turnover of more than CHF 6 billion and had a workforce of over 14 300. 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.

Out of a total of 693 European biotech products in the development pipelines of listed companies, 97 come from Switzerland. This second-place ranking in Europe shows 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 so that clinically applicable results can be more quickly generated and used in the industry.

A highly skilled and quality-conscious workforce, experienced in precision operations – a world leader in terms of productivity.

The US biotech company Isolagen, which specialises in autologous cellular therapies, chose Bevaix in the Canton of Neuchâtel as a new location in large part because of its highly qualified multilingual workforce.

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 Ecllosion science park near Geneva, for example: This revolutionary project boasts a new structure that accelerates the development of new companies in high-tech sectors. Government and private sector efforts combine in an innovative, dynamic framework: The state provides funding for the incubator's operations and private investors provide the capital necessary to create the new firms.

Attractive fiscal system and encouraging administrative and regulatory framework.

One of the key advantages of locating a business in Switzerland is Switzerland's very favourable tax environment with moderate overall

taxation. The maximum corporate tax rate in 2006 was 21%, one of the lowest in Europe. The biotech industry benefits from an encouraging administrative and regulatory framework for companies, as well as from 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 the leading European stock exchange in terms of the market capitalisation of listed life science companies. In addition, the fact that there is a sector-specific index family that includes SXI LIFE SCIENCES® and SXI BIO+MEDTECH® increases both visibility and liquidity for domestic and foreign biotech companies and has continuously outperformed the US and European benchmarks.

Wide choice of venture capital and private equity funds.


Switzerland, with over 40 venture capital firms and private equity funds, as well as various science parks and incubators, is a very inviting environment for innovative start-up companies.

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

LOCATION Switzerland

... the Swiss foreign investment agency informs potential investors about Switzerland as a business location. Together with cantonal specialists, investors are provided with first-class and comprehensive support for setting-up shop in Switzerland in order to profit from this prime business location.

LOCATION 
Switzerland

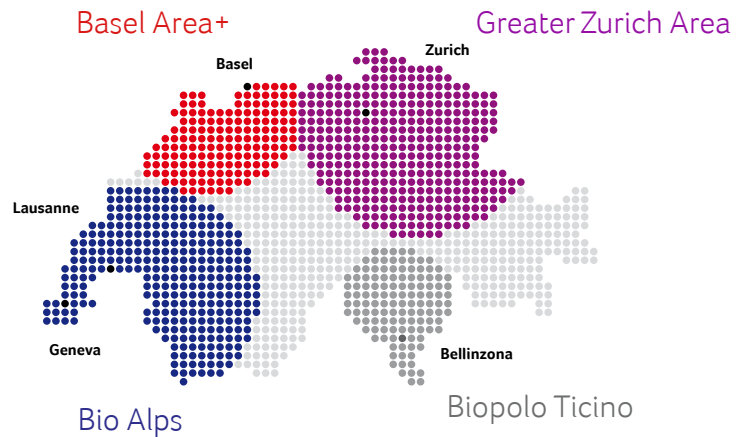
 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs FDEA
State Secretariat for Economic Affairs SECO

For further information please visit
www.locationswitzerland.ch

One Nation – One Biotech Cluster



Swiss Biotech is an initiative of:



Bio Alps is one of the major European centres for biotech research. More than 200 biotechnology and medical technology companies, over 500 research laboratories, more than 10 universities, university hospitals and technical schools have made this region their home. Featured research parks and technology transfer institutions support the fast development of the life sciences industry.

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

Basel Area+. The Basel Area is home to one of the world's most successful life sciences clusters – with companies representing the full breadth of the life sciences – modern biotechnology, pharmaceuticals, agribusiness, nanotechnology, medical technology and specialty chemicals. It is a dynamic sector, with headquarters of global companies as Novartis, Roche, Syngenta and Lonza, as well as young and growing companies such as Actelion, Basilea Pharmaceuticals and Speedel, among many others. The Basel Area provides fertile ground for companies, with the fastest growth rate in Switzerland.

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

For further information please visit

www.bioalps.org

www.biopolo.ch

www.baselarea.org

www.zurichmednet.org

www.swx.com

www.swissbiotechassociation.com

Being Successful in Switzerland



“A Dynamic Atmosphere for R&D.”

In Merck’s negotiations with the Bertarelli family to take control of Serono SA, maintaining the Geneva location apparently wasn’t a condition of the takeover. Why, then, did you choose to locate the headquarters of the company in Switzerland?

Dr Michael Römer: While Darmstadt, Germany, will remain the headquarters of Merck KGaA, we had no qualms about locating our Merck Serono pharmaceuticals division in Switzerland. Serono’s brand new headquarters perfectly fit the needs of Merck Serono, so there was no reason to look for another location for the Merck Serono headquarters. Meanwhile, we also decided to consolidate our biotech pharmaceuticals operations at Merck Serono in Switzerland, for two reasons. First, biotech expertise and production facilities already exist there. In addition, the Geneva region is a leading European hub for life sciences. Like Germany, Switzerland has a long and respected pharmaceuticals tradition and is a centre for first-class scientific research, especially in life sciences. Switzerland has an excellent scientific infrastructure of universities and federal institutes of technology and is a hub for biotechnology companies. Such a situation not only provides a bigger pool of trained and qualified employees, but also tends to create a dynamic atmosphere for research and development.

Before the share-purchase agreement Serono SA announced its plan to concentrate its various research and development locations in Geneva and to invest CHF 300 million into a new Geneva campus. Is this project, then called “Horizon Serono”, still running at Merck Serono?

Dr Michael Römer: The investment into the new headquarters went on as scheduled. The construction was completed in December 2006, and employees moved to the new building, which is now Merck Serono’s headquarters and hosts, as planned, business, administrative and research functions under one roof.

To benefit from the different qualities of Merck and Serono it must be important to integrate the employees into the new company. Is this integration easier to put into action in Switzerland, with its multicultural variety?

Dr Michael Römer: The integration of our Ethicals division and Serono, already renamed Merck Serono, is well underway and we expect it to be accomplished quickly and smoothly. Of course, it helps that Switzerland is multicultural, and so is Merck. Like Serono, Merck has English as its corporate language. We operate in 56 countries around the world, with only about a quarter of our 35 000 employees in Germany. And even the ones in Germany come from all over the world. Both companies focus on innovation, and having this in common gives us an excellent platform for successful integration. We will work together to make the union of the two companies a success.



Dr Michael Römer
Chairman
Merck KGaA
www.merckserono.net

“Change Just Happens with Us.”

The 110-year-old chemical company Lonza managed to establish and to effectively internationalise itself as a biotech company. Where does this mutability come from?

Stefan Borgas: Lonza’s adaptability is in its genetics. This is the fourth dramatic change in the history of the company. First, we changed from an energy into a carbide-chemical company. During the sixties the company reoriented toward petrochemistry, and then switched from petrochemistry to fine chemistry in the eighties. And now the change is from a broadly aligned chemistry company to a chemistry and biotech company that focuses on life sciences. This mutability comes from the fact that Lonza is a company from the Valais, where it employs 2 700 people, with its home office in Basel. Its cultural characteristics are quintessential Valais and Swiss mountain culture. People from the Valais, for instance, only speak when they really have to. When there is a problem, they prefer to proceed to action rather than to talk. This mentality has become an intrinsic value to our business. Thus, long discourses and complex presentations are not our thing. Our headquarters in Basel also have an impact on our overall culture. Having a worldwide presence means having worldly air in this narrow valley. This triggers synergies and creates mutability. In contrast to US companies, for instance, change happens much more quietly at Lonza. It just happens – precisely because of its genetics. Change also influences our business model: Contract manufacturing is an important business area, and it establishes a close and demanding dialogue with our clients, who also audit us. They want and need to verify our competence – not least for regulatory motifs – before they enter a business relationship with us. This ongoing scrutiny keeps us in shape and keeps us flexible. The path to the goal is client specific. This fact also helps us in our focus and in our reaction to new competitors. We simply find our own way, and this in turn makes us competitive. This also goes along with the preparedness for battle – a typical character trait from the Valais.

“Drive”, “Decide”, “Develop”, “Deliver”. Are these core values of Lonza typical Swiss characteristics?

Stefan Borgas: They are a synthesis of the Valais mentality – spruced up, so that they can also be understood outside the Valais. Our headquarters in Basel in many respects functions as a translation office: from the Valais and into the Valais. Basel is thereby the portal to the world – and it is perfectly suited to this function. The people from the Valais appreciate the understatement of the people of Basel. One can say that the people from Basel are the townspeople who are the most accepted by the people of the Valais.

What advantages does the listing with the SWX bring Lonza?

Stefan Borgas: The foremost advantage is the access to the tremendously competitive Swiss capital market. The size of the stock exchange meets the needs of a company such as Lonza by allowing us to remain in the Swiss capital market without needing to move outside of it. The advantage in comparison to other exchange is the prevailing value of common sense. Needless to say, regulations and control mechanisms are as rigid as anywhere else in the world. Nevertheless, to implement these regulations requires room for discussion, and here, somebody is always available. Two years ago, there was a surveillance problem at Lonza when we did not comply with SWX regulations. We voiced our concern that Lonza needed a kind of key account manager at the SWX, in order to avoid such problems in the future – an entirely new concept at that time. Now, there is a person in mid-management whose responsibility it is to keep us permanently up to date and who also transmits our ideas and suggestions to the SWX. The SWX is aware of the needs of our industry and of our clients. I have to say that we lead a rather constructive dialogue with them. Another convenient side effect is that the SWX does not require us to report quarterly, but rather every six months. This is very accommodating, considering that our busiest times are in June and December. Insisting on quarterly reporting would only put unnecessary pressure on us to explain ourselves.



Stefan Borgas
Chief Executive Officer
Lonza Group Ltd
www.lonza.ch

“We Established Ourselves in Record Time.”

According to its corporate profile, Prionics stands for “top Swiss quality”. How do you define this expression?

Dr Bruno Oesch: One aspect of the definition refers to quality: We make it a point to deliver quality to our customers – at all times. The other aspect refers to reliability; this is of utmost importance to us. When we describe our products as “Swiss quality”, we are saying that our customers can rely on their quality, slightly more than they could for products and services from other countries. We’re giving no nonsense, straightforward service to the customers. These are the Swiss virtues that are still regarded as quintessentially Swiss; and reliability is clearly a strong value closely identified with the word “Swiss”.

Within only 10 years of existence Prionics ranks number 1 for rapid BSE tests and in the top three worldwide for farm animal health diagnostics. What was the recipe for your success?

Dr Bruno Oesch: The basis has always been science. We started out as a purely science-based company. When we started out with BSE, that name actually didn’t even exist – it was called sheep disease. We had a diagnostic solution and our aim was to found a company around it. At the time we were told that there was no demand for testing for prions. Despite this prevailing negative attitude, we founded the company and made it our mission to prove that BSE was far more widespread than the authorities would acknowledge. Together with the Swiss veterinary authorities we set up a surveillance programme which has in fact become the prototype for all surveillance programmes in the world. The fact that we were able to prove that there were more BSE cases than the authorities acknowledged spurred the development of our market. By the time we were able to make the existing problem known, we were also ready to deliver its solution. BSE had long been known of, but when it hit the media, the public pressure rose and the authorities turned their focus to more testing. We were able to deliver the right product, so we immediately found ourselves in the lead. After this spectacular start, our products helped make veterinary diagnostics a standard business. We then began to identify business-related growth sectors outside of our traditional core area. We recognised the potential to expand the competence of Prionics to new fields within its niche: the area of major farm animal diseases transmissible to human beings. At the same time, we took on the product portfolios of other producers. In 2005, for instance, we assumed the rights to some of Pfizer’s diagnostics products. Thus we were able to selectively but rapidly expand our own range of products. We aim to offer veterinary laboratories a comprehensive, company-owned and -developed line of sustainable diagnostics solutions. Our acquisition, in spring 2006, of the Dutch CEDI-Diagnostics represents yet another milestone in the implementation of our diversification strategy. We thereby enhanced our expertise and expanded our product portfolio and are now positioning ourselves on a larger scale as the experts in farm animal diagnostics. In parallel to the focused growth strategy of Prionics we decided to spin off a dedicated part and founded Neurotune in 2005, a start-up biopharmaceutical company working on neuromuscular and CNS diseases.

One concern of yours is the promotion of Switzerland as a location. Can our country establish itself as a “leading hub for life sciences and biotech”?

Dr Bruno Oesch: From the very beginning we profited from the advantages our situation offers. We benefit from substantial support from the University of Zurich – at all levels. They helped us found our company and granted us access to their facilities. We also benefit from having our headquarters in Zurich Schlieren – a true biotech centre. We had help setting up our facilities from the Canton of Zurich’s Economic Development Department, and support from the authorities from the City and Canton of Zurich. As a result we were able to establish ourselves in record time, in particular when it came to setting up a safety laboratory. Abroad, it usually takes years to get all the necessary permissions, but in Switzerland, the construction, water and environment authorities collaborated to set up a safety committee. The cooperation worked out so perfectly that we were operative in just nine months, hard as that is for anyone viewing our facilities to believe. Another great advantage of Switzerland is the reliability of the people working here. Prionics benefits from the know-how of excellent and dedicated people from more than twenty countries all around the world. At the same time our company manages to live up to the Swiss virtues which are integral to the success of our company.



Dr Bruno Oesch
Chairman of the Board
Prionics AG
www.prionics.com

Developing Drugs Based on Genetic Chemistry

Evolve SA. Founded in 2004, Evolve SA established its headquarters in Basel after a CHF 21 million Series-A investment round in 2004/5. It employs 25 staff in Basel and 65 globally.

Rationale for a New Drug Discovery Paradigm

Over the last 20 years, 61% of the 877 novel drugs launched by the pharmaceutical industry have had their origins in nature. Yet for very good but essentially technical reasons the pharmaceutical industry has largely stopped exploring this area of chemistry. "This creates a significant opportunity," explains Neil Goldsmith, the CEO of Evolve. "A technology that utilises the capability of genetic systems to generate exquisite compounds, but that avoids the technical problems of natural products can enable the creation of unique pharmaceuticals."

Since its inception, Evolve has been developing such a technology, capturing nature's genetic chemistry* and combining it with an evolution-based process to drive the optimisation of small molecules. Rather than tapping directly into nature to find that willow trees can make painkillers (aspirin) or that fungi contain cholesterol-lowering compounds (statins), Evolve mixes millions of genes from multiple species (e.g. sponges, humans, fungi and plants) to create novel synthetic pathways. "Through selective pressures based on functional screens the compounds made by these pathways are then evolved to fit a given therapeutic utility," says Alexandra SantAna Sørensen, VP of Research and Development. "The technology platform we have created replicates nature's ability to evolve molecules with exquisite 'design', but its evolution process is directly aimed at making functional drugs – HIV blockers, anti-cancer compounds, etc."

Sustaining a Start-up

In 2006, Evolve attracted significant financial support for its approach. It (with partners) has been awarded two contracts, worth USD 55 million, from the United States Defense Threat Reduction Agency to develop immunomodulators and antivirals. And it won EU funding to lead a consortium developing protein-protein interaction inhibitors for cancer research. "These programmes provide significant firepower to Evolve; in addition we retain significant ownership of the resulting compounds," said Melya Hughes Cramer, VP of Alliances and IP.

An International Approach to Biotechnology Start-up

Evolve has developed as an international company from day one. Five nationalities are represented on its five-person management team. Its founding investors are based in Europe, USA, Japan and India – giving it useful networks in major markets. And by locating half its staff in India, it has tapped into the tremendous scientific talent available there. "By basing our Indian operations at the Indian Institute of Chemical Technology, we have been able to extend our capabilities in ways that would otherwise be impossible," says Panchapagesa Murali, MD of Evolve India.

From Platform to Pipeline

Since 2004, Evolve's approach has delivered a range of structure classes from which it is building a compound pipeline. "Given current industry trends and the potential of our technology, our aim is to build our own pipeline, rather than sell technology services," notes Pascal Longchamp, VP of Business Development. "We have three classes with animal proof of concept – in cancer, diabetes and infectious disease – and others less developed." Evolve aims to file its first investigational new drug application in 2008.



From left: Pascal Longchamp, Vice President Business Development; Melya Hughes Cramer, Vice President, Alliances & Intellectual Property; Neil Goldsmith, Managing Director, Chief Executive Officer; Panchapagesa Murali, Managing Director India; Alexandra SantAna Sørensen, Vice President, Research & Development, Evolve SA

* **Genetic chemistry** (noun) **1.** The process of making small molecules by using genes that encode for biosynthetic pathways. **2.** Compounds originating from such a process.

For further information please visit
www.evolve.com

Creating Magic Bullets

NovImmune SA. At the beginning of this new millennium, monoclonal-antibody-based therapies have become the cornerstone for treatment of a wide range of diseases. NovImmune, a drug development company based in Geneva, Switzerland, has established itself as a serious contributor to this sector. Within five years of its creation by Professor Bernard Mach, NovImmune has already developed five fully human antibodies targeting immune-related diseases. "These antibody-based products have the potential to alter common mechanisms involved in autoimmune diseases, inflammation and rejection following organ or tissue transplantation. This will provide much awaited clinical relief," explains Mahdi Farhan, who left Roche and joined NovImmune as CMO in January 2006.

Inducing Tolerance

NovImmune's first antibody to reach clinical testing is NI-0401, whose target antigen is CD3. This human antibody alters the function of the immune system by first silencing and then resetting a patient's T cells such that the cells stop attacking healthy tissue and instead become tolerant. Based on published clinical experience with anti-CD3 antibodies, NovImmune engineered NI-0401 to have a better safety profile by "optimising" characteristics of certain parts of the antibody. "Our aim was to maintain the potency of inducing T cell tolerance while minimising the unwanted side effects seen with the marketed anti-CD3 antibody, Orthoclone OKT3," noted CEO Jack Barbut, "permitting much broader usage than the handful of indications currently allowed." NI-0401 is subject to an agreement with Merck/Serono, which has an option to acquire rights for its development and commercialisation.

The Pipeline

At the heart of NovImmune is a team of immunologists, who recognised, early on, the need to establish a product-oriented approach to ensure success. "Placing the latest technology in the hands of first-class biologists allows for optimal flexibility when creating therapeutics with such demanding characteristics, and NovImmune has now demonstrated its ability to deliver one new drug product per year into clinical development," emphasised founder and chairman Bernard Mach. NovImmune has licenses to use technologies from Medarex, Cambridge Antibody Technology and Lonza Biologics.

This philosophy also facilitates preclinical development timelines, for which health authorities came to demand dramatically more experimental information during 2006. NovImmune is completing the submission dossier for its next product, NI-0501, envisioned to enter clinical trials in the summer of 2007. NI-0501 neutralises a pro-inflammatory protein pivotal to immune pathogenesis and is also part of the option agreement with Merck/Serono. NovImmune has several additional therapeutic monoclonal antibodies in its development pipeline, all of them aiming at medically relevant targets. Two of them address blood cell migration and selectively affect autoaggressive cell types. "Hopefully in 2009, the news flow generated by our first four products will warrant consideration of an IPO," said Jack Barbut.

In 2006, NovImmune announced the closing of a CHF 58 million financing round led by BZ Bank and also supported by Pictet Private Equity Investors SA. Both of these were new investors and represented several of their clients. Existing investors, including Lombard Odier Darier Hentsch, Novartis Venture Fund and Aravis Venture, also participated. These funds are being used to execute development of NovImmune's antibody pipeline, securing data through Phase II at which time the company can decide to partner or to continue to a Phase III setting. "Turning Paul Ehrlich's 'Magic Bullets' into reality imparts a tremendous sense of pride to each of NovImmune's researchers," according to CSO Marie Kosco-Vilbois, "and in this competitive environment, we are grateful to those who support our drive to produce innovative medicines in Geneva."



From left: Mahdi Farhan, Chief Medical Officer; Nathalie Muller, Head of Human Resources and Administration; Marie Kosco-Vilbois, Chief Scientific Officer, NovImmune SA

For further information please visit
www.novimmune.com

Transforming Localised Therapy

Kuros Biosurgery AG is a biotechnology company which aims to be a leader in the field of localised therapy. The company's initial focus has been the localised repair and regeneration of injured or diseased tissues such as skin and bone.

Kuros was formed in 2000 initially to develop and commercialise technology developed by Prof. Jeffrey Hubbell, who was Professor of Biomedical Engineering and Director of the Institute for Biomedical Engineering of the Swiss Federal Institute of Technology (ETH) and Zurich University. It was clear that Prof. Hubbell's work in novel biomaterials either alone or in combination with various bioactives had many applications in a number of diverse therapeutic areas. Initial work focused on the fields of skin and bone repair given the promising preclinical data that had been generated in these fields. It was not long before the commercial potential of these novel technologies started to be recognised by others. In 2002 Kuros completed two agreements; first, certain technologies for use in dentistry were sold to Straumann AG, a global leader in implant dentistry and tissue regeneration; secondly, a research and development agreement was signed with Baxter Healthcare SA. These collaborations acted as a springboard to attract significant additional funding from recognised investors focused on life sciences.

Tissue Repair Products

The agreement with Baxter focused around two of Kuros's novel fusion proteins for tissue repair. These products comprise biologically active molecules that are retained at the site of action by incorporation into an injectable biomaterial.

Following a successful pilot study, a Phase I/IIa study in venous ulcers was initiated in early 2004. This tested an advanced wound-healing product that is applied topically as a gel, which then polymerises in situ to form a bioactive healing matrix within the ulcer. The gel incorporates a modified recombinant growth factor that is covalently bound to the fibrin gel during the polymerisation process. The fibrin matrix acts as a scaffold that supports cell infiltration and releases the growth factor to the site of the injury upon "cellular demand". This process provides controlled local growth factor bioavailability, which is predicted to result in improved wound healing and tissue repair. Approximately twelve months later Kuros began clinical testing on orthopaedic trauma cases, trialling their bioactive bone graft substitute in distal radius fractures. When this product is applied directly to the broken bone, it forms a solid fibrin composite that perfectly matches the shape of the osseous defect and promotes localised bone growth.

Both the wound healing and orthopaedic trials were completed successfully and, in late 2005, a major licensing and collaboration deal was concluded with Baxter Healthcare. This agreement focused on specific products in the soft- and hard-tissue repair arena, and provided the funding which has led to the next growth phase of the company. Since the signing of this agreement, Kuros has increased its headcount from 16 to 54 individuals, and a further wound-healing clinical

study has been initiated and completed. Over the next 12 months Kuros intends to initiate five more Phase I or II clinical studies in wound and bone repair indications.

Not Only Repairing Tissue

Kuros's technology platform has many applications other than skin and bone repair, and Kuros has a number of programmes at different stages of preclinical development. These programs include further novel products in the orthopaedic arena, but also products in other surgical fields, such as tissue sealing and anti-adhesion therapy. Thus, Kuros is exploring possibilities for expanding its product portfolio in localised therapy into other therapeutic areas, and it intends to expand through both in-house development and in-licensing or acquisition.



Didier Cowling, President, Chief Executive Officer, Kuros Biosurgery AG

For further information please visit
www.kuros.ch

Advancing Antibody Fragment Therapeutics

ESBATEch AG is a biopharmaceutical company concentrating on a new class of therapeutics, called antibody fragments. In August 2006, the company closed a financing round of CHF 50 million, allowing it to advance products to the clinic in inflammatory indications.

Antibody fragments are regarded as a new class of therapeutics. The first such product, called Lucentis, was developed by Genentech and launched in June 2006. Now, sales derived from antibody fragments are expected to exceed CHF 2.8 billion by 2010. Until recently a broad therapeutic application of antibody fragments was complicated by some of their limitations. The main limitations are insufficient stability, a tendency to aggregate and low yield in production. ESBATEch has developed a novel and proprietary procedure for the selection of fully human antibody fragments. These proprietary antibody fragments show no aggregation, and are much more stable and have a higher production yield than conventional antibody fragments, thus bypassing the main limitations.

ESBATEch's product development concentrates on clinically validated targets, where antibody fragments have a clear advantage over classical antibodies. Advantages include fewer side effects and a better penetration of the antibody fragment to the site of inflammation, made possible because the protein is smaller than an antibody.

ESBATEch's approach has clearly convinced professional investors. In August 2006 the company closed its second round of financing with CHF 50 million. This was not only one of the largest biotech financing rounds ever in Switzerland, but also one of the largest in 2006 in Europe and in the US for a preclinical company. ESBATEch was able to attract new investors from the US, including SV Life Sciences and Clarus Ventures, and from Switzerland, notably HBM. Novartis Venture Fund, BioMedinvest and VI Partners, all investors from the first round, also added to this capital increase.

With this new capital secured, ESBATEch is now developing its products in the clinic. The lead programme is targeting the inflammatory cytokine TNF α . Currently three biologics targeting TNF α , two of which are antibodies, are on the market. In 2005, these biologics generated sales of USD 7 billion and proved to be very successful for their approved indications such as rheumatoid arthritis, Crohn's disease and psoriasis. In the clinic, these biologics were given for additional inflammatory indications, where they showed efficacy but were also linked to serious side effects, which cannot be tolerated for localised inflammations. These validated indications offer an excellent opportunity for ESBATEch's products. Since the antibody fragment has a short half-life in the blood circulatory system, fewer systemic side effects are observed. Combined with ESBATEch's products' better penetration to the site of inflammation and efficacy comparable to the best available products, this makes ESBATEch's development programmes very promising, likely to succeed through the clinic and to the market. Besides the lead programme in the chosen inflammatory indications, the company has several other products in preclinical development.

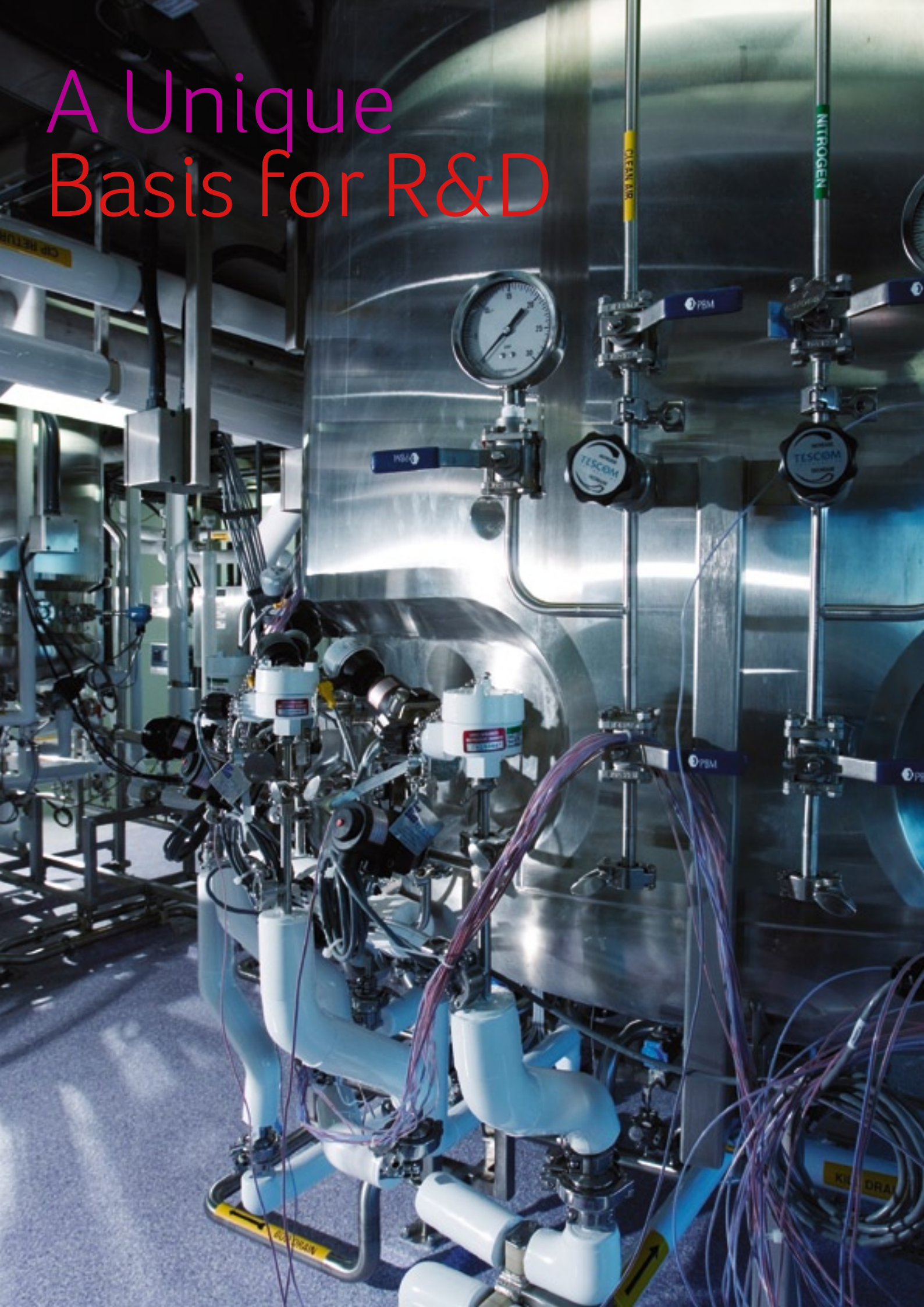
In September 2006, ESBATEch spun out its small molecule assets to form Oncalis. By that, ESBATEch is focusing on advancing its proprietary antibody fragments in several inflammatory indications and Oncalis on developing its small molecule inhibitors in the field of oncology.



Dr Dominik Escher, Chief Executive Officer, ESBATEch AG

For further information please visit
www.esbatech.com

A Unique Basis for R&D



Collaboration with Academia and the National Association swiTT



Photo: Prionics AG

swiTT. Strong research universities are a major driver for the biotech industry; this can be seen by the fact that biotech companies frequently cluster around such academic centres. The Zurich area with the University of Zurich and the ETH Zurich, and the lake Geneva region with the EPF Lausanne and the universities of Geneva and Lausanne illustrate this important interrelationship, which can be observed worldwide. There are many top-notch academic researchers at Swiss universities who are interested in collaborating with the industry. These human resources, combined with flexible guidelines and streamlined procedures for joint projects between industry and academia, make Swiss universities attractive cooperation partners for the biotech industry. The recently founded Swiss Technology Transfer Association swiTT aims to optimise the economically important interface between the public universities and the private sector.

Academia plays a role at all development stages of biotech companies and of their products. Research results from universities often nucleate new diagnostic and therapeutic concepts, new products or new biotech start-ups. Start-up companies usually first collaborate with research groups at universities before they have developed their technologies enough to strive for partnering deals with pharma companies. In addition, universities act as research partners for both biotech and pharma companies in basic and application-oriented research as well as clinical research. These partnerships are thriving: in 2006 the University of Zurich alone signed on average more than one new research contract per working day with an outside partner in the biomedical field. Collaborations between industry and

academia can be highly beneficial for both parties. However, in order to be successful both parties must understand and respect each other's different mission and goals. The benefits to companies include the access to expensive equipment and to the creativity of first-class researchers, as well as to young research talents who are likely to provide recruitment opportunities. On the other hand, academic researchers themselves often profit from the scientific interaction with their counterparts in the industry, from additional research funding offered by joint projects and from job opportunities for their students. Universities and their researchers embarking on such joint projects will also want to be assured of their rights to publish research results and a fair share of any financial reward arising from the commercialisation of project results.

In the past 10 years, most Swiss universities, like their counterparts in other countries, have established central service units to support researchers in the commercialisation of research results and in their dealings with outside partners. The main responsibility of these units, often called technology transfer offices (TTO), is usually to manage the intellectual property created by the academic researchers: evaluating inventions' commercial potential, assuring formal protection usually in the form of patents, marketing such technologies to potential industrial partners and negotiating license contracts. Although the vast majority of new technologies are licensed to established companies, often small and medium-sized enterprises, sometimes new start-up companies are created specifically to commercialise a new technology. In addition to their role in the commercialisation of research results, TTOs are often in charge of the negotiation and quality control of research contracts with outside partners. They also serve as contact points for companies interested in collaborating with the university, and frequently provide education and training for the faculty on intellectual property and other issues related to technology transfer.

University guidelines for collaborations with industry need to be transparent, flexible and lean in order to adapt a deal to the specific needs of a project and to minimise transaction costs for both parties. Currently, all Swiss universities have similar general guidelines, although each university is free to establish its own rules. This situation makes it easier for companies to interact with academia. In addition, institutional overhead costs charged to companies are comparatively low and there is no complicated overregulation as there is in some other countries. These factors make Swiss universities very attractive collaboration partners.

In order to maintain and optimise this excellent position, a national association of the professionals working in technology transfer at public research institutions was founded: swiTT. swiTT already has more than 80 members from all parts of Switzerland. Its main goals and activities include education and training, the development of best practices for technology transfer together with the industry, better communication of the activities and successes of research institutions in this field and promoting networking and collaboration among its members. Moreover, it has created a unique portal to showcase technologies developed at public Swiss research institutions which are available for commercialisation by suitable industrial partners.



Dr Herbert Reutimann
Managing Director Unitectra AG
Vice President swiTT



For further information please visit
www.switt.ch
www.unitectra.ch

Promotion of Scientific Research as a Locational Advantage



Photo: Lonza Ltd

Swiss National Science Foundation (SNSF). First-class scientific research is a decisive factor in international economic competition. As the path from basic research to its actual implementation becomes shorter and shorter, only the very best ideas can result in competitive products. Therefore the SNSF, which guarantees that Swiss scientific research is of top quality, gives Switzerland a key locational advantage in attracting innovative international companies that consistently seek out top-quality products. The best-qualified and motivated young researchers are available to work hard for these companies.

From Basic Research to Implementation of Results

Switzerland occupies an enviable position on the international rankings in life sciences, physics and chemistry, just behind the USA. The SNSF can ultimately take credit for this position. Every year, the SNSF funds more than 7000 researchers at universities and institutions of higher education. Submitted projects undergo a strict international evaluation; quality and originality are the top criteria. Currently close to CHF 500 million are allocated to this funding, and approximately 40% of this amount are funding projects in life sciences, physics and chemistry – all fields from which biotechnology profits directly or indirectly. A number of young biotechnology start-ups, among them Cytos, Prionics and Glycart – developed their business ideas around discoveries that were made within the framework of targeted projects funded by the SNSF. Special programmes created by the SNSF support the discovery and development of solutions to problems from real life. Meanwhile, SNSF's partner organisation CTI (innovation promotion agency)

supports the setting up of start-ups as well as the implementation of business ideas. In order to shorten the path from basic research to its actual implementation and to benefit even more from existing synergies, the SNSF has intensified its cooperation with CTI.

Well-directed Concentration of Forces

If a country expects to remain internationally competitive in research, it must concentrate processes and set priorities. For that reason, the SNSF does not limit itself to supporting individual projects, but also, in cooperation with universities and institutions of higher education, supports research centres, such as the National Centres of Competence in Research (NCCRs). NCCRs strengthen Switzerland's position in strategically important fields and contribute to establishing future-oriented research structures. They primarily promote research areas with economical prospects or which may lead to social innovations. Twenty centres have been established so far, in areas such as neuroscience, genetics, structure biology, cancer research and medical technology. They are mandated not only to serve top research but also to take effective measures to promote the transfer of knowledge and technology. Their usefulness is shown by the fact that over 250 companies have so far cooperated. These companies are able to feel the pulse of research, learn about the newest results and develop the newest technologies, establish informal contacts, cultivate the exchange of information and profit from continuing education and training.

Switzerland – A Location with Know-how

The lion's share of funding by the Swiss National Science Foundation is allocated to young science professionals. Every year more than 2000 doctoral candidates become acquainted with the latest scientific methods, which in turn are further developed by these young science professionals. Thanks to its outstanding reputation as a research and training centre, more and more young scientists from abroad are attracted to Switzerland. Post-doctorates, who often come from foreign laboratories, are particularly inclined to enter the Swiss job market. As a result, Switzerland profits from the ample know-how of other top laboratories across the world, and the research teams are often international. In programmes such as the National Centres of Competence in Research, the SNSF not only provides young researchers with solid training, but also emphasises the importance of internships to give young researchers the opportunity to get to know companies' research needs. After all, the transfer of knowledge takes place mostly through personal relationships among researchers.

Portrait of the Swiss National Science Foundation

The Swiss National Science Foundation (SNSF) is Switzerland's foremost institution for the promotion of scientific research. It funds more than 7000 researchers every year, at least 5000 of whom are 35 years old or younger. With its federal mandate, the SNSF promotes basic research in all scientific disciplines, from philosophy to biology, medicine to nanoscience. It also invests in application-oriented science in different fields.

The main task of the SNSF is to evaluate the quality of research proposals submitted by scientists. The SNSF funds the best of these with a total of CHF 500 million annually.

Committed to young scientific talents, the SNSF primarily supports basic research in the form of individual projects. Additionally, it conducts research programmes such as the National Centres of Competence in Research, that improve research structures and strengthen Switzerland's position in strategically important fields. The National Research Programmes analyse and help find solutions to current problems in society. The SNSF also works to ensure that scientific research in Switzerland is in the best possible position to develop internationally. It also encourages the dialogue among the economy, politics and society.



Dr Urs Christ
Head of National Centres
of Competence in Research
Swiss National Science Foundation



For further information please visit
www.snf.ch

Extensive Support for the Biotech Sector



Helping Academic Researchers Exploit Their Inventions



Photo: Prionics AG

Swiss Federal Institute of Intellectual Property. Swiss universities and the Federal Institutes of Technology have a long-standing tradition of excellence in scientific output. An OECD study issued in 2006 confirmed that the Swiss universities perform very well as far as scientific publications are concerned. According to an international comparison, Switzerland and Sweden top the list of scientific publications per capita (Table 1). Interestingly, the scientific output seems to correlate negatively with the share of government-funded research. Thus, the interaction with industrial partners seems to play a crucial role in the universities' scientific performance. Conversely, industrial research no doubt benefits from the pool of excellency in the university-based public research sector and the newly established universities of applied sciences. These institutions contribute effectively to Switzerland's high standard of innovation in high-tech fields such as biotechnology. More than 70% of the scientific and technical publications in Switzerland originate in public universities (Fig. 1), although the proportion of public funding for R & D is rather low (Table 1).

The Patenting of Inventions by Swiss Universities

In 2005, the number of patents issued by the European Patent Office (EPO) for inventions originating in Switzerland was significantly higher per capita than the number for any other country in the world, including Japan and the US (Table 2). Although the data reflect the patents issued by the EPO only, these numbers are significant, since almost any commercially important invention will eventually be filed as a patent not only with the Japanese and US patent offices, but also with the EPO. Brisk patenting activity for new inventions and the degree of university performance appear to correlate. However, Swiss universities are traditionally not concerned with the exploitation of their inventions. The patent applications from Swiss universities are

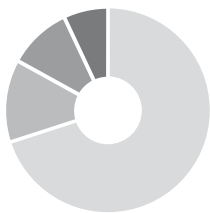
Indicators for Excellence in Research

Country	Scientific publications	Spending for research and development	
Switzerland	1154	2.94	22.7
Sweden	1143	3.95	23.5
Finland	998	3.51	26.3
Denmark	982	2.48	27.1
Germany	537	2.49	30.4
Japan	471	3.13	18.1
USA	726	2.68	31.0
	per million inhabitants (2003)	in % of GDP (2004)	share of governmental funded in % (2004)

Source : OECD Science, Technology and Industry Outlook

Table 1

Origin of Publications



Universities	70%
Other	13%
Privat sector	10%
International organisations	7%

Data are estimates for the year 2002

Fig. 1

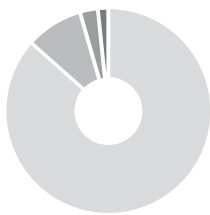
Patents Issued by the EPO

Country of origin	Patents per million inhabitants	Patents: % of all patents in 2005
Switzerland	285	3.59
Sweden	168	2.55
Germany	165	23.19
Netherlands	105	2.89
France	73	7.43
United Kingdom	42	4.26
Italy	39	3.77
Japan	81	17.78
USA	49	24.18

Source: Facts and Figures, EPO 2005

Table 2

EPO Patent Applications Originating in Switzerland



Industry	90%
Private owners	9%
Universities	0.8%
Federal Administration	0.2%

Data are approximate numbers for the year 2004 (% of total)

Fig. 2



Prof. Dr Heinz Müller
Expert in Patents and Technology
Swiss Federal Institute
of Intellectual Property

only a tiny fraction (less than 1%) of all patent applications originating in Switzerland (Fig. 2). The number of patented inventions that actually originate in universities may, however, be higher; some universities prefer not to get involved in patenting the technologies invented by their employees but rather transfer them to a suitable industrial partner as soon as possible. Furthermore, some inventions made in universities are patented by the inventors themselves rather than the university. This shows that while inventions stemming from university research efforts may be quickly transferred to the private sector, some university-based inventions are left unexploited by the universities and their industrial partners. In many cases, the university does not benefit from the inventions made by its faculty.

Increasing Awareness about Patenting Options

Although the technology transfer offices at universities endeavour with considerable success to transfer inventions rapidly from universities to industrial partners, university personnel are still not fully aware of the benefits of the intellectual property system. This system, and in particular the patenting of inventions, not only gives the industrial partner valued protection for an invention, but also assures the individual researcher and the university of some of the revenue generated from it. These benefits are of increasing importance as research funding becomes ever more competitive, and the Swiss Federal Institute of Intellectual Property (IGE) aims to make them more accessible. To this end, it offers researchers in Swiss public research facilities a number of exclusive services relating to the exploitation of their intellectual property rights. One of the most successful services, which has been available for several years, is the assisted patent search for researchers. Assisted patent searches bring easy access to patent information to people who are neither subscribed to commercial databases nor familiar with sophisticated search techniques. This type of search is a very efficient way for the customer and the patent expert to search in specialised databases for relevant documents. An assisted search takes place in the facilities of the IGE, where the researcher and the patent expert team together search for the relevant information. While the researcher shares his intimate knowledge of the field to be searched, the patent expert offers detailed expertise on performing an efficient and effective search. Assisted patent search is done with the goals of educating the researcher about both the possibilities and pitfalls of the intellectual property system in general and the patent information possibilities in particular. Also, the researcher comes away with a first impression of where his invention stands compared to the state of the art, and with adequate tools to design his research for optimal cost/benefit and to improve its potential for technology transfer to the industry. Following the assisted search the researcher not only takes home an electronic file containing most patent documents relevant to his/her research but also has a better understanding of the patenting system. Since this type of search is heavily subsidised by the IGE, costs for the researcher or his/her institution can be kept very low. Fees to be incurred by the researcher or his/her institution amount to CHF 300 for a full day at the IGE. This IGE offer, which is specifically designed to support the technology transfer from universities, is only valid for members of public research institutions in Switzerland. So far, experience with the assisted search for public research institutions has shown that this tool helps the researchers and the institutions considerably in speeding up the technology transfer process and in enabling the universities to benefit financially from their inventions.

The Swiss Federal Institute of Intellectual Property is the national competence centre for anything regarding patents, trademarks, designs or copyrights and serves as counsel to the Federal Council in all matters concerning intellectual property. The Institute offers the following services:

- Patent, trademark and designs registration in Switzerland and for some international registrations.
- Courses and seminars for individuals and companies, schools and universities.
- Information searches on competitors, technologies, trends in innovation and more, including the assisted search for public Swiss research institutions (see www.ige.ch). The costs for a full day together with a patent expert from the appropriate field will cost CHF 300 only.



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

Success Factors Funding and Coaching

The Innovation Promotion Agency CTI. Under the claim “Science to Market”, the CTI has a dual focus: On the one hand, promoting applied research and development projects (aR&D) through public-private partnerships, and on the other hand, establishing and developing start-ups. In addition, CTI aims to assure the efficient and result-oriented transfer of knowledge and technology. These goals are achieved with two types of tailor-made support: project funding and coaching of entrepreneurs and researchers.

Life Sciences Companies with CTI Start-up Label



Medtech companies	20	52.6%
Biotech companies	18	47.4%
Total number of Life Sciences companies with Start-up Label	38	100%

CTI Biotech Project Statistics 2002-2006

- Total number of submitted biotech projects: 166
- Total number of funded biotech projects: 81
- Federal contributions to funded biotech projects: CHF 34 million
- Contributions by business partners to funded biotech projects: CHF 49.6 million

Funding (and Coaching) of Life Sciences/Biotech aR&D Projects

Through its Life Sciences section, CTI provides support to the biotech sector in Switzerland in a number of ways:

- By co-funding regular CTI aR&D projects involving both academic institutions and business partners (public-private partnership model).
- By facilitating a straightforward and seamless transition from the Swiss National Science Foundation (SNSF) to CTI funding (see page 19). The follow-up projects to innovative R&D approaches stemming from the National Centres of Competence in Research (NCCR) are examples of this type of facilitation.
- By funding high-risk discovery projects. This new CTI initiative supports researchers who are planning highly innovative projects which are developed from existing basic research, but for which feasibility studies have not been performed and patents have not been obtained yet. At issue are technological ideas which are at the cutting edge of basic research and practical application, for which, however, it has not yet been possible to find a completely committed business partner. CTI Discovery Projects present a platform for such ideas to get off the ground and allow “radical innovations”.

The overall project costs of CTI Life Sciences amount to roughly CHF 60 million per year, approximately 40% of which are carried by the Confederation. The remaining costs are borne by business partners. The experts of CTI Life Sciences also sometimes engage (free of charge for the project applicants) in coaching activities at project level, especially when discovery projects or projects involving newly established start-ups require such assistance. In addition, CTI actively monitors the progress of the funded projects as well as the translation of their results into economic success.

Entrepreneurship, Coaching and Promotion of Start-ups

The CTI Entrepreneurship initiative (in close collaboration with academic institutions) established the advisory and training programme “venturelab”, which is intended to inspire entrepreneurial spirit and continuously spur the generation of new start-ups in Switzerland. The programme provides targeted training modules for both potential and already active young entrepreneurs.

The CTI Start-up initiative specifically supports young entrepreneurs through its firmly guided coaching programme. CTI Start-up has a team of some 30 business coaches representing an exceptional network of expertise. These coaches provide useful advice and forge valuable contacts with the world of venture capital and technology, marketing and patent experts. The coaching process guides the entrepreneurs in clearly structured phases to the CTI Start-up Label, awarded by a jury consisting of top-class sector experts. An entrepreneur must invest both time and effort over a period of 6 to 18 months to earn this label; however, CTI Start-up carries all the coaching costs. Since 1996, more than 1500 projects have been reviewed and the CTI Start-up Label has been awarded to 140 companies, 85% of which are still in business today. To date, more than one third of the CTI Start-up Label companies come from the life sciences sector. CTI Start-up Label companies manage to secure approximately CHF 100 million in venture capital every year.

CTI Invest, a private independent association of investors, aims to close the financing gap in the initial phase of getting a new company off the ground. It offers start-ups a platform from which they may present their refined business ideas to a broad range of potential business partners as well as to national and international venture capital firms.

Networking in Science and Between Science and Industry

CTI promotes R&D consortia building based on the close collaboration between (non-profit) research institutions and partners in trade and industry. R&D consortia are designed to be important innovation drivers and their promotional measures aim to generate more high-quality CTI projects. Performance indicators – agreed upon between the relevant consortium and CTI – are project success, project turnover and customer satisfaction. The level of promotional subsidy is based on the degree to which objectives are achieved. Examples of such R&D consortia in the field of life sciences are the Swiss BiotechNet (see page 27) and the Swiss Foodnet.

The strategic CTI Biotech initiative (designed as a national information and contact platform) makes a significant contribution towards optimising the general structural conditions for biotechnology R&D in Switzerland – following, wherever possible, the principle of “help for self-help”. In recent years, the level of activity of Biotech aR&D in Switzerland has increased considerably, as has the cohesion within the industry. In addition, the image of the industry has improved both at home and abroad. CTI Biotech is supporting this maturation process by:

- Using targeted biotech promotion and stimulating new R&D partnerships, focusing on projects involving larger integrated and synergistic groups of academic and industrial partners.
- Stimulating a more synergistic interaction between core biotech companies and biotech suppliers, thereby contributing to the success of the biotech industry as a whole.
- Offering scientific expert support and coaching (e.g., via seminars focusing on defined critical issues of concern to the whole biotech/life sciences sector).
- Encouraging the launch and the advancement of new key biotech areas such as bioinformatics, systems biology, nanobiotechnology, industrial biotechnology.
- Positioning biotechnology as a sustainable strategy for industrial production – with the understanding that Switzerland must achieve an optimal position in the ongoing worldwide “renaissance” of industrial biotechnology for which the OECD, EU and individual European countries (such as Germany), USA and Japan are strongly pushing.

CTI, the Innovation Promotion Agency: Bringing “Science to Market”

CTI promotes projects in applied research and development (aR&D) that are carried out jointly by private-sector businesses and academia. The organisation provides financing exclusively to academia, 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: from project results and from the supply of qualified, market-oriented R&D professionals. Between 2004 and 2007, funding by CTI will amount to approximately CHF 400 million.



Prof. Dr Oreste Ghisalba
Head of CTI Biotech
Innovation Promotion Agency



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs FDEA
Federal Office for Professional Education and Technology OPET
Innovation Promotion Agency CTI

For further information please visit

www.kti-cti.ch

www.ktistartup.ch

www.venturelab.ch

Point-to-Point Relationship Between Industry and Academia

Swiss Biotech Association. The biotechnology sector is growing, spurred by the innovations that come from academia. Switzerland has an impressive track record of patents per capita and many of these innovations find their way into products or new companies. Nevertheless, technology transfer can be further improved. A key success factor for constant economic growth is the building of a point-to-point relationship between industry and academia.

One important element of Switzerland's innovation policy is the encouragement and support of knowledge and technology transfer (KTT). The universities' capacities to transfer knowledge and technologies to businesses and companies' ability to communicate their need for knowledge and technology must be supported. As such, the federal policy is to increase collaboration. Four regional and one thematic KTT consortia began operations in 2005 with CTI's coaching and with federal subsidies of approximately CHF 10 million through the end of 2007. These centres work closely with and reinforce the well-established university KTT centres.

The Swiss Biotech Association (SBA) acts as a catalyst for cooperation among the industry players and participates actively in the KTT programme. Moreover, as the link between the commercial and academic components of modern biotechnology, the SBA assists in identifying possible commercial uses for and determining the commercial potential of scientific discoveries. It thereby aids in the transfer of know-how. The range of information the SBA provides is very wide: it may help one group found a new company, aid another in contract negotiations and introduce a third to the finance communities.

One Nation – One Biotech Cluster

Early on, the Swiss biotech industry realised that Switzerland had a unique selling proposition as a true cluster for the sector. Cluster-based competitiveness projects, or cluster initiatives (CI), have become increasingly widespread as tools for economic development. At first, cluster initiatives were primarily associated with advanced economies; cluster-based development projects became popular in advanced economies as early as the mid-1990s. By contrast, CIs were not adopted in developing and transition economies on a large scale until after 2000. Since then, several hundred CIs have been implemented in these economies. In 2002, a small group of motivated people came together and initiated projects under the brand Swiss Biotech. All involved parties were getting better results for their investments and the brand caught on quickly in the industry. The industry approach was born! Today, Swiss

Biotech manages between 15 and 20 projects per year, without subsidies or other funds. Considering that no other industry cluster encompasses the entire geography of Switzerland, and that no other country's biotech sector is spread all over the country, the tag line "one nation – one biotech cluster" is a truly unique selling proposition.

For the future, it must be a mutual goal to sustain this unique position and to fill it with good meaningful content. After all, we inherited the superb cluster position from our predecessors and as such are obliged to develop it in our times.

Swiss Biotech Association

The Swiss Biotech Association (SBA) aims to increase awareness of this relationship and to ensure the continued development of projects. As such, it is a member of the national development programme "KTT consortium" and is actively involved in the "w6" consortium.



Domenico Alexakis
Executive Director
Swiss Biotech Association



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

More Value Through Greater Implementation

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

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% 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. The 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 25 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

The 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 and Muttenz assist 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 Northwestern Switzerland in Muttenz.



Prof. Daniel Gyga
President of Biotechnet Switzerland
Head of Bioanalytics at the University of Applied Sciences of Northwestern Switzerland

Implementation Centralised and Easy

Supporting business-critical applications is always of key importance in 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 the Biotechnet on several levels: for collaborative research projects as well as for comprehensive and custom-tailored continuing education courses.

Biotechnet Switzerland

... 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, the Biotechnet is becoming increasingly well known as a provider of custom-designed continuing education programmes for companies.



For further information please visit
www.biotechnet.ch

Major Financial Hub for Biotech Companies



Cross-Border Listing on SWX

SWX Swiss Exchange. Switzerland and its long-standing sector cluster in life sciences provide fertile ground for biotech companies. The financial industry has been involved in the cluster almost since its inception and therefore has a long tradition in financing the sector. As a result of this conducive environment, the Swiss life sciences industry not only generates its own success stories in the field of biotech and drug development but is also attracting companies from abroad. This is reflected on the SWX Swiss Exchange, as well. In 2006, two out of three biotech IPOs were cross-border listings.

Enhancing the Outstanding Visibility

Life sciences companies on the SWX Swiss Exchange benefit from outstanding visibility among investors, analysts, and the media. Around one-third of the total market capitalisation on SWX, or approximately CHF 400 billion (EUR 245 bn, USD 320 bn) is attributable to the industry, thereby making it the largest peer group of its kind in Europe. Nevertheless, in terms of companies the sector is not overcrowded yet. Thanks to the dominance of the life sciences sector in Switzerland, investors active in the Swiss market are highly experienced in this field, and many of them are purely focused on biotech. This generates a comparatively stable market environment and demand for life sciences stocks. It also facilitates biotech IPOs on SWX even in times when the new issue market is effectively closed in other European countries. Basilea, for example, raised USD 160 million on SWX in March 2004. It was the second Biotech IPO in Europe that year, just after Ark Therapeutics (LSE), and it was launched months before further biotech companies went public in other markets. In addition, recent transactions proved the capability to raise large amounts of money in Switzerland: with Basilea, Arpida and Newron, SWX has accounted for the largest IPOs in terms of transaction size in Europe every year for the last three years. In order to enhance the already outstanding visibility of the life sciences sector, the SWX Special Industries index family “SXI” was launched in 2004. The SXI LIFE SCIENCES® (encompassing pharma, biotech and medtech sector) and its sub-index SXI Bio+Medtech® (biotech and medtech only) are the first two members of the family. The two indices are open for Swiss and foreign companies that have a primary listing on SWX or meet certain minimum requirements for trading liquidity. Both indices have shown outstanding performance, both when compared to overall domestic market and other internationally leading sector indices. Several derivative products have been issued on the two indices, and since the larger constituents are capped at 10%, smaller companies in the indices benefit disproportionately from the increased demand.

Alluring to Foreign Issuers

It should come as no surprise that the national sector cluster and favourable market environment on SWX are also alluring to foreign companies. Today, 40% of the life sciences companies listed on SWX are stemming from abroad. When considering an IPO on SWX, foreign companies should be aware that a strong link with Switzerland should be established in order to gain the desired visibility and investors’ trust – be it via a Swiss collaboration partner, private equity investor, member(s) of management, operations or a Swiss heritage (e.g. being a spin-off from a Swiss company). But ultimately, a majority of companies opt to relocate their headquarters to Switzerland pre-IPO and become a Swiss company.

Two Italian biotech companies, BioXell (SWX: BXLN) and Newron Pharmaceuticals (SWX: NWRN), went public on SWX in June 2006 and December 2006, respectively, thereby illustrating the “direct” cross-border listing approach. BioXell, with headquarters in Milan, was founded in 2002 as a spin-off from Roche and is focused on the discovery and development of novel therapies to treat urological, inflammatory, and related disorders. Today, BioXell is a truly international company with sites in Milan, Italy and Nutley, USA. In conjunction with its IPO, the company raised CHF 60 million (EUR 38 mn, USD 48 mn) and placed 25% of its equity capital in public hands. By 11 February 2007, the company’s share price had risen 33.3%, representing a total market capitalisation of CHF 320 million (200 mn, USD 255 mn). The transaction was accompanied by Credit Suisse. Newron Pharmaceuticals is an Italian biopharmaceutical company active in the development of small-molecule drugs for the treatment of CNS diseases. The transaction was led by Lehman Brothers and Morgan Stanley and provided the company with additional working capital of CHF 120 million (EUR 75 mn, USD 180 mn). Newron had already established a strong link to Switzerland before the IPO through its research collaboration with Serono and one of its major shareholders, HBM Bioventures. Newron’s share price increased by 12% since its first trading day in December

“Listing in Switzerland has provided us with a natural peer group of publicly traded biotech companies. The cross-border listing has certainly raised our visibility and showed the market that we are playing on a global stage.”

Francesco Sinigaglia, CEO of BioXell

“Swiss institutional investors, as well as buy-side and sell-side analysts, are well acquainted with the biotech sector. Hence a company listing in Switzerland will naturally find a wide range of potential investors for its IPO, not only among specialised sector funds but also among generalists. Moreover, an SWX listing facilitates access to the large pool of private banking demand, which can provide additional support for an IPO.”

Patrick Treuer, Vice President Credit Suisse

“Based on our experience, we can recommend to go for a cross-border listing, especially when talking about SWX. Clearly, the company should be joined by experienced advise from international and Swiss consult and banks. There is no doubt either, that it will help to have business with the Swiss industry, be it investors or partners – like HBM or Merck Serono in our case –, yet it is not a precondition to the IPO to relocate parts or the complete operations to Switzerland.”

Stefan Weber, CFO, Newron Pharmaceuticals SpA

2007. A prominent example of a company that established a Swiss head office prior to listing is Nobel Biocare (SWX: NOBE). Nobel, originally listed only in Sweden, established its holding company in Switzerland in 2002. The company then listed its shares on SWX in addition to its Swedish listing. Today, Nobel is included in the SMI® and more than 90% of the trading in its shares takes place on SWX. From a regulatory point of view, SWX is able to offer a very straightforward listing procedure also for its foreign issuers. As a self-regulated exchange, SWX is authorised to handle the entire listing process on its own. As a result, Admission Board approval can be guaranteed within a short 4 weeks after submission of the listing application. When going public, a company must fulfil certain minimum capitalisation and free float criteria, and SWX is the only regulated exchange in Europe to still offer a choice between financial reporting standards, such as IFRS, SWISS GAAP FER, US-GAAP and other international recognised accounting standards. The duties involved in being public basically centre on transparency issues, whereas the disclosure of shareholdings is not mandatory for foreign companies. Furthermore, the obligation to disclose directors’ dealings is based on a considerably higher threshold value than that applied in the EU. Generally speaking, SWX is capable of providing a regulatory environment that is compatible with EU regulatory standards while still being able to respond proactively to the market’s needs. Being situated outside the EU, SWX has certain leeway in terms of mitigating some of the current tendencies towards overregulation.

Stable Demand and Vibrant Market

In summary, not only Swiss but also foreign life sciences and biotech companies find an outstanding market environment in Switzerland and at SWX. The numerous success stories, combined with the long-standing interaction between the life sciences and financial industries, create an atmosphere in which private and public investors do not shy away from funding such companies. As a result, stable demand and a vibrant market in biotech stocks has evolved, and companies can expect to receive a fair price for their shares. As noted by Philippe Lutz of Credit Suisse: SWX, with its large concentration of quoted health care and biotech companies on the one hand, and a receptive investor base for biotech equity stories on the other, provides an interesting listing alternative for biotech companies with a less established domestic biotech market.



SWX Swiss Exchange in the heart of Zurich



Dr med. Yvonne Gunsch-Wegmann, MBA
Vice President
SWX Swiss Exchange

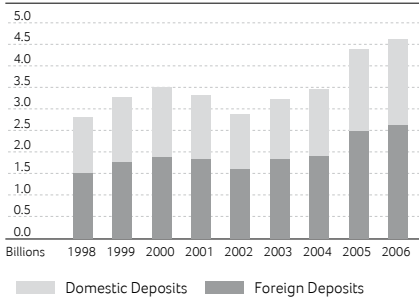


For further information please visit
www.swx.com

Overview of the Swiss Financial Centre

The Swiss Financial Centre in Numbers

- Population: 7.4 million inhabitants
- 337 banks/ ~180,000 employees in the financial sector (~5% of the working population)
- Bank deposits managed by Swiss banks: CHF 4.770 trillion of which 66% are invested in stocks and funds
- Proportion of foreign clients: 58%
- Share of total global assets managed offshore: 27%
- Contribution of banks and insurance companies to Swiss value creation: 14.4%



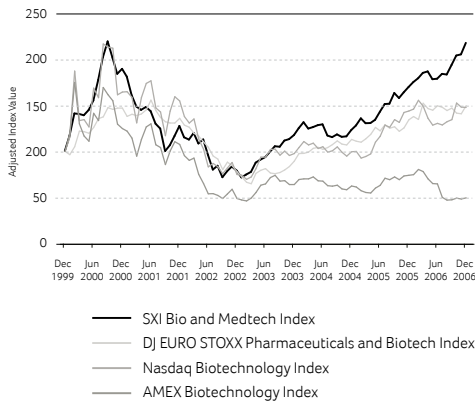
Sources: Federal Department of Finance, 2006 / SFBC, 2006 / SBA, 2006

SWX Industry Breakdown as per 31 December 2006



Health Care	30.9%
Financial	31.7%
Consumer Goods	18.8%
Industrial	11.4%
Basic Materials	3.9%
Technology	1.3%
Other	2.1%

Figures based on SPI companies/source: SWX Swiss Exchange



Figures based on SPI companies/source: SWX Swiss Exchange

SWX Swiss Exchange. The Swiss financial centre attracts a significant proportion of the world's entire offshore wealth. In cross-border private banking, Swiss financial institutions have a market share of more than 30%. Among the reasons why Switzerland as a financial centre enjoys the trust of investors throughout the world are its high degree of legal certainty, political stability, comparatively liberal labour laws, what continues to be a competitive level of taxation, the market-attuned regulatory standards, an outstanding education system, as well as the country's renowned competency in private and investment banking that has been gained over decades. Switzerland is one of Europe's leading centres for equity-focused institutional investors. About two thirds of the total CHF 4.77 trillion in bank deposits is invested in equities and funds.

Although enormous in its global significance, the Swiss financial centre is compact enough to be easily comprehensible, even as it remains broadly networked. These factors, together with the international orientation and strong placing power of Swiss banks, the high regard throughout the world for the companies that are listed here – and hence also the IPOs – all combine to make Switzerland an attractive choice for companies from abroad that are seeking capital to finance their growth.

Europe's Leading Stock Exchange for Life Sciences Companies

The life sciences companies listed on 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.

- SWX is the largest marketplace in Europe in terms of the market capitalisation of listed life sciences companies.
- Around one third of the total market capitalisation on SWX or more than USD 300 billion are attributable to companies active in this particular sector.
- Companies such as Novartis, Roche, Merck Serono and Actelion create an environment of global renown.
- The issuing banks in Switzerland have tremendous placing power – Swiss financial institutions manage about 27% of the world's offshore assets.
- Special sector indices (SXI®), plus an above-average number of analysts covering the market, ensure transparency and high visibility.

At SWX, life sciences companies have access to a highly experienced community of international investors specialising in this specific sector.

For further information please visit
www.swx.com

Strong Performance of Swiss Biotech

SECA. The excellent performance of the biotech sector confirms Switzerland's position as major hub for emerging biotech and pharma companies. Success stories and role models are a key factor in motivating entrepreneurs and early-stage investors to engage in new biotech ventures. The good or (in some cases) amazing stock performance of listed Swiss biotech companies stocks during 2006 was certainly encouraging news to other earlier-stage Swiss biotech and pharma companies.

During 2006, the stocks of several younger biotech and pharma companies listed on SWX showed an amazing performance: Actelion (ATLN) was up by 151%, Cytos was up by 132% and Arpida, the company that initially had a disappointing start as a public company, showed a strong performance with a plus of 93%. Basilea (+53%) and Speedel (+18%) also outperformed the Swiss Market Index (+16%).

European biotech in general had a strong showing in 2006 and performed better than the US biotech markets: The Lehman EU Biotech Stock Index showed a plus of 23%, or +38% in USD (versus NASDAQ Biotech +1% or AMEX BTK + 11%).

It is not surprising that the strong performance in Switzerland during 2006 encouraged well-positioned private biotech companies to go public: Biozell, Santhera and Newron all raised significant amounts at respectable valuations. Interestingly, two of the newly listed companies are headquartered in Italy. The marketing efforts of SWX and its good reputation as a market for life sciences companies seem to attract more non-Swiss companies. In the cases of Biozell and Newron it may have helped that both companies already had Swiss private equity investors on board.

During the year of 2006, Switzerland has further strengthened its position as a premier location for biotech and emerging pharma companies. Investors and entrepreneurs alike now see Switzerland as one of the best places to start, develop and finance biotech companies. Not only the favourable financing environment plays a role here. Equally important are the good scientific base, the broad pool of talent and the strong domestic pharma industry. A further competitive advantage vis-à-vis neighbouring countries is the liberal labour law. Small biotech companies have to react very quickly to changing environments and successes (or failures) in their product pipeline. Without liberal labour laws this is hard to achieve.

While we expect some "trickle down effect" from the successes of the listed Swiss biotech companies, the number of significant financings in the private sector did not show an increase, but held steady. Both in 2005 and 2006, only about 10 young Swiss biotech companies received substantial venture capital money.



Dr Ulrich Geilinger
Member of the Executive Committee of SECA
Board Member of HBM Partners AG

During 2006, major private financings were reported at Xytis (CNS drug development), Addex (allosteric modulator drug development), NovImmune (antibodies for inflammation and autoimmune diseases) and ESBATech (antibody fragments). The fact that in transactions (with the exception of NovImmune) well-known foreign investors were in the lead or colead confirmed the attractiveness of Swiss biotech companies. Major foreign investors were Atlas Venture and Sanderling (Xytis), SR One (Addex), Clarus Ventures and SV Life Sciences (ESBATech). The most active investors (in terms of number of financings, including follow-ons) were the Novartis Venture Fund, Biomedinvest and VI Partners.

Traditionally the Swiss biotech industry and its investors have focused more on quality, than on quantity (in terms of number of companies founded and financed). Maybe this is good so. It is not the sheer number of start-ups that will determine the fate of the Swiss biotech industry, but the number of companies that can build late-stage product pipelines and demonstrate sustainable success. During 2006 quite a number of Swiss biotech companies moved closer to this goal.

Profile Swiss Private Equity & Corporate Finance Association (SECA)

The Swiss Private Equity & Corporate Finance Association (SECA) is the representative body for Switzerland's private equity, venture capital and corporate finance industries. Private equity refers to equity investments in privately held, non-quoted companies ("Beteiligungsfinanzierung"). Corporate finance services are advisory services related to mergers, acquisitions, buyouts and the financing of companies.

SECA promotes corporate finance and private equity activities in the public and the relevant target groups; represents the members views and interests in discussion with government and other bodies, and fosters ethical and professional standards as well as the professional education of its members and their clients.

SECA is organised in five chapters: Innovation & Venture Capital, Private Equity, Legal & Tax, Corporate Finance and Communications/Media.

SECA's activities include

- Seminars and events about relevant topics
- Publication of statistics about private equity investment and management buyout activities in Switzerland
- Publication of a SECA weekly media survey (for full members only)
- Monthly edition of a newsletter SECA eNewsletter (archive: for members only)
- Working groups (e.g. working on a Code of Conduct for private equity investors)
- Contacts of other associations and state bodies (lobbying)

S • E • C • A
Swiss Private Equity & Corporate Finance Association

For further information please visit
www.seca.ch

Swiss Biotech Community on the Move



Biotechnology – A Positive Force for the Swiss Economy

Venture Firms with Investments in Switzerland During 2005 and 2006

Swiss Venture Capital Firms

Aravis Venture Associates (www.aravis.ch)

[NovImmune](#), [Evolva](#)

BioMedinvest (www.biomedinvest.ch)

[4-Antibody](#), [ESBATech](#), [Santhera Pharmaceuticals](#)

BVgroup (www.bvgroup.ch)

[Covallys](#)

BZ Bank (www.bzbank.ch)

[NovImmune](#)

Genevest (www.genevest.ch)

[Kuros](#), [NovImmune](#)

HBM BioVentures (www.hbmbioventures.com)

[ESBATech](#), [Basilea](#)

Index Ventures (www.indexventures.com)

[Addex](#)

Initiatives Capital (www.bvc.ch)

[Addex](#), [Xigen](#)

Lombard Odier Darier Hentsch & Cie

(www.lombardodierdarieshentsch.com)

[ESBATech](#), [NovImmune](#)

Nextech Venture (www.nextechventure.com)

[Genetics](#)

Pictet (www.pictet.com)

[NovImmune](#)

Vinci Capital (www.vincicapital.ch)

[Addex](#)

Corporate Venture Capital Firms

Novartis Venture Fund (www.venturefund.novartis.com)

[Covallys](#), [ESBATech](#), [Genetics](#), [NovImmune](#), [Speedel](#), [Evolva](#),

[Santhera Pharmaceuticals](#)

Roche Venture Fund (www.roche.ch)

[Addex](#)

Foreign Venture Capital Firms with Swiss Office

Healthcap (www.healthcap.se)

[Apoxis](#)

NeoMed (www.neomed.no)

[Kuros](#)

Foreign Venture Capital Firms

Advent Venture Partners (www.adventventures.com)

[4-Antibody](#)

Bio One Capital (www.bio1capital.com)

[Addex](#)

CDC Entreprises (www.cdcentreprises.fr)

[Kuros](#)

Clarus Ventures (www.clarusventures.com)

[ESBATech](#)

DSM Venturing

(www.dsm.com/en_US/html/venturing/home.htm)

[Speedel](#)

Grazia Equity (www.grazia-equity-gmbh.de)

[4-Antibody](#)

Life Sciences Partners (www.lsp.nl)

[4-Antibody](#)

Mulligan BioCapital (www.mulliganbiocapital.de)

[4-Antibody](#)

Najeti (www.najeti.com)

[Genetics](#)

NGN Capital (www.ngncapital.com)

[Santhera Pharmaceuticals](#)

PolyTechnos (www.polytechnos.com)

[Addex](#)

Sofinnova (www.sofinnova.fr)

[Addex](#), [Endoart](#)

S.R. One (www.srone.com)

[Addex](#)

SV Life Sciences (www.svlsa.com)

[ESBATech](#)

TVM Capital (www.tvm-capital.com)

[Addex](#)

(in red: investments in Switzerland)

(Completeness of this list is not guaranteed)

Ernst & Young. In 2006, the modern biotech industry celebrated its 30th anniversary. While it enjoyed another successful year in 2006, the Swiss biotechnology industry also faced some unexpected market developments.

Actelion: Taking the Lead

The success of the Swiss biotechnology industry was clearly evident in 2006, when Actelion made significant progress towards its first billion CHF in annual sales. The fact that this still young company will celebrate only its 10th birthday in 2007, makes its figures even more impressive. What started with a group of five founding members is now a global enterprise with more than 1,300 employees. In addition to its commercial success, Actelion announced a multimillion Swiss franc license deal with Roche in July 2006, issued a convertible bond in November 2006 and announced the friendly takeover of the San-Francisco-based, NASDAQ-listed, biotech company Cotherix.

Swiss Biotech Companies in 2006: A Series of Success Stories

Arpida, Basilea and Speedel, three other SWX-listed biotech firms in the Basel area, announced successful developments in various clinical trials, forcefully pushing their product portfolios towards commercialisation. In consequence, the share prices of all three companies rose significantly in 2006. Meanwhile mondoBIOTECH, another Basel-based biotech company, successfully closed two licensing deals with the US biotechnology companies InterMune and Biogen Idec.

More good news came from the Zurich area. Cytos in Schlieren generated a constant and mostly positive flow of news regarding its clinical developments. However, some news towards year-end of 2006 showed again that biotechnology bears some risks and that the news flow has a direct impact on the valuation and in turn on the share price.

HBM BioVentures is one of the biggest venture funds in Europe fully dedicated to biotech investments. It issued a Going Public Convertible Bond for CHF 176 million, which was oversubscribed several times. Furthermore, the establishment of a few promising new biotech companies in the Zurich area has contributed to the continued strengthening of the biotech hub in Zurich.

SWX as a Leading Stock Exchange for Life Sciences

In October 2006, Santhera Pharmaceuticals, located in Liestal, successfully raised EUR 15 million through a C round of financing; it went public on the SWX in early November 2006, raising another CHF 101.8 million. By mid-2006, the company had successfully closed a collaboration agreement with Juvantia from Finland.

Two Italian biotech companies, Biozell and Newron Pharmaceuticals, spin-off companies of Roche and Pharmacia & Upjohn, made a cross-border listing on the SWX. With these three IPOs, the SWX underlined its role as one of Europe's leading stock exchanges for life sciences.

The Swiss-based biotechnology giant Serono announced in late September 2006 that its majority stakeholders, the Bertarelli family, were selling their shares to Merck KGaA in Germany. With this transaction, a long-standing biotechnology success story that originated in Italy will hopefully continue under German leadership. Berna Biotech, another public biotech company with a long-standing Swiss biotech tradition, realigned its strategy and decided in early 2006 to merge with Crucell BV to form a vaccine powerhouse. Even though Crucell's headquarters are located in the Netherlands, the Group will keep a part of its R&D facilities in the Bern area.

“Big Pharma” Investing in Biotechnology

The recent trend of big Swiss life sciences players acquiring successful biotechnology companies is continuing. In 2006 Novartis finally took over all shares of Chiron, and acquired the UK-based NeuTec Pharma for more than USD 550 million.

Lonza spun off its polymer business in Italy by listing it on the Milan exchange. The company has also acquired a number of production facilities around the world and started constructing some new ones, in order to become a world-class business partner for the global biotechnology industry outside of Switzerland.

On the venture capital side, the positive trend continued in 2006. Large VC-based financing rounds were achieved by Addex and NovImmune from Geneva and ESBATech in Schlieren. In addition, such young start-ups as Oncalis in Schlieren and GlycoVaxyn in Wädenswil successfully closed first rounds of financing that will help them bring their research projects into clinical trials.

Broad Economic and Academic Side Effects

The continuing success of the Swiss biotechnology industry generated further positive side effects. Construction projects to provide more lab space are underway or have just recently been finished in the regions of Geneva, Basel and Zurich. These projects will help young start-up companies find adequate facilities to conduct their research.

Academic research has expanded its activities more or less in line with the industry's development. Systems X went live in the second half of 2006 and the demand for subscriptions for life-sciences-related studies has never been as big as in the past year. The attractiveness of the Swiss biotech industry is also reflected in the popularity of the latest electronic job platform that was provided by BioValley. More than 35,000 clicks were registered in the first two weeks of this new e-commerce feature.

Well-positioned for Future Success

Despite the fact that Serono and Berna Biotech have been sold to foreign companies, meaning an upcoming decline in certain numbers for the Swiss biotech industry, the future of the biotech industry looks promising. Big life sciences companies such as Novartis, Roche, Syngenta and Lonza continue to heavily invest in biotech while mid-sized Swiss biotech companies have been steadily developing into mature and important global biotech players. Furthermore, the Swiss biotech industry continues to sign licensing and collaboration agreements with foreign biotech and pharma companies.

Ernst & Young ...

... is a leading audit and advisory services firm and a provider of risk management, tax and legal advisory services, transaction support and accounting services. In Switzerland, Ernst & Young employs approximately 1,700 people and generated revenues in excess of CHF 480 million in the financial year 2005/2006. The international network of Ernst & Young Global has more than 114,000 employees working in over 140 countries; in 2005/2006 it reported sales of USD 18.4 billion.



Markus Blaser
Senior Manager
Biotechnology Industry Specialist
Ernst & Young Ltd



Jürg Zürcher
Partner
Biotechnology Leader Central Europe
Ernst & Young Ltd



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

Facts & Figures

Ernst & Young. Switzerland has a very attractive biotech environment with many companies actively striving to become global players.

By the end of 2006, the Swiss biotech industry consisted of 218¹ companies in total, of which 137 were biotech developers (consisting of 79 core biotech companies and 58 extended core biotech companies) and 81 were biotech suppliers. Hence, compared with the size of its population, Switzerland has the highest biotech density in the world.

Half of all Swiss biotech companies were founded prior to 1997. However, there has been a steady flow of new biotech startups ever since the early nineties, not only during times when the IPO window was open, but also throughout the entire period. This underlines the point that biotech has developed into a quite mature industry in Switzerland. In fact, by the end of 2006, the industry employed more than 14,300² people, marking a steady increase in workforce over the last couple of years.

The financial community has rewarded the general high quality of the Swiss biotech industry over the past years by considerably and constantly investing in companies with promising projects under way. Even in the harsh times of the post-dotcom era, significant amounts of venture capital flowed into Swiss biotech companies (2002: CHF 132 million, 2003: CHF 125 million, 2004: CHF 194 million, 2005: CHF 295 million (incl. CHF 118 million pre-IPO financing raised by Speedel), 2006: CHF 224 million).

Regarding company size, the Swiss biotech industry can be split into three main categories: the nine public companies, including globally active and well-known biotech leaders such as Serono³ and Actelion, and about 20 medium-sized companies with 50 to 100 employees (some of those companies are now ready for an IPO or another capital markets transaction). All remaining companies are still rather small and have less than 50 employees.

Geographically, the majority of Swiss biotech companies are located in one of the four hotbeds in the areas of Arc Lémanique and Ticino, and in the regions of Basel and Zurich. In these areas a number of world-class universities and several biotech incubators are also located.

For many decades, the Swiss industry has been a strong player in the pharmaceutical and chemical fields. Consequently, 85% of the 137 Swiss biotech developers are active in the field of red biotech (human & animal health), while only 7% are focusing on white biotech (environmental & industry) and 8% on green biotech (agro & nutrition). Approximately 50% of the Swiss biotech companies are active in therapeutics, whereas 20% are involved in genomics, proteomics and enabling technologies.

¹ELISCOs (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), Swiss subsidiaries of foreign biotech companies and biotech consulting companies.

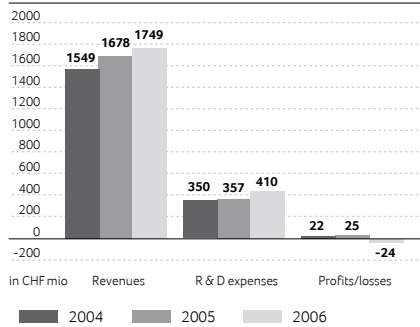
²Compared with the prior year Berna Biotech is no longer counted as a Swiss biotech company, since the new owner, Crucell, is headquartered in the Netherlands.

³In 2006, Serono is still included in the Swiss figures, as legally, the merger with Merck KGaA took place in early 2007.

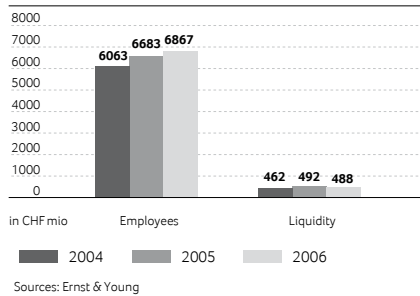
For further information please visit
www.ey.com/ch

Private Swiss Biotech Companies

Revenues, R&D Expenses, Profit/losses



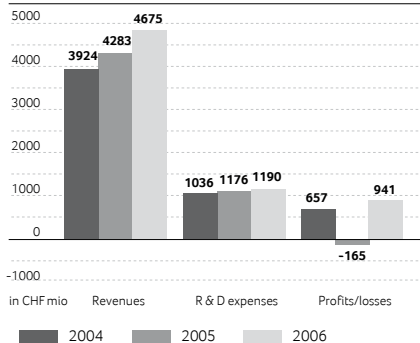
Number of Employees, Liquidity



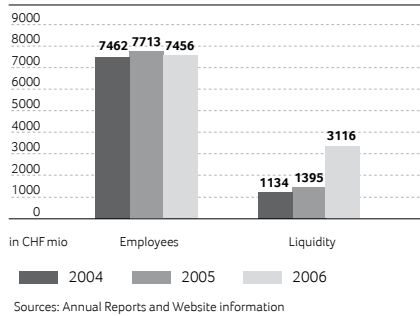
Please note:
 - All figures are headquarter-counted
 - As some private companies do not disclose financial figures, the above figures represent Ernst & Young's best estimate

Public Swiss Biotech Companies

Revenues, R&D Expenses, Profit/losses

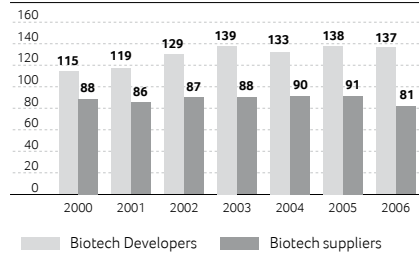


Number of Employees, Liquidity

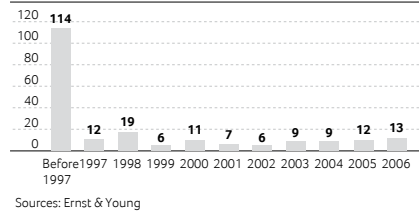


Please note:
 - All figures are headquarter-counted
 - The 2006-data in this table are based on the information available in early March 2007, when this report was compiled. At this time some of the companies had not yet disclosed the final financial figures for 2006. Therefore, some figures were carefully extrapolated on the basis of newest interim data publicly available (e.g. Q3 2006).

Number of Biotech Companies in Switzerland



Year of Foundation of the 218 Swiss Biotech Companies



Industry Segmentation of the 137 Biotech Developers




Therapeutics	50%
Genomics, Proteomics & Enabling Technologies	21%
Diagnostics	11%
Tissue Engineering	7%
Drug Discovery Technologies & Services	6%
Drug Delivery	5%


Sources: Ernst & Young

 **ERNST & YOUNG**



 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Swiss Confederation

Federal Department of Economic Affairs FDEA
Federal Office for Professional Education and Technology OPET
Innovation Promotion Agency CTI

 Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Swiss Confederation

Federal Department of Economic Affairs FDEA
State Secretariat for Economic Affairs SECO



SWISS NATIONAL SCIENCE FOUNDATION



S • E • C • A
Swiss Private Equity & Corporate Finance Association

