

**Campus Biotech  
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## MEDTECH: THE NEW ELDORADO OF CYBERHEALTH

BASED ON ITS STRENGTH IN MEDICAL TECHNOLOGIES  
THE HEALTH VALLEY OF WESTERN SWITZERLAND  
HAS CREATED AN IDEAL ECOSYSTEM FOR E-HEALTH

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FEATURES



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## Cyberhealth, a new El Dorado for Western Switzerland

After biotechnology and the neurosciences, health is becoming an area of expertise in which universities and schools of higher education are positioning themselves, creating an ecosystem which is favourable for spawning start-ups. **BY PASCAL VERMOT**



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# The cluster effect

WHEN IT COMES TO BIOTECH and medtech, the news flow has been extremely positive for Western Switzerland in the recent past. On the research side, the leadership of the Swiss Federal School of Technology in Lausanne (EPFL) for the €1 billion pan-European flagship the Human Brain Project is attracting new major investment (see page 9). On the business side, local and international private companies such as Medtronic (see p. 13), CSL Behring (see p. 40) and Celgene have continued to invest massively in the region. And new medtech start-ups are springing up



with the arrival of promising new fields such as bioinformatics (see p.23), equipment for stem cell therapies (see p.20) and the emerging domain of bio-inspired new materials (see p.27) as well as the first applications of 3D bio-printing (see p.43)

Epitomising the convergence of micro, nano, cognitive-biological and information technologies and meeting some of the toughest health challenges, such as personalisation and cost-effectiveness, no field looks more promising than cyberhealth. For Western

Switzerland, with its long traditions in first-class medical care, microtechnology and data security and accuracy, this is a major opportunity – and one that is beginning to be embraced by a wave of new players (see p. 14).

It is also a field where the region's strong links between industry and academia – bolstered in the recent past to transfer knowledge and technology to the marketplace – are proving to be a major advantage. This process is now functioning at full speed in the Health Valley between Bern and Geneva. For example, a new funding instrument launched in 2001, the National Centre of Competence in Research (NCCR), has given birth to no fewer than 79 start-ups, creating more than 400 jobs. Now a new round of eight NCCRs, three of them oriented to the life sciences as with the Centre for Bio-Inspired Stimuli-Responsive Materials centred around the University of Fribourg, suggests that there might be many more to come.

As an observer of the growth of the Health Valley, Technology by Bilan can testify that the ecosystem has reached a size that allows it to absorb shocks such as the departure from Geneva of Merck Serono two years ago without adverse impacts on its general dynamic. The very same building that used to accommodate Merck Serono is now the heart of a Campus Biotech, thanks to private investment approaching the CHF 500 mark from investors such as the Wyss Foundation and the Bertarelli Foundation. And with its Medtech Village, the microtechnology trade fair EPHJ-EPMT-SMT is fast becoming a major meeting point for health professionals both locally and internationally. Moving to less formal structures, the region is now home to the first Do It Yourself Biology Labs (UniverCités) in Switzerland – places where would-be entrepreneurs can gather, tinker, work together on projects and bring together ideas that lead to new start-ups.

All this means that the cluster effect long sought by local actors, such as our partner BioAlps, is maturing. Private investors are very much aware of this. International venture investment, particularly in medtech start-ups, is still on the rise in the region, while trade sales of more mature companies (see p. 12) have become common news. And IPO rumours around AC Immune (see p. 36), Symetis in Lausanne and Novimmune in Geneva are becoming more insistent.

Of course, Western Switzerland's Health Valley faces the same regulatory and cost-effectiveness hurdles as its competitors. In her analysis of medical technology policies, Adriana Velazquez Berumen, the Coordinator for Diagnostic Imaging and Medical Devices at the World Health Organization in Geneva, suggests that academic and industrial actors can innovate not only to introduce disruptive technologies but also to adapt medtech to the heterogeneity of national markets – an opportunity now clearly identified in the Health Valley.

**FABRICE DELAYE**  
Editor of Technology by Bilan

**THE HEALTH VALLEY HAS REACHED A SIZE THAT ALLOWS IT TO ABSORB SHOCKS WITHOUT ADVERSE IMPACTS ON ITS GENERAL DYNAMIC**

# Integration and openness

Switzerland seems to be a country of opportunity that has managed to create an enviable position when it comes to competitiveness between countries and regions. That might just be a result of the country's openness and its talent for integration. Switzerland's history is a tale of successful integrations. During the 16th century, leading scholars – such as Paracelsus, Andreas Vesalius and Erasmus of Rotterdam – came to Basel to have their theses or essays printed, thus making the town an integral part of the Renaissance humanist movement and its scientific progress. Closer to our time, one of Switzerland's keys to success has been its capacity for innovation. Indeed, our higher education institutes attract first-class talent – both from Switzerland and abroad – in a globalised environment. Such openness is a valuable asset that can be measured by, among other things, Switzerland's degree of international competitiveness in the field of knowledge.

The expansion of our industry has been driven by generations of entrepreneurs who crossed the Swiss border. Among the most significant contributors were the Huguenots, who introduced us to the worlds of chemistry and watchmaking. Having fled France after the revocation of the Edict of Nantes in 1685, weavers and silk merchants turned Basel into the ribbon capital of Europe. The need for dyes encouraged the chemical industry to take root, leading later to diversification into fine chemicals and, finally, into pharmaceuticals. The history of watchmaking followed a similar arc.

Behind every great innovation there are human beings. Here, too, there are many examples of integration: Nestlé was founded by a chemist of German extraction, Henri Nestlé; Xavier Givaudan was French; and Charles Eugene Lancelot Brown, who had dual Swiss-British nationality, founded Brown, Boveri & Cie with the German-born Walter Boveri. On a more contemporary note, industrialists such as the Bertarelli and Mauvernay families settled in our country to create and develop their own businesses...and the story continues, constantly adding entrepreneurial dynamism to Switzerland.

As early as 1761, in the introduction of his famous Encyclopaedia, Denis Diderot wrote: "There are two ways of developing Science: one is to increase the mass of knowledge through discoveries; the other is to bring discoveries together, and organise them..." Bringing the mass of knowledge together is what began in the 18th century, and has become a necessity in the 21st. Take the life sciences, for example. One of the hallmarks of our region is that it

**INTERDISCIPLINARITY IS ONE OF THE BEST ASSETS WE HAVE FOR SUPPORTING OUR LEADING POSITION IN MANY INDUSTRIAL SECTORS**

can count on skills that go way beyond biology and medicine. Our expertise in micro- and nanotechnologies as well as in chemistry, computer science and communication is essential both to integrate knowledge and to develop novel therapeutic approaches.

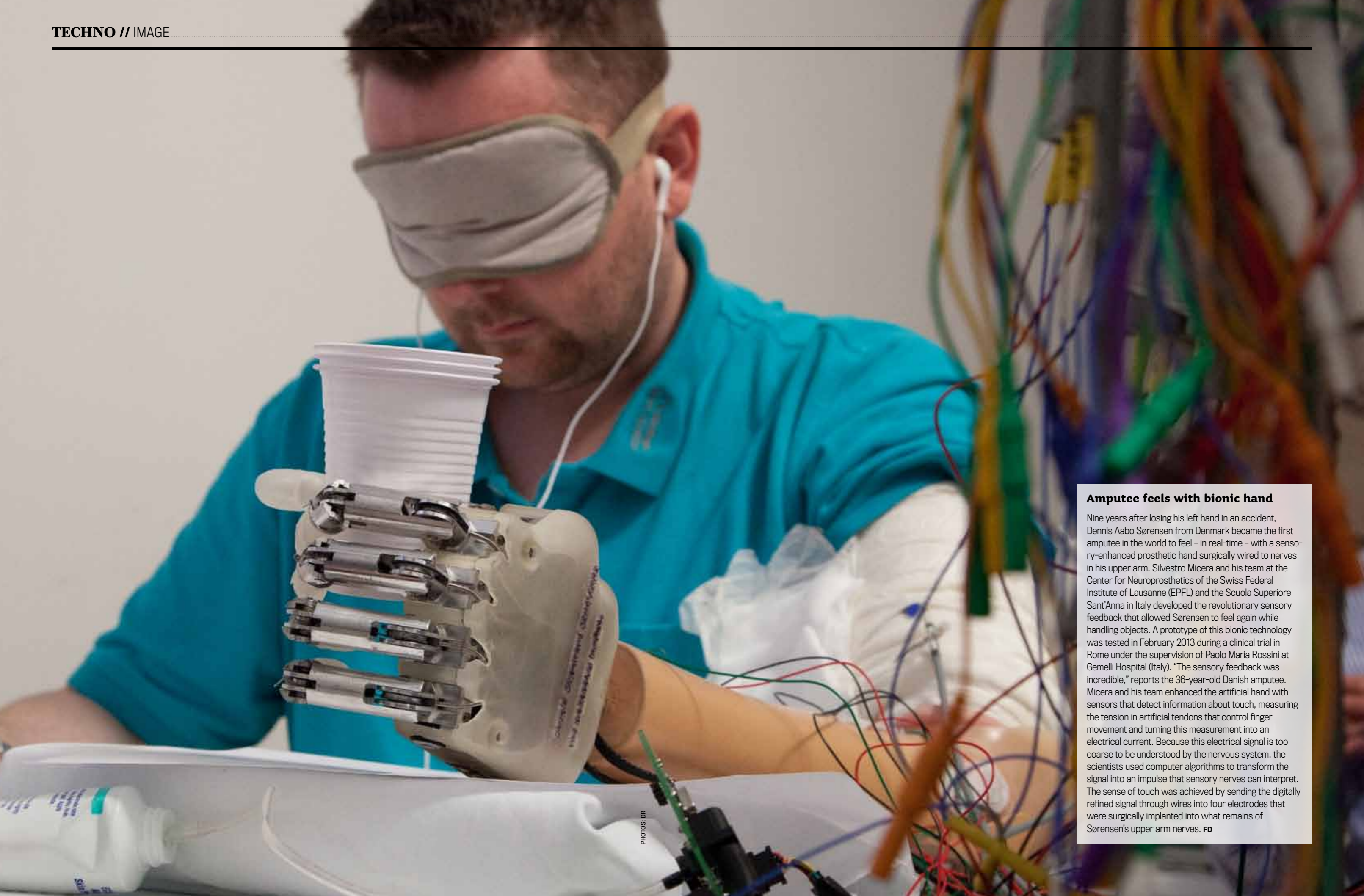
To the lay person, the interdisciplinary approach is not obvious, yet it is what drives change and opens new avenues. Interdisciplinarity is one of the best assets we have for supporting our leading position in many industrial sectors. The innovation process needs more than the classic environment that builds on an organisation's internal resources by way of its idea management systems for its collaborators, internal incubators or its R&D. Rather, such a process has to develop in parallel, reacting to the fact that the boundary between an organisation and its ecosystem tends to blur. The trend is towards openness – or open innovation – a process that consists of going to fetch the knowledge or even the resources outside the organisation and, in turn, providing resources and knowledge to the ecosystem.



Companies, universities and technology transfer organisations have all developed participatory ways of transferring knowledge. UniverCité, based in Renens, for instance, following the global DIYbio trend, is positioning itself at the interface between industrial design and life sciences. It will be offering almost 1000 square metres of open lab space and will be open to the public at large.

Without the ecosystem it has nurtured, neither Switzerland nor any of its industrial, academic and entrepreneurial actors could imagine surviving in an interconnected environment. Nor do they believe that they are the sole bearers of knowledge: knowledge is to be found everywhere, and collaboration and exchange enrich it continuously. Switzerland understood this long before anyone, by advocating integration and openness. And this is the spirit that nurtures not only BioAlps but also the actors of our community, whom you will discover in this issue.

**BENOIT DUBUIS**  
President of BioAlps



#### Amputee feels with bionic hand

Nine years after losing his left hand in an accident, Dennis Aabo Sørensen from Denmark became the first amputee in the world to feel – in real-time – with a sensory-enhanced prosthetic hand surgically wired to nerves in his upper arm. Silvestro Micera and his team at the Center for Neuroprosthetics of the Swiss Federal Institute of Lausanne (EPFL) and the Scuola Superiore Sant’Anna in Italy developed the revolutionary sensory feedback that allowed Sørensen to feel again while handling objects. A prototype of this bionic technology was tested in February 2013 during a clinical trial in Rome under the supervision of Paolo Maria Rossini at Gemelli Hospital (Italy). “The sensory feedback was incredible,” reports the 36-year-old Danish amputee. Micera and his team enhanced the artificial hand with sensors that detect information about touch, measuring the tension in artificial tendons that control finger movement and turning this measurement into an electrical current. Because this electrical signal is too coarse to be understood by the nervous system, the scientists used computer algorithms to transform the signal into an impulse that sensory nerves can interpret. The sense of touch was achieved by sending the digitally refined signal through wires into four electrodes that were surgically implanted into what remains of Sørensen’s upper arm nerves. **FD**

# Health Valley, a huge Swiss asset

Health Valley in Western Switzerland has no reason to be jealous of the Boston area, which has earned worldwide respect as the North American center of excellence for medical and pharmaceutical research. Indeed, Western Switzerland has a higher employment level per capita in life sciences, biotechnology, medical technology, and medicine than Boston.

Between Geneva and Viège - a region with a population of 2 million - the BioAlps cluster brings together 750 companies and over 25,000 employees, including

5,000 highly qualified scientists\*, working in life sciences. This compares favorably to the 56,000 employees\*\* in the same field in the Greater Boston Area, with its population of about 6 million.

The EPFL (Ecole Polytechnique Fédérale de Lausanne) has just attracted funding from the European Commission for its Human Brain Project, which will bring together over 1,000 researchers and contribute to the development of a new Campus Biotech in Geneva.

Tomorrow's drug will include a diagnostic test - which is another asset for Switzerland's Health Valley, whose numerous medtech companies benefit today from cutting-edge research in microtechnology and nanotechnology carried out by the Swiss watch industry.

Switzerland's Health Valley has all the conditions needed for its research and industry to thrive - with the exception of two essential aspects. The first one is a lack of public-private partnerships. Scientific discoveries financed by public funds should not stay on the shelf unnoticed: research has to find an application. In the US and UK, academia and industry have developed fruitful collaborations, partly due to their world leadership in pharmaceutical research and in the discovery of novel drugs.

People sometimes have the feeling that pharmaceutical research is mainly funded by the state. In fact, nearly 70% of the cost of R&D in all sectors was covered by industry in Switzerland in 2008.\*\*\* In 2014, industry funding in the pharmaceutical arena is expected to exceed 80%. With over 30% of

global industry expenditure, Switzerland's pharmaceutical industry is a heavyweight player in R&D.

Bringing new products and treatments arising from basic research to market saves lives. The pharmaceutical industry does not simply access academic researchers' work for free. If a product is successful, then the industry pays significant royalties to universities and their scientists. The creation of new employment linked to this also contributes to the economy.

The Swiss pharmaceutical industry provides highly skilled jobs with a higher value added than those of other sectors. In 2012, a pharmaceutical worker's productivity in Switzerland reached 277 Swiss francs per working hour, twice as much as in financial services (114 francs), and three times more than the Swiss average in all sectors (72 francs).\*\*\*\*

The second condition needed to increase the dynamism of Health Valley is to create a center of competence that can attract and keep both the headquarters and the operational activities of large pharmaceutical companies. To ensure the long-term presence of companies, these two aspects have to go hand in hand - which unfortunately is not always the case.

A close-knit, high-level professional cluster with a talented employment pool and leading companies fosters interaction between the players. But fiscal factors alone are not enough to encourage companies into a long-term commitment to the region. The aim should be to bring together decision-making and operational centers in the same place. Western Switzerland could also further integrate multinational employees by encouraging them to settle permanently and create local ties. Such an approach would probably prevent companies closing or moving their headquarters, which can weaken the region and hinder its development potential. Indeed, without a strong public-private partnership and without the creation of an attractive center of competence for big pharma, the development of Health Valley could be slowed down. Let's bring down these barriers to boost its development.

**THE PRIVATE-SECTOR  
INDUSTRY COVERED  
ALMOST 70% OF THE  
COST OF RESEARCH  
AND DEVELOPMENT  
IN SWITZERLAND IN 2008**

Sources:

\*BioAlps

\*\*US Bureau of Labor Statistics, QCEW, Massbio

\*\*\*The Swiss Federal Statistical Office

\*\*\*\*Interpharma

THIERRY MAUVERNAY

Delegate of the Board, Debiopharm Group



Wyss and Bertarelli Foundations, the University of Geneva and the École Polytechnique Fédérale de Lausanne (EPFL) decided to buy the complex, with the mildly mad idea of developing the odd 58,000 square metres at their disposal into a new cluster dedicated to neural and bioengineering. Goodbye Merck Serono. Hello Campus Biotech.

Could Campus Biotech have imagined a finer crown for the jewel it wished to become? "Usually, when you start a project, you begin with the content and then you look for a place to locate it. With Campus Biotech, the exact opposite occurred. We had to imagine how to occupy a huge space", remembers Benoît Dubuis, the project's Operations Director. Dubuis, who is also President of BioAlps and Director of the life sciences incubator Ecllosion, admits that everything is still left to play for. "Our key advantage is that we adopted a cluster dynamic from the very start, seeing to integrate financial, scientific and academic partners."

## Translational medicine

Such a vision is at the heart of the Campus Biotech model, with its three objectives. First, to promote breakthrough innovation by inviting research groups in fields for which the Lake Geneva Region presents both specific needs and strong skills. Also, to concentrate on institutional collaborations, not only with universities but also with hospitals - the Geneva Hospitals, in particular - and industry. And finally, to focus on translational aspects with an eye to the emergence of products and therapies. By providing shared infrastructure, researchers who are offered accommodation are urged to collaborate with teams in different scientific fields, using platforms formed around specific themes, such as neuroprosthetics, animal research or computational research.

Because of its particular layout, the Sécheron site is ideal for such collaboration. During the Merck Serono years, almost 80% of the available space was shared. Open floors were linked by glazed passageways and passages between the different buildings also encouraged mobility. Though many interior conversions were necessary, the philosophy has remained the same. "For any research carried out in bioengineering for example, human, animal and computational research are indeed

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## The Russian Doll of Innovation

When Merck Serono left Geneva, Campus Biotech developed a new cluster model on the Sécheron site, bringing together academic, hospital and industrial partners. **BY PASCAL VERMOT**

From the outside, nothing seems to have changed in Sécheron. The site continues to be one of modern edifices with large glass-fronted façades, and three red-bricked buildings that are reminders of Geneva's 19th-century industrial flagship. Visitors enter the complex by way of an atrium whose interior boundaries seem to touch the sky, so huge that the human eye has trouble focusing on anything. Long before its fusion with Merck, the Geneva-based Serono would

have appreciated this architectural contrast as an illustration of the company's glorious pharmacological heritage and what would be its outstanding future performance in the field of biotechnology.

When the pharmaceutical group announced the site's closure in April 2012, it left it devoid of occupants and purpose but not for long. Within a year, a consortium formed by Hansjörg Wyss, the

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based in different buildings but are all on the same floor. As a result, moving from one zone to another is very easy and fast," explains Benoît Dubuis.

That said, the distribution of premises still has to ensure that the precise location of each research group guarantees key synergies. If you want to develop high-performance neuroprosthetics for instance, then neurobiologists, microtechnology engineers and specialists in rehabilitation medicine have to be able to communicate and work together if the best solution for patients is to be found. And, somewhere downstream, an industrial component will be necessary to commercialise the finished product. That should not be a problem since one part of the campus has already been planned to accommodate future partners, who will be housed in buildings that still need to be built.

Campus Biotech is like a gigantic Russian doll into which the different components fit and complement one

another. In November 2013, Campus Biotech accommodated its first residents – some sixty researchers from the Centre interfacultaire en sciences affectives (CISA) of the University of Geneva. The University of Geneva and the EPFL will eventually occupy the best part of 15,000 square metres of the site, half of which is reserved for the Wyss Centre for bio- and neuro-engineering. The remaining space is intended for enterprises – either start-ups, or large industrial and commercial companies.

Thanks to its underground infrastructure, either already built or planned, the site allows for the rapid setup of new installations. "The development of the campus will occur in different phases. For the time being, we are still in the first phase. 40,000 square metres are still available in the north wing. Potentially, the whole south wing could still host new constructions. Likewise, the old Sécheron hall could be used for industrial purposes," says Dubuis.

### Merck Serono spin-offs flying solo

**MOT CLE** The "Entrepreneur Partnership Program" (EPP) set up by Merck Serono as compensation for closing down the Sécheron site has led to a total of seven spin-offs, which represent 50 jobs created. Three of the spin-offs are pure biotechs, and develop therapeutic molecules: Calypso Biotech (intestinal autoimmune diseases), Prexton Therapeutics (Parkinson's disease) and Asceneuron (Alzheimer's disease and neurodegenerative diseases linked to the build-up of tau protein in the brain tauopathies). Quartz Bio offers bioinformatics services for analysing biomarkers. Esparare is a non-profit foundation that repositions existing molecules in the treatment of rare and orphan diseases. Finally, TQM Insight and Ondaco are companies that specialise in computer services. Though each of these companies received support from Merck Serono, either by funding, a transfer of intellectual ownership or the guarantee of business volume during the first months of operation, they have all gained independence from their parent company and now live off the revenue generated from their own customers.

As a whole, the project is founded in academia. Led by both the University of Geneva and the EPFL, it is supported by a strategic steering committee – which discusses the scientific issues, essentially – and an operational steering committee. Each of these two organisms is represented in equal parts by each university. As for the rest, the Wyss and Bertarelli Foundations preside mainly over the site's destiny; they own the ground and the buildings, and rent out the space to Campus Biotech Geneva. Campus Biotech then allocates the premises to researchers who remain attached to their respective academic institutions.

Though Campus Biotech has been inspired by a model that already exists in a collaboration between the Wyss Foundation and Harvard University, it does benefit from its ecosystem. "Campus Biotech is both a location and a brand. Under this label, our aim is to bring together not only players on the health scene and the life sciences but also any given entity which is able to sustain the Lake Geneva Region dynamics in these fields," underlines Benoît Dubuis. As an

## ObsEva targets preterm birth prevention

ObsEva has raised CHF 32 million to develop two molecules that minimise the risks of premature delivery. **BY LEILA UEBERSCHLAG**

**P**remature delivery, the leading cause of neonatal death, increases the risk of illness and can lead to severe neurological and lung damage as well as digestive problems. But there are only two treatments to prevent it – and they are very controversial and can be administered only for two days. "It's a serious issue, especially if the woman has only reached the sixth month of her pregnancy," explains Dr Ernest Loumaye, a gynaecology specialist and cofounder of ObsEva. "These treatments have been withdrawn from the American market. It means that the U.S. has no approved suitable drug on its market."

Preterm birth rates have been rising steadily over the past 20 years, to reach 8% in Europe and 12% in the United



States. "Women continue to work during pregnancy which causes both physical and psychological stress. They usually have their children 10 years later," says Ernest Loumaye. Premature deliveries also create significant costs. "In the

United States alone they are valued at some USD 27 billion a year," says Ernest Loumaye. The need is real, and ObsEva intends to provide solutions. Launched in Geneva in 2012, the start-up has recently raised CHF 32 million from venture-capital funds including Sofinnova and Nova A/S to further develop drug candidates. These molecules are long lasting and to be taken orally – two advantages over existing drugs, which are injected intravenously or subcutaneously and may not be taken for a period exceeding 48 hours. A first treatment is being tested in Phase I, on healthy women, and a second one is already in Phase II trials, on pregnant patients with increased risks of premature birth. "The funds we recently raised will allow us to finance our research spending until mid-2016. By then, the trial results will be available and if the drug now in Phase II proves to be effective and well tolerated, we will be able to progress into Phase III trials prior to receive market approval," Loumaye says. Meanwhile, the start-up fourteen researchers are assessing new molecules for to treat problems related to human reproduction such as endometriosis or sterility.

## SAV-IOL's life without glasses

In Neuchâtel, intraocular lens manufacturer SAV-IOL is moving into larger premises and recruiting a new staff member every week. **BY LEILA UEBERSCHLAG**

**D**r Robert Apter, founder and CEO of SAV-IOL (Swiss Advanced Vision - Intraocular Lens) designed an intraocular multifocal lens used in cataract surgery. "This lens allows you to adjust focus to near-, far- and mid-range vision," he explains. That is a major breakthrough in ophthalmology, where the existing products can only give patients either near- or near- and far-range vision. This revolutionary innovation has not gone unnoticed in what is the biggest



SAV-IOL lenses adjust focus to near and far vision.

market for prosthesis. "All elderly people suffer from cataract, and 25 million lenses are implanted each year," says Robert Apter. So SAV-IOL is now competing with the giants in eye care like Alcon, a Novartis subsidiary, and Abbot Medical Optics. Despite fierce competition and a rather low penetration rate, the outlook for the 5-year-old company is promising.

### Heading to the US

"We sold 1,000 lenses in 2013 and expect to sell between 5,000 and 10,000 in 2014," says Robert Apter. "We need to be bold and ambitious but as a young com-

pany we should be also modest." Apart from selling in Switzerland, SAV-IOL is exporting its lenses to Russia. "We are in touch with several European retailers. Until now, sales have been made through word of mouth alone."

What next? Tap into the U.S. market in 2015. To achieve that, SAV-IOL needs around CHF 5 million. "The FDA [Food and Drug Administration] has a specific regulation: very expensive test protocols in the U.S. are mandatory. If everything is going according to plan, we will be able to pay for those costs with the proceeds of our sales," says Robert Apter.

PHOTOS: DR

## Endosense taken over by St. Jude Medical

In August 2013, St. Jude Medical purchased Geneva-based Endosense for CHF 309 million. A year later, the prospects of the new Swiss affiliate look promising. **BY LEILA UEBERSCHLAG**

In August 2013 the American giant St. Jude Medical, a world leader in rhythm management, atrial fibrillation, cardiovascular diseases and neuromodulation, took over the Swiss-based company Endosense, now known as St. Jude Medical GVA. "We are now fully integrated in St. Jude and are providing expertise in several of their projects; we are no longer limited to our own products," General Manager François Salmon explains. He says that apart from these new research opportunities, almost nothing has changed in Meyrin, Geneva, for the group of about 40 employees, who all kept their jobs.

### Contact-force measurement

In 2009, Endosense launched a revolutionary cardiovascular treatment device that attracted a great deal of attention from specialists. "This force-sensing radiofrequency catheter, called TactiCath, treats cardiac arrhythmias. It is equipped with a pressure sensor able to give surgeons real-time measurements of the force they apply to the heart wall throughout a procedure," says François Salmon. The device minimises the risks of perforation, which could lead to serious procedure-related complications and possibly to a second or a third surgery. That has the potential to improve safety and efficacy as well as allow shorter procedures.

"TactiCath is probably the best available technology in the field, and that explains St. Jude's interest in Endosense in the first place; it was a strategic choice," François Salmon says. Being part of the American group also brings many opportunities to the Swiss company, which was founded in 2003 by a cardiologist together with two engineers. "We now have access to significant tech expertise. By becoming St. Jude Medical GVA, we may reach a market-leading position," he says. "Furthermore, it gives us access to a very efficient mapping system that allows a virtual reconstruc-

tion of the inside of the heart chamber." Currently, only three are available. "The one from St. Jude is very well established. It is competing with one from Johnson & Johnson and a second one fresh on the market."

The cardiovascular treatment device developed by Endosense is already used in Europe, Australia and Canada. It is currently undergoing regulatory approval in the United States. St. Jude has already paid CHF 159 million to Endosense's shareholders. The remainder of the CHF 309 million will be due as soon as the device is approved and marketed in the United States.



François Salmon is General Manager of St. Jude Medical GVA.



## 3 QUESTIONS À

Jacques Essinger  
Co-founder and CEO of Symetis  
**BY FABRICE DELAYE**

Founded in Lausanne in 2006 Symetis develops and commercialises transcatheter aortic valve implantation (TAVI) systems. Its first product, the self-expanding, self-seating and self-sealing ACURATE TA valve has a unique design that is gaining momentum among surgeons thanks to its ease of use features. It is about to commercialise a new transfemoral system, ACURATE TF, based on comparable design and ease of use concepts.

### How does a small company compete against formidable giants such as Medtronic or Edwards?

With 80 people in Lausanne and about 100 in Brazil for manufacturing, it is true we are the David against the Goliath. But we are on a growing market with innovative products that offer strong differentiation. Therefore size is less important than clinical based evidences. Our very positive clinical performance is our best marketing. Add to that no compromise for top quality products and you'll explain our fast growth.

### How fast?

Last year we have doubled our sales to CHF 16 million and everything indicate we are on a durable fast growth track. As a whole, our market is growing 10%/year. Because we are in Europe and have expand in some other geography but not yet in the US, we have a lot of potential to exploit for our first product and more for our second product that will be launched later this year.

### There have been rumours of a coming IPO of Symetis. What about it?

For the moment, we are well financed but it is true we are looking toward every options to secure the growth of the company. The IPO is one among others.

PHOTOS: DR



One of five pacemakers is manufactured in the Lake Geneva region.

## Medtronic: a bigger site for smaller devices

Located in Tolochenaz since 1996, the world leader for medical device technology has progressively developed its Vaud site. In March this year, the number of devices manufactured on Medtronic's site crossed the five million threshold. **BY MATTHIEU HOFFSTETTER**

If someone is carrying a pacemaker today, there is one chance in five that the device was manufactured in the Lake Geneva region. Medtronic is world leader in its sector, and the Tolochenaz site is a reference point for this type of equipment. "We have begun a process to ensure that Tolochenaz is recognised as a centre for excellence in the field of cardiac stimulation devices. The production lines developed here have been used as models for other production sites all over the world, in Singapore and Puerto Rico," explains Rob ten Hoedt, President of Medtronic International for Europe, Asia, Africa and Canada.

With almost 800 staff on the Vaud site (and 1,200 in total in Switzerland), Medtronic hopes to build upon skills developed over the past years to reinforce its position as world leader. And just two of its devices could revolutionise the sector: Linq and Micra. Linq is a small

device that is placed just under the skin of a person suffering from abnormal heart rhythms, and sends signals via a smartphone either to the patient or a medical service. Besides saving a patient from having to carry an inconvenient monitor, the device no longer requires surgery and can be implanted by a nurse in three minutes.

### The smallest pacemaker

Micra, the smallest pacemaker in the world, is just as innovative. The size of a revolver's cartridge, this pacemaker can be implanted directly in a patient's heart through the femoral vein. Until recently, pacemakers were bulky devices that were grafted at shoulder level and linked to the heart by a probe. "With Micra, procedures are less invasive and in the event of an emergency, reactions are faster," argues Katja Kreuzer,

**400 000 DEVICES  
A YEAR ARE PRODUCED  
BY MEDTRONIC  
MANUFACTURE  
IN SWITZERLAND.**

senior business director at Medtronic. Tests have reached their final phase for Linq and Micro, and both devices could be introduced onto the market by 2015, embodying two strategic goals for Medtronic: "Miniaturisation and connectivity are key players in the company's future," says Rob ten Hoedt. "On the one hand, miniaturisation is an essential factor if our wish is to reach procedures and treatments that are less invasive, and can be combined with drug therapies. Connectivity, on the other hand, paves the way to the era of telemedicine, with refined personalised treatments".

These two novel devices will emerge from the Vaud production lines, just as five million others have done since 1996. Currently, 400,000 devices a year are assembled in Tolochenaz, and then sent all over the world via 11 different distribution channels. In earlier years, the organisation of production was revised to be more effective. As a result, while in 2004 it took 20 days to manufacture one device, today, on an average, it only takes nine.

"These increasingly effective production lines are steered by two teams five days a week, while other teams do three eight-hour shifts to meet strong demand: our site has acquired a key role within Medtronic's global network," concludes Patrick Rosset, director of Swiss Medtronic Operation (SMO) in Tolochenaz.

PHOTOS: DR

# Cyberhealth, a new El Dorado for Western Switzerland

After biotechnology and the neurosciences, health is becoming an area of expertise in which universities and schools of higher education are positioning themselves, creating an ecosystem which is favourable for spawning start-ups. **BY PASCAL VERMOT**

According to the results of a survey carried out in February this year by the research institute GFS Berne, on behalf of InfoSocietyDays, “cyberhealth” means nothing whatsoever to 81% of the Swiss population. Yet three years ago, the federal authorities designated the field as a priority, a move emphasised by the approval of a report entitled “Santé 2020”. Although the public authorities, like health professionals, are concentrating mainly on electronic patient records and vaccinations – two notions that will not be spreading throughout Switzerland before 2016, at best – cyberhealth has become a real scientific and economic challenge for Western Switzerland.

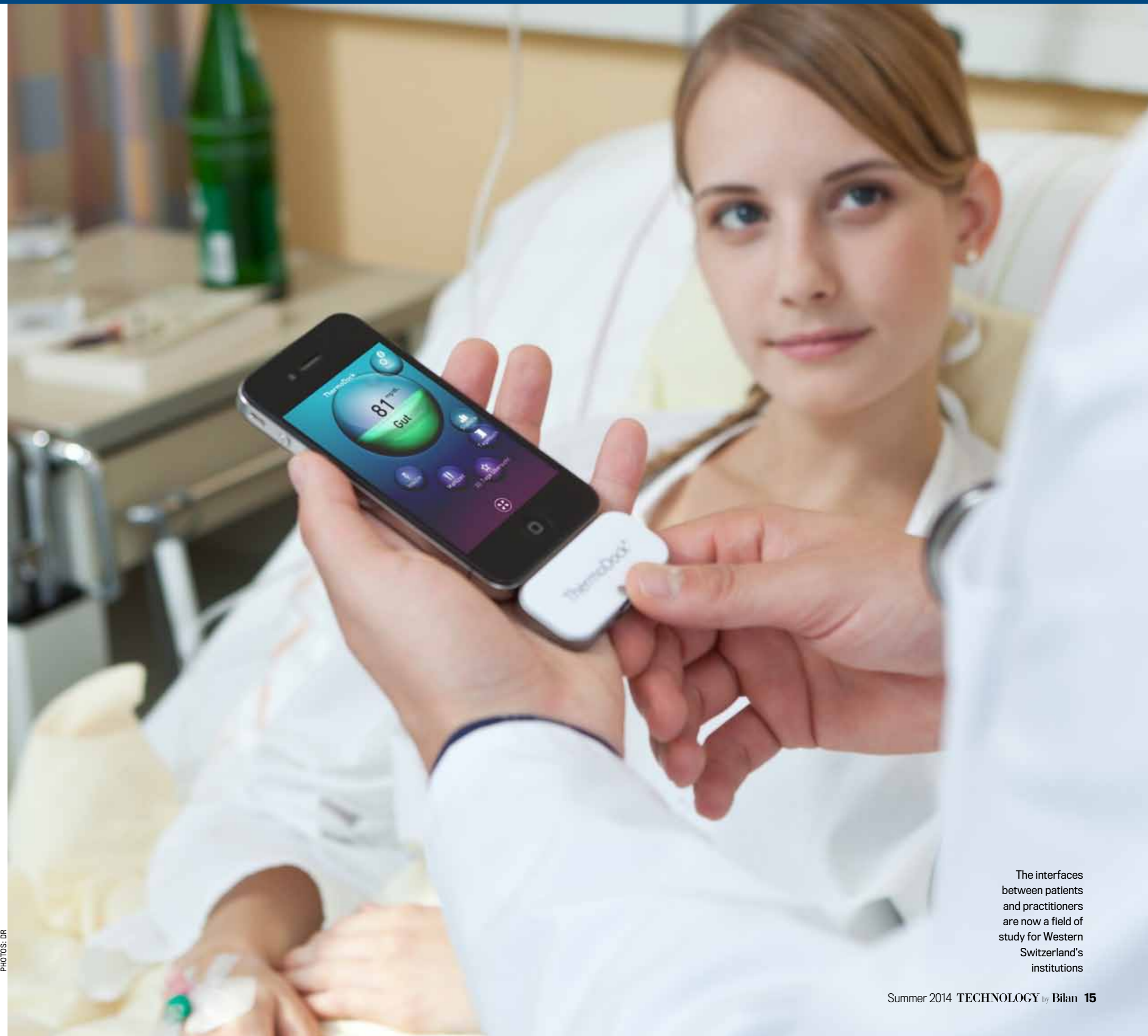
## A scientific and economic challenge

A pioneer in the field, the University of Applied Sciences (HES) of the Valais had already paved the way about seven years ago. At the time, Professor Henning Müller decided to transfer MedGIFT –

a group created at the Faculty of Medicine of the University of Geneva – to the Institute of Information Systems of the HES-SO in Valais. Henning Müller joined another professor, Michael Ignaz Schumacher, who came from the Laboratory of Artificial Intelligence at EPFL, the Swiss Federal Institute of Technology in Lausanne. Two years later, Professor Schumacher created the Applied Intelligent Systems Lab (AISLab). Together, the two professors have brought many cyberhealth projects into being, notably an “e-health” unit within the Institute of Information Systems.

“Henning is a pure medical computer scientist. As full professor at the University of Geneva, he is an expert in extracting and interpreting data, two disciplines of great significance today with the arrival of cloud computing and big data. As far as I’m concerned, the health field has always been of great interest. And today, 90% of my projects deal with this issue,” reveals Michael Ignaz Schumacher. Almost thirty people now work on cyberhealth at the University of Applied Sciences in the Valais.

PHOTOS: DR



The interfaces between patients and practitioners are now a field of study for Western Switzerland's institutions



G-Demande is a good example of a company rooted in information technology that leads to medical applications, launching an Android application in 2010 as part of the national Nano-Tera initiative. The app consists of an expert system that can warn medical teams when the blood glucose level of a woman with gestational diabetes – a particular resistance to insulin that occurs during pregnancy – exceeds the critical threshold. “With this application, the patient enters data about her own blood glucose level and the medication she is taking. The data is then stored on a server and the alarm is triggered the moment the situation becomes problematic,” explains the researcher. Last year, the application was tested by about ten patients in the CHUV (Centre Hospitalier Universitaire Vaudois), and the medical follow-up results were very conclusive.

Research led in the Valais’ University of Applied Sciences is inherently directed towards application, and the school is encouraged to work with industrial and academic partners, especially hospitals. Professor Schumacher’s team has been collaborating with EPFL, the HEIG-VD (Haute Ecole d’Ingénierie et de Gestion du Canton de Vaud) and the CHUV to develop a device about the size of a printer that can analyse the concentration of medication in the metabolism of people with serious illnesses such as cancer or AIDS. With only one drop of blood, and the prior knowledge of the patient’s medical history and biological parameters (such as age and weight), the device should be able to calculate the best dosage for prescription, taking into account the patient’s current health. Software linked to a remote databank will catalogue each patient’s historical data. The system will initially act as a diagnostic tool but will progressively become a predictive tool, which should allow the dosage to be fine-tuned.

In diabetes, the School of Applied Sciences has integrated the European project Commodity12 with the CHUV, to develop a computerised system to follow

up patients with diabetes types I and II. Using different Bluetooth sensors to monitor a patient’s physiological parameters, this solution will look out for symptoms associated with the illness, such as cardiac arrhythmia, hypoglycaemia or sleep apnoea. Professor Schumacher’s team has particular responsibility for interoperability between the various technologies that will be used, as well as for the expert system that establishes the patients’ health check.

**From diagnostics to data storage**

Diagnostics, personalised medicine, remote data storage... The interfaces between patients and practitioners are now a field of study for Western Switzerland’s institutions. “Cyberhealth demands perfect management information between the different players in the health system. Patients want to know what their precise state of health is, and as quickly as possible. As for the physician, he or she needs a level of information that is more and more refined to be able to look after patients,” says Sébastien Mabillard, who is in charge of e-health projects at the Ark Foundation in Sion. The Ark Foundation has helped numerous active e-health start-ups to blossom. Logival is one such company, and in 2007 was among the first to launch an application for electronic patient records for physicians in private practice.

Start-ups specialising in cyberhealth (e-health) and its mobile variant (m-health) have been sprouting everywhere in Western Switzerland, and particularly in three zones: the Lake Geneva and Neuchâtel regions, and in the Valais on the Monthey-Sion-Sierre axis. None of this happened by accident: three important academic research centres active in information technology and medtech are also located in there.

In the Lake Geneva region, the EPFL and the University Hospitals of Geneva and Lausanne are driving innovation in the field. At the foot of

the Jura, the development of the Swiss Centre for Electronics and Microtechnology (CSEM) and the science park Neode, as well as the establishment of EPFL’s Institute of Microtechnology (IMT) in the Neuchâtel region – consolidated by the recent inauguration of the Microcity building – have also contributed to helping laboratory-led research find a marketable application.

The proximity of the IMT and, hence, of Professor Nico de Rooij, led the One Drop Diagnostics start-up settled on the Neode site. Based on a doctoral graduate from EPFL, the Neuchâtel-based firm is developing a portable device to detect biomarkers – in particular proteins – specific to certain pathologies, such as cardiac arrests, infections or allergies, and all from a single drop of blood placed on a microfluidic chip. The firm will be carrying out clinical trials in 2015 and hopes to enter the market the following year, with a licence approved by the European health authorities. One Drop Diagnostics has close bonds with the Geneva’s University Hospital and, as a result, has direct access to a panel of physicians and patients.

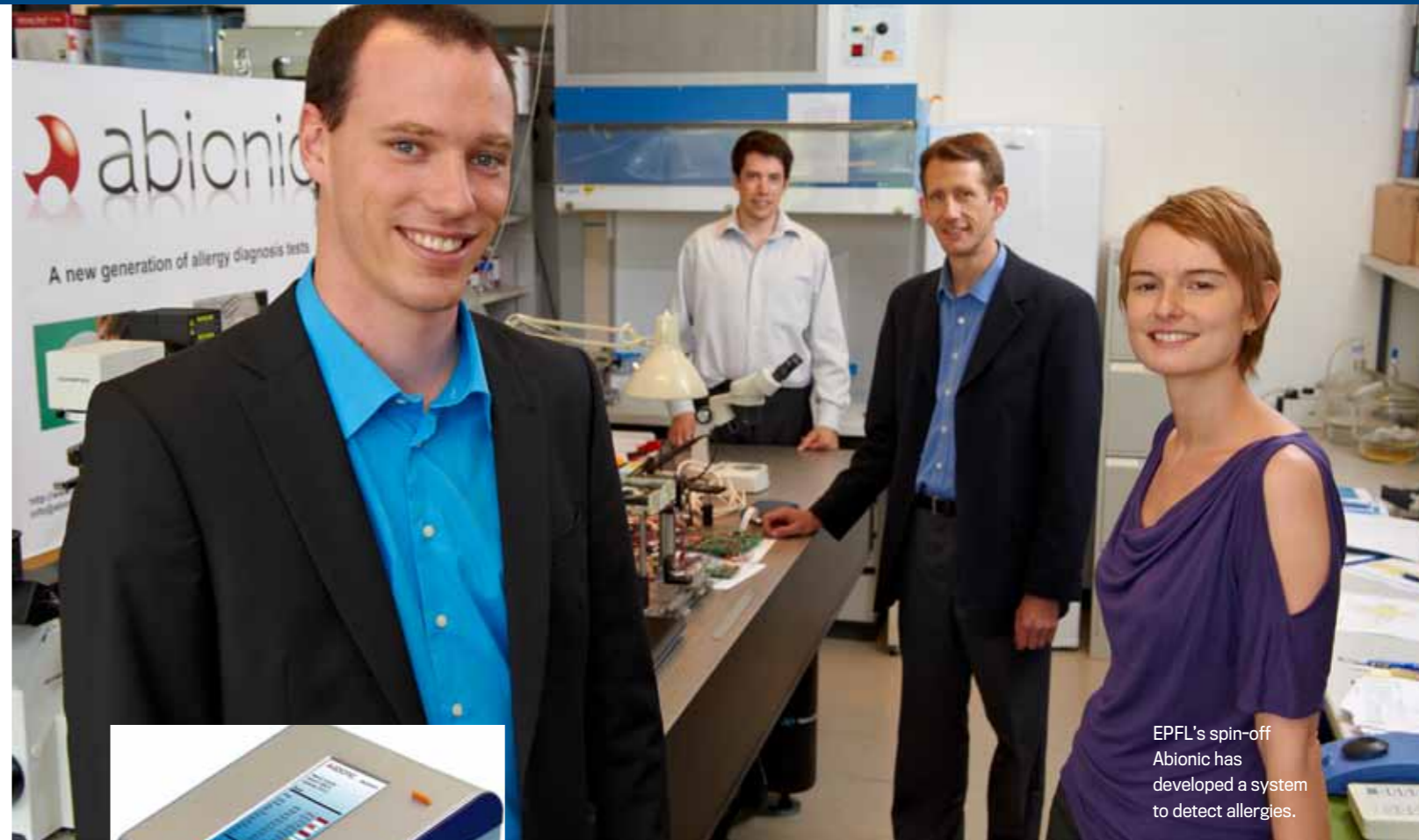
**Quintessential medtech**

This is quintessential medtech, and this kind of product is a response to a very strong e-health trend. “Until very recently, diagnostics tools were exclusive to analytical laboratories. Now, with the development of both compact and affordable devices that can guarantee high-level performance, practitioners and pharmacists have the technology they need to take charge of this step in a patient’s medical care,” says Luc Gervais, founder and CEO at One Drop

Diagnostics. The system is designed to transmit the results directly to the doctor, or even to the patient, on their smartphone for example.

Diagnostics is indeed becoming the speciality of young enterprises in Western Switzerland that are determi-

**CYBERHEALTH  
DEMANDS PERFECT  
MANAGEMENT  
INFORMATION BETWEEN  
THE DIFFERENT PLAYERS  
IN THE HEALTH SYSTEM**



EPFL’s spin-off Abionic has developed a system to detect allergies.



Abionic system involves an optical reader similar to those used in CDs.

ned to turn the physician-patient relationship around. Before even targeting the end user directly, these start-ups intend to place their technology in the hands of professionals.

This is Abionic’s challenge, an EPFL spin-off that has developed a system for detecting allergies. The system involves a device based on an optical reader, similar to those used for CDs and DVDs, and disks formatted with biosensors specific to certain types of allergen. “A doctor’s appointment is not a health stroll,” stresses Nicolas Durand, founder and executive director of Abionic. When they leave their doctor, patients want to know what they have, especially if the diagno-

sis can be established within minutes. Nowadays, there is no longer any sense in completely outsourcing the analysis of medical results and leaving doctors as frustrated as mechanics who have been given bolts for which they doesn’t have the right screwdriver.

The young firm Qloudlab has chosen a more radical line of attack by superimposing biofilm onto the tactile screens of today’s commonly used smartphones. There, too, only one drop of blood, drawn by the patients themselves and applied to the biofilm, yields data that is sent to the person in charge of its analysis. The development of such technology, which Qloudlab intends to pre-industrialise towards the end of 2015, means close collaboration with research teams, among them Professor Philippe Renaud’s from EPFL.

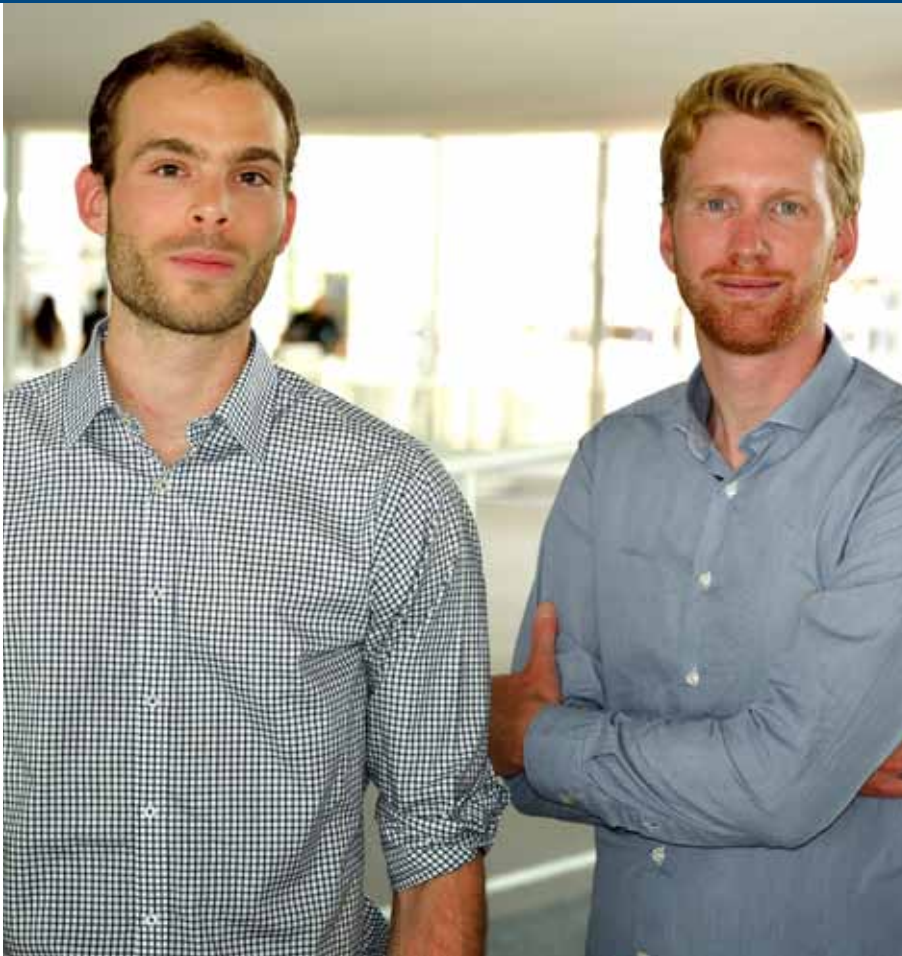
**State-of-the-art infrastructures**

“Developing technology such as ours needs a lot of state-of-the-art infrastructure,” points out Arthur Queval, Qloudlab’s founder. He admits to subscribing to the trend for transforming smart-

phones into interfaces for collecting and sending data, such as measuring glucose and cholesterol levels, even if the phone is not a medical device per se. “We are trying to narrow down the frontier between applications that capture simple biological data, like measuring your heart rate for instance, and the more complex applications that are entering the medical field. The problem is that the organisations in charge of health licences, both in Europe and the United States, are slow when it comes to accepting novel diagnostics solutions.”

“Cyberhealth really made its appearance in the application field about three to four years ago, both in mobile phones and the medical environment,” stresses Sébastien Mabillard at the Ark Foundation. For some companies, sports applications have become an easier entry point to the cyberhealth market. This is because wellness solutions are not necessarily subject to licence constraints, while it takes a medical device at least three to four years to obtain the precious document it needs to go onto the market.

This is how SensorCore, a start-up now



Qloudlab's founders  
Maxime Etori  
(CTO), left and  
Arthur Queval (CEO)



Thanks to its biofilm Qloudlab turns smartphones' screens into blood analytic devices.

located in Zurich, made its mark in sports monitoring. Based on two 17 gramme sensors that can be directly integrated into clothes, the technology is designed to measure continuously the heart and respiratory rate, or even the body temperature, of both confirmed athletes and beginners. This solution arose from research led in laboratories of the Swiss Centre for Electronics and Microtechnology (CSEM) in Neuchâtel. It was initially conceived to measure the vital parameters of astronauts for the European Space Agency in the event of colonising planet Mars.

It has not taken long for mobile phone manufacturers to see that there is a market within their reach. Apple has announced that its next iOS, or mobile operating system, will include Healthbook, an app for tracking health and fitness data. During its World Mobile Congress last February, Samsung presented the Galaxy S5 smartphone, with an integrated sensor for measuring heart rate. And the

plethora of watches and wrist-band contacts that continuously monitor biological signals goes to show how small the barrier between wellbeing and medical applications is becoming.

**The quantified self's momentum**

Dedicated applications are pouring onto personal electronic devices. Pedometers, heart rate monitor watches, pulsometers... The giants of leisure electronics are leading the way. A huge survey on mobile health was launched last April by the European Commission. According to the study, about 100,000 apps that individuals can use to monitor their health are already available via iTunes, Google Play and the download platforms for Windows Phones and Blackberry. The most popular

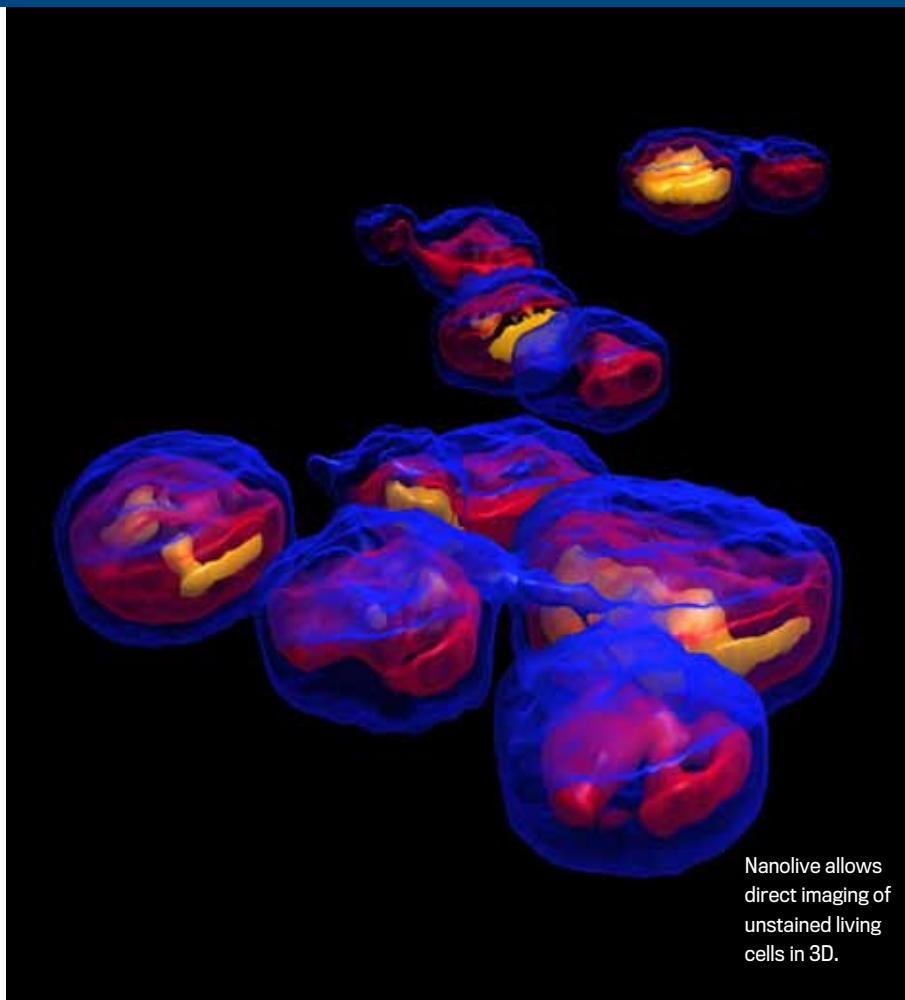
twenty sports applications for fitness and health have notched up more than 200 million downloads worldwide.

“By 2017, 3.4 billion people in the world will own a smartphone and half of them will be using mobile phone health apps. This means that expen-

sive visits to the hospital will be avoided, and citizens will be able to take care of their own health and wellbeing; the palliative approach will progressively replace the curative approach,” explains Neelie Kroes, vice-president of the Commission and in charge of the digital agenda. Neelie Kroes says that she herself is “a huge supporter of mobile healthcare, as shown by the electronic wrist-band I wear to measure my daily physical activity level”.

This window of opportunity did not go unnoticed by CSEM. After having collaborated with the Swiss firm Limmex in 2011 on a watch-mounted alarm system, the Neuchâtel-based research centre has just announced a partnership with PulseOn, a Nokia group spin-off, to develop a wrist-band for monitoring a person's heart rate “while training or not”, using a wireless connection to iOS and Android mobile apps. “By launching this, we are showing that Switzerland has all it needs to play an important role on this emerging market,” adds Jens Krauss, vice-president of CSEM and in charge of the systems division. A word to the wise...

**BY 2017, 3.4 BILLION PEOPLE IN THE WORLD WILL OWN A SMARTPHONE, HALF OF THEM WILL BE USING M-HEALTH APPS**



Nanolive allows direct imaging of unstained living cells in 3D.

## Enabling stem cell therapies

In the innovation Park of the Swiss Federal Institute of Technology in Lausanne (EPFL) start-ups are building the tools to make stem cell therapies a reality. **BY FABRICE DELAYE**

**B**ecause of their unique regenerative capacity, stem cells have generated worldwide enthusiasm as a new tool for biomedical research and therapeutic applications. On the one hand, they play a critical role in the understanding of the molecular mechanisms regulating tissue development and regeneration, opening up possibilities to develop new drugs. On the other, they may allow the engineering of functional tissues for replacement therapies.

Since the 1960s, the discovery of haematopoietic and stromal stem cells in the bone marrow, various adult stem cells

have been harvested and re-implanted (in the same patient). But adult stem cells have also a limited potential for proliferation and may progressively lose their functionality. That limits their use for research and clinical applications. The discovery in 1998 of human embryonic stem cells and their potential for unlimited proliferation and specialisation has given hope that the disadvantages of adult stem cells might be circumvented. This has triggered worldwide research efforts to develop a second generation of cell therapies

and cell-based drug development. However, it has proved difficult to control how stem cells specialise, while the risks of tumour development have limited the hopes of transplanting tissues derived from embryonic stem cells.

This emerging and promising field of research needs new tools. And those are exactly what some western Switzerland SMEs and start-ups have recently developed. A pioneer in cell therapy at Harvard Medical School, where he participated in the world's first transplants of epidermal stem cells in the early 1980s, and now the head of the Stem Cell Dynamics Laboratory at both EPFL and Lausanne's University Hospital, Professor Yann Barrandon co-founded Gymetrics in 2011 to solve problems he was facing. "In our labs there is a need to control and monitor stem cell culture. And with the development of new cell therapies the regulator will also ask for more and more information about and traceability of cell cultures."

### Non-invasive culture control

Within 24 months the company has been able to work up its first product, thanks to engineering development driven by biological requirements. It has developed a wireless, battery-less temperature and pH sensor for cell culture measurement that can be used in shaker flasks, Petri dishes or bioreactors (environments where cells grow). Named cytOSens, this system eliminates the need for calibration. It communicates data on a continuous basis from the incubator or bioreactor to a smartphone, tablet or PC.

But the key feature of this system lies elsewhere. "Not only does cytOSens respect culture protocols but it preserves

cells by reducing the need for disturbance to measure the environment," explains Eric Meurville, co-founder of Gymetrics and head of the R&D team. "For example, the system is single-use, calibrated and sterilized, therefore ready to use."

**WITH THE DEVELOPMENT OF NEW CELL THERAPIES THE REGULATOR WILL ASK FOR MORE TRACEABILITY OF CELL CULTURES**



Prof. Yann Barrandon  
head of the Stem Cell  
Dynamics Laboratory.

scans of cells in real time. It performs a continuous rotational scan around the sample, and displays quasi instantaneously the cell in 3D and in colors on any device. Moreover, users will be able to share their results and images through Nanolive's Cloud that will make of the 3D Cell-Explorer the first cloud microscope.

"It used to be impossible to observe inside a living cell without damaging it," explains Yann Cotte, the CEO and co-founder of Nanolive. "Because the cell is the basis of all life on Earth, this is a major milestone in the history of microscopy. It may change the rules in the fields of education, biology, pharmaceuticals and cosmetics. For example, it will enable researchers to monitor the impact of drugs directly on living cells in order to determine the right therapeutic dosages. Together, those markets represent hundreds of thousands of devices, which we will address in connection with our Cloud Biotech Apps and Communities." Further out, one can also envision the potential of such technology for cell fertilization, cell culture monitoring and cell differentiation...

Before reaching such markets Nanolive wants to build its credibility in the university and research markets. Gymetrics will follow a similar path, but envisions a first commercial opportunity with the more mature market of cell culture for the production of monoclonal antibodies and vaccines. "Cell therapies are still in their infancy," explains Barrandon. "They have been through a hectic development, with promising clinical trials stopped. Now a new generation of stem cell-based products are emerging that require a better understanding of what is happening. Some recent work has, for example, demonstrated that it is possible to influence stem cell specialisation by a pH modification."

With cell therapy making a comeback rather like what happened with gene therapy, the opportunities for start-ups to bring innovative solutions to enable this emerging technology have never been so huge.

For Nanolive, another spin-off from the EPFL, the ability to observe cells or stem cells while not interfering with them was also crucial. Due to the limitations of light, it was until now impossible to look inside a living cell without damaging it, even using the most expensive top-notch devices. Traditional microscopy techniques rely on complicated procedures (risk of errors), which require cumbersome and time-consuming preparation (1-72 hours), are invasive to the cells (risk of damaging & falsification), and still give rather limited results (2D image with no contrast or chemically dyed of few colors). Other technologies such as electron microscopy also interfere too much with a living sample, and are limited to the cells' surface.

**Beyond the optical diffraction limit**

Nanolive has developed a disruptive microscopic technology that determines optical properties beyond the optical diffraction limit, allowing direct imaging of unstained living cells in 3D. As with MRI in hospitals but using light instead of magnetic resonance, its microscope, the 3D Cell-Explorer, uses laser light to make



Gymetrics' wireless, battery-less temperature and pH sensor for cell culture measurement.

## “Big Data” boosts Western Switzerland’s bioinformatics companies

The daunting amount of data generated by the life sciences is creating a new economic niche – one that a number of companies based in Western Switzerland are investing in. **BY PASCAL VERMOT**

If there is a sector in which Swiss economy excels, it is services. Research on living organisms, compounded by the increasingly meticulous study of genetic variants at the heart of diseases such as cancer, is undergoing a small industrial revolution on the banks of Lake Geneva. Here bioinformatics is spawning small firms that specialise in outsourcing services such as sequencing or prospecting for disease-specific biomarkers.

"Research on living organisms generates a huge amount of complex data," underlines Jurgi Camblong, CEO of Sophia Genetics, based in Ecublens' Science and Technology Park. Jurgi Camblong – the firm's co-founder – knows this only too well: three years ago, Sophia Genetics set out to provide high-throughput DNA sequencing services to hospital and clinical laboratories, offering the simultaneous sequencing of thousands of DNA fragments. "Our job is to supply the tools needed to simplify, stock and process data, while their interpretation is carried out by the doctors in charge of the patients. On the basis of patient samples, we amplify parts of the genome that are of interest. We then sequence the genes that are subsequently analysed for diagnostic or predictive purposes."

Thanks to software specifically developed by the company and known as DropGen, Sophia Genetics offers the

additional possibility of data visualisation. The firm has about fifteen employees, and has managed to raise 3.8 million francs following two successful funding rounds.

**Focus is on diagnostics**

Companies that specialise in bioinformatics services have set their sights on



Jurgi Camblong CEO  
of fast growing  
Sophia Genetics.

**THE LAKE GENEVA  
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OF BIOINFORMATICS**

diagnostics. Novel enterprises, such as SimplicityBio in Monthey for instance, are now offering methods that can detect complex pathologies such as cancer by tracking down specific biomarkers. That is also Quartz Bio's speciality. This Geneva-based spin-off from Merck Serono allows larger pharma and biotech companies to outsource the analysis of the expression of particular genes and the presence of particular proteins in clinical trials.

"Not only do you need time to transform the volume of data into useful results, but you also need qualified personnel with particular skills, both in fundamental and clinical research," says Jérôme Wojcik, the firm's CEO and founder. In fields as diverse as oncology, cardiology, neurological or degenerative diseases, Quartz Bio uses samples drawn from patients to track down biomarkers that are associated with known pathologies or that were discovered while administering therapeutic molecules. "These data must be made available at different stages of a clinical study. You have to be able to analyse them, and then stock them to be able to refer to them at any given moment." Quartz Bio can use the experience it has gathered on various diseases to turn its analysis service into a predictive tool.

While each of these companies could easily have seen the light of day in Boston or Cambridge, Western Switzerland seems to have offered them fertile soil. "The Lake Geneva cluster is already favourable for the life sciences, and excels in the field of bioinformatics. Being active in this part of Switzerland guarantees a reliable image, besides having qualified and well trained personnel at our disposal," concludes Jérôme Wojcik.

PHOTOS: DR



Valtronic is a classic model for the transfer of century-old skills into the field of medical technology.

## Prostheses, the avatars of personalised medicine

Orthopaedic prostheses are becoming more and more customised and effective, thanks in part to the manufacturers of Western Switzerland. Meanwhile, in the lab, novel procedures are shaping their future. **BY PASCAL VERMOT**

**T**housands of prostheses – in particular for hip and knee joints – are implanted in Switzerland every year. The number of implants has grown continuously in the past decade, and continues to do so. According to the Swiss Federal Statistics Office, 11,000 artificial knee joints were implanted in 2006. Now the figure is double that. Such growth is not simply a reflection of technological progress facilitating surgical interventions that people had hardly dared to hope for. It also bodes well for some first-rate manufacturers firmly rooted in Western Switzerland's soil.

Valtronic, Stryker, Symbios, DePuy Spine... Western Switzerland is home to a several renowned names in the field of orthopaedic prostheses. That is hardly surprising, given the huge concentration of knowhow in microtechnology and

engineering – a legacy of the region's watchmaking tradition.

### The Valtronic model

Valtronic is a classic model for the transfer of century-old skills into the very particular field of medical technology. Launched in 1982, the family business in precision mechanics entered the prosthetic market when it merged with AP Technologies, one of watchmaking group Audemars Piguet's spin-offs. Ever since, they have been manufacturing implantable PEEK, a biocompatible polymer used for prostheses, on behalf of other companies.

"As a subcontractor, we manage the whole of the manufacturing process, from its conception and engineering to the development of the

finished product: washing, coating, packaging... Everything is managed in the Vallée de Joux," says Virginie Ledru, communication manager. Less than two years ago, Valtronic celebrated the installation of a 1,500 square metre production unit dedicated to surgical implants and complex mechanical parts for medical devices.

One of the main reasons Symbios Orthopédie set up in Yverdon-les-Bains, in 1989, was to benefit from the presence of numerous subcontractors – mainly SMEs – that specialise in microtechnology. And microtechnology has turned out to be essential for the sector in which the firm has become one of the world leaders: custom-made prostheses, especially hips. "No one has the same anatomy. Many patients are close to the norm, but it only takes a small difference – like the length of the femoral neck or a difference in its orientation – for the implant of a standard prosthesis to become impossible, or cause the patient to limp," says Jean Plé, director of Symbios Orthopédie.

The biggest concern for an implant remains the pain felt by a patient. But as prostheses become ever more sophisticated, surgery is becoming more and more of an option. "All types of prostheses have evolved considerably in the

**WESTERN SWITZERLAND IS HOME TO RENOWNED NAMES IN THE FIELD OF ORTHOPAEDIC PROSTHESES**

PHOTOS: DR



Exabone is commercialising an injectable paste that can activate bone regeneration.



Valtronic manufactures implantable PEEK, a biocompatible polymer used for prostheses.

past few decades," explains Alain Farron, chief of the Orthopaedics and Traumatology Division at the CHUV (Centre Hospitalier Universitaire Vaudois) and Professor at the Faculty of Biology and Medicine at the University of Lausanne. Such an evolution is due not only to novel materials or, in other words, the alloys that are used, but also to the mechanical aspects, such as friction torque or the design of the prosthesis itself."

### Partnering with academia

Technical progress has spurred manufacturers to develop customised products for the comfort and needs of patients, using very fine scanner 3D imaging techniques and sophisticated software tools, allowing orthopaedics to move decisively towards personalised medicine, "Modelling prostheses to a patient's

individual profile occurred gradually, prompted by expertise acquired in solving complex cases for which standard models were useless. Not only are prostheses becoming more and more adapted to the unique anatomy of those who carry them, but this adaptation is also expressed in the functions the prostheses help the patients recover," adds Alain Farron.

Patient profiling is proving to be a obligatory step. You would not equip an elderly man whose greatest wish is to remain independent at home with the same model you would give to a middle-aged person, whose desires are usually more demanding. "Today's patients expect far more than patients did twenty years ago. Back then, you only hoped to recuperate basic locomotion, whereas nowadays patients want to be able to ski and ride a bike," says Jean Plé.

The development of ever-evolving products is always an active collaboration between manufacturers, schools of higher education and university research centres. Valtronic, for instance, says it has close ties with academic institutions, in particular with regards to projects involving the CTI, Switzerland's Commission for Technology and Innovation. Symbios, for its part, has undertaken numerous development programmes with surgeons at the Hospital for Orthopaedics in Western Switzerland, and is also taking part in an ambitious research programme led by the EPFL, the Swiss Federal Institute of Technology in Lausanne, in partnership with the CHUV. Termed SimOS, this programme involves inserting sensors in knee and hip prostheses to allow continuous in vivo monitoring and patient care. Such collaboration is very much upstream of the manufacturing procedure but is of particular interest for Symbios, says Jean Plé, "since it will show how prostheses behave once they have been implanted".

Partnerships between the industry and academia are the future of orthopaedics. A few weeks ago, for example, after having developed the prototype of an artificial hand with an improved grip, researchers at the EPFL and the Scuola Superiore Sant'Anna of Pisa successfully demonstrated a bionic hand linked to peripheral nerves, giving amputated patients the opportunity to recover their sense of touch.

Though greatly aided by research in engineering and the life sciences, classical orthopaedics is not the only path being explored to help patients recover lost movements. Very promising therapeutic alternatives are beginning to seep out of labs. At the EPFL, for example, researchers have managed to develop a hydrogel that can release medication into the knee joint to prompt cartilage regeneration. And Nyon-based start-up Exabone is commercialising an injectable paste that can activate bone regeneration in patients with fractures or who had sections of bone removed.



Christoph Weder and Barbara Rothen-Rutishauser.

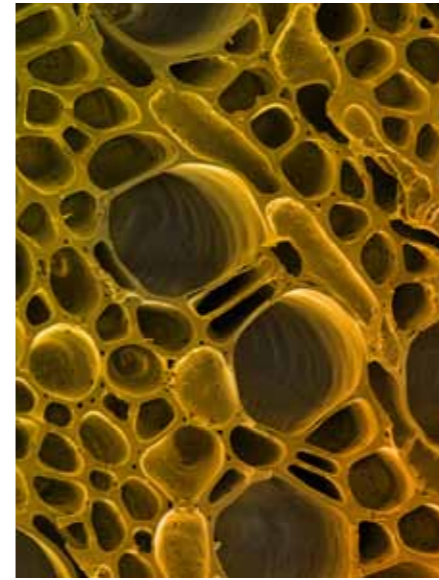
## Adolphe Merkle Institute's bioinspired materials

The latest among the research institutes established in Western Switzerland, the AMI is putting all of nature's secrets to work in the development of nanotechnologies. A new national research programme has made it a leader in this field. **BY FABRICE DELAYE**

Imagine a fabric designed to self-repair, shift colour on request or even become bulletproof at the moment a shot rings out. It reminds you of an action hero costume, and it more or less is – except that we aren't in Bruce "Batman" Wayne's secret laboratory but in Fribourg, at the Adolphe Merkle Institute (AMI).

The institute is a centre of competence focusing on research around nanotechnologies. It was founded in 2008 thanks

Bio-inspired engineering uses new materials to mimic the effects of a natural structure.



to an impressive donation of CHF 100 million by Adolphe Merkle, a notorious local entrepreneur. For the time being housed in the former building of Ilford Switzerland Imaging GmbH in Marly, it plans to move this year into brand-new premises near the Botanical Garden of Fribourg. Since 2008, the institute, which also relies on research partnerships for 60% for funding, has been developing soft materials inspired by all kinds of biological mechanisms created by Mother Nature to assemble, heal, protect, replicate, etc. living organisms.

The scope of application of these highly miniaturised technologies is wide, as it concerns the nanoscale (1 nanometre = 1 billionth of a metre) and more specifically molecules. AMI has been focusing on a niche that draws on the never-ending story of natural evolution.

### Inspired by Mother Nature

On his slides, Marc Pauchard, the associate director at AMI, is showing a butterfly wing, a shellfish, an octopus and even a sea cucumber. "Nature provides an inestimable source of inspiration," he says. "Biomimetics is the imitation of Nature's systems. For instance, Ilford copied the structure of the pigment on a butterfly



wing to improve its films. Biomorphing involves modifying a natural object for a new purpose while keeping some of its properties. Finally, bio-inspired engineering uses new materials to mimic the effects of a natural structure, such as the skin colour change of an octopus or the sticky properties of a snail."

That is why Professor Christoph Weder, the director of AMI, has developed a passionate interest in the sea cucumber during the past ten years. An encounter and then research with a marine biologist in the US allowed him to gain a better understanding of how this unappealing echinoderm can turn a soft epidermis into a tough shell. "Its skin is a nanocomposite made of soft material with some unorganised rigid nanofibres," the chemistry professor explains. "When the marine animal is undergoing stress, it generates a molecular glue that hooks up all its nanofibres. It allows it to harden its skin by a factor of 10 in order to keep safe."

As part of AMI's research, Christoph Weder developed a similar composite based on a polymer matrix and cellulose nanofibres. It stiffens when exposed to a chemical stimu-

lus. Enough to become bulletproof? "It will take years," replies Christoph Weder. "But the fact that cellulose nanofibres are biocompatible as well as 100 times cheaper than the famous carbon nanotubes paves the way for breakthroughs. Together with university hospitals, we are even working on an application for brain implants." As the brain doesn't easily tolerate a rigid device for longer periods, it could be possible to soften the implant after placing it, to diminish or avoid rejection risks. A medical device supplier is also contemplating using this technology to develop new infusion needles that will prevent the inconveniences caused by metal needles.

This approach is typical of the work carried out by the 65 researchers of the institute – a workforce that is set to double by 2016. Currently organised into different research groups focusing on

macromolecular and polymer chemistry, material science, biology and soon to be extended on physics, the fundamental research is based on interdisciplinarity as well as bio-inspiration. Its mission: to develop next-generation materials with new functions.

THE AMI HAS BEEN FOCUSING ON A NICHE THAT DRAWS ON THE NEVER-ENDING STORY OF NATURAL EVOLUTION

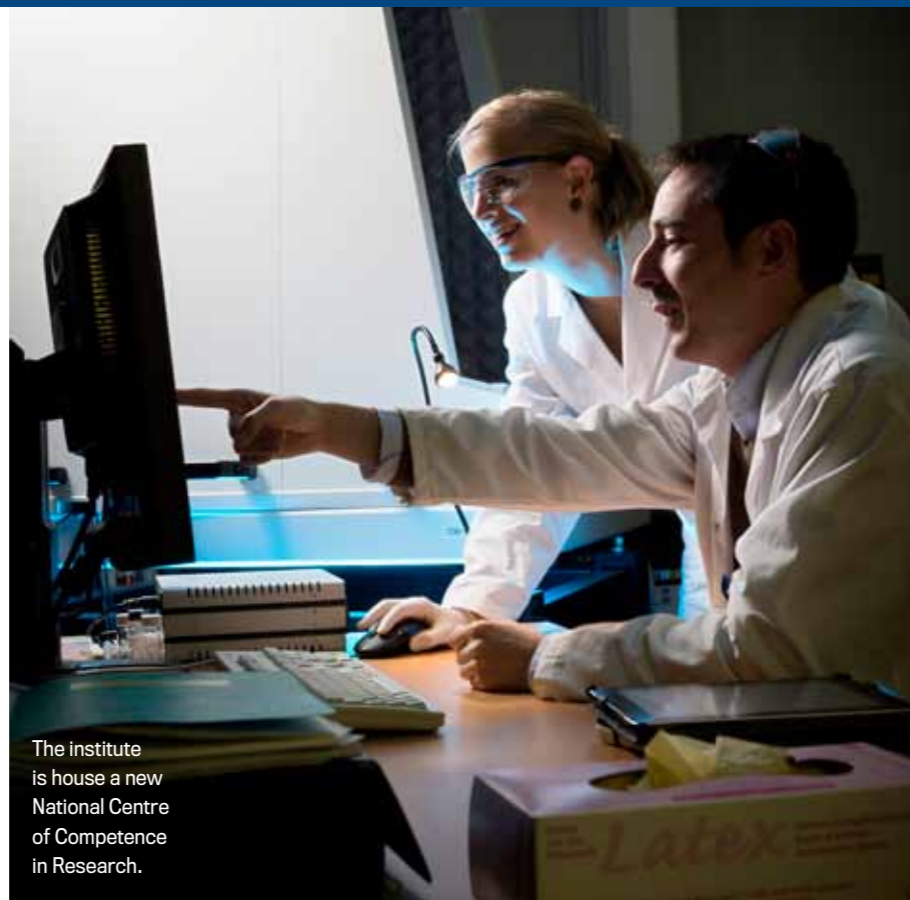
PHOTOS: DR

“We remain isolated from the market because as researchers we do not know what the market is willing to accept. But fortunately we are updated by our industrial partners for applications,” says Christoph Weder.

The research group concentrating on biological studies is led jointly by Professor Barbara Rothen-Rutishauser and Professor Alke Fink – who leads the materials science aspect of the research. Barbara Rothen-Rutishauser focuses on the lung, the only internal human organ that is in constant interaction with the external environment. Its surface area in contact with the environment is about 140 square metres (for comparison, the digestive system has a surface area of around 120 square metres and the skin more or less 2 square metres). “It is essential to create in vitro models to replace animal testing for research on particles breathed in and medication delivered through inhalers,” explains Barbara Rothen-Rutishauser. Her group has already successfully replicated the blood-air barrier in Petri dishes. Now she is experimenting with 3D printing of the lung model.

#### Batman technologies

Nature didn't simply create materials to be used in various ways but also developed complex mechanisms to activate them: just consider the structure of cartilage tissues; the on-demand release of fragrance managed by flowers to attract insect pollinators essential to their reproduction; or, in the inner ear, the ability of sensory hair cells to transduce sound waves into neural impulses transmitted to the brain. The AMI researchers are learning from these mechanisms to control and activate the nanomaterials they create. For instance, the Nanoparticles Self-Assembly group, led by Professor Marco Lattuada, uses external magnetic fields to adjust the structure of silica gels layer by layer – a procedure that may help to develop artificial articular replacement tissues that mimic natural joint cartilage. Professor Alke Fink is working on smart biocompatible



The institute is house a new National Centre of Competence in Research.

sealed liposomal vesicles to carry drugs. A membrane coated with nanoparticles enables the drug carrier to react to magnetic field to enable controlled drug release. That means it can deliver the drug to a cancer tumour more effectively and more locally, thus avoiding serious side effects.

Since AMI was founded, bio-inspiration has defined the institute. It is now strengthening its activity in two ways. First, Ullrich Steiner, currently Professor of Physics of Materials at the Cavendish Laboratory of the University of Cambridge, is joining the institute to lead a new soft materials research group. He became famous for developing nanopolymer mimicking the adhesive properties of gecko feet. Almost half a million hairs (setae) cover the toes of the feet of this reptile, and each gecko hair splits multiple times with, at their ends. These spatula-like structures (spatulae) allow the lizard to adhere to most surfaces – even the smoothest ones. Physical understanding of comparable mechanisms should enhance the biological and chemical knowledge of the other research groups.

Next, the institute is house a new National Centre of Competence in Research (NCCR), focusing on smart

bio-inspired and stimuli-responsive nanomaterials. The centre will receive a total of CHF 12 million in federal funding over the initial four-year operating period and is poised to become an international hub for research, education and innovation in one of the most promising research domains of materials science.

The overarching research theme of the new NCCR is to take inspiration from nature to design artificial materials which can change their properties “on command”. Such materials, sometimes referred to as “smart” or “intelligent”, are of fundamental scientific interest and potentially useful in countless applications, ranging from climate control elements for buildings to drug delivery systems. The national competence centre will unite 14 research groups based at AMI and the University of Fribourg's departments of chemistry, medicine, and physics, as well as leading research groups at the University of Geneva, the Swiss Federal Institute of Technology Zurich (ETHZ), and the Swiss Federal Institute of Technology Lausanne (EPFL). This should be a guarantee of new sustainable financial resources – and eventually lead the AMI to create Batman-like technologies.

## «Medtech is accessible to small investors»

Emmanuel de Watteville, partner and co-founder of the venture capital company Blue Ocean Ventures, explains why medtech values are exciting to all types of investors. **BY PASCAL VERMOT**

Geneva-based, Blue Ocean Ventures is an investment company that aims at placing the ventures in which it invests in untapped markets where “the water is fresh and blue”. Its approach is comprehensive from deal sourcing to following up and exiting.

#### Why is the medtech industry in Switzerland so interesting?

It is a dynamic industry because it is at the crossroads of skills that feature strongly here: micro- and nanotechnology on the one hand, and pharmaceuticals on the other. One of Blue Ocean Ventures' principles is to invest in companies that are top of the class. In Switzerland, the ecosystem is so developed that it is fairly easy to benchmark one company against another. It is hardly coincidental that all the large firms active in the medtech industry are either based in Switzerland or have their European headquarters here. All these companies, such as Sulzer Medica or Straumann, bring with them numerous scientific and managerial talents, which can then spawn start-ups. Naturally, this gives rise to new investment opportunities.

#### Your portfolio includes several medtech companies – Sensimed, Augurix, Myopowers – and very little biotechnology. Why such a choice?

Our strategy is to invest in companies at a very early stage, to help them develop and then to sell them before they reach the stage of mass production. Our choice of the medtech industry was a perfectly



Emmanuel de Watteville co-founder of Blue Ocean Ventures.

logical one for us. These companies have shorter growth cycles than those in the biotech industry, as well as a faster return on investment. In the medtech industry, the business model is – more often than not – based on a specific type of technology that will allow the development of an identified product, such as a diagnostic device for someone suffering from diabetes or gluten intolerance. A proof of concept has already been demonstrated. In the biotech industry, return on investment is longer and unreliable.

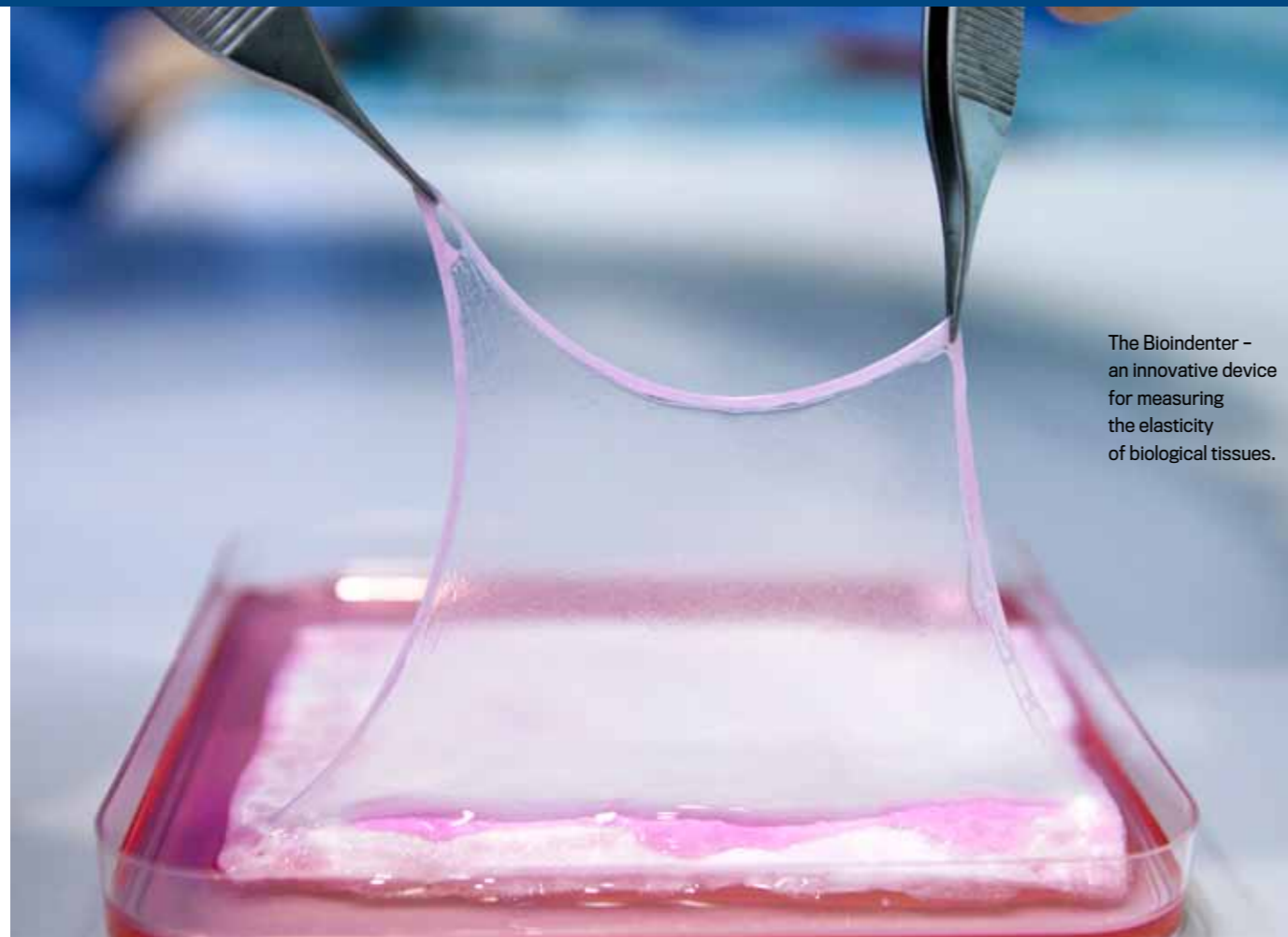
#### Can small investors position themselves in medtech values or is that only open to professionals?

It's difficult to get into medtech if you have just 100,000 francs to invest, but it is feasible via a club of business angels or a venture capital firm. We have investors of this kind among our customers. But I would highly recommend not surrendering to a “coup de coeur” investment in only one or two projects. It is really important to diversify, investing in 8 to 10 projects to ensure a satisfactory return on investment. And remember that financing a start-up is done in several rounds. Small investors don't have the sufficient means to invest beyond the initial round. They can always find a project in which to invest but they will probably not get a higher return than investing in venture capital funds such as ours.

#### What are the top qualities you look out for in medtech companies?

Number one would be the team. That is to say, a team's capacity to adapt to a market that evolves in an unexpected fashion. Though the risk linked to technology is weak for Swiss companies, it's not rare to see teams disintegrate in full flight. Spreading out the responsibilities between the technical manager who invents the technology and a CEO who is responsible for market development is generally a good approach. Also, the ability to protect your own technology and to know how to develop your own sales network is just as crucial.

PHOTOS: DR



The Bioindenter – an innovative device for measuring the elasticity of biological tissues.

## A holy alliance between research and industry

When it comes to innovation, SMEs and large enterprises are counting on the intellectual capital generated in the laboratories and institutes of Western Switzerland. **BY PASCAL VERMOT**

Is Western Switzerland about to become a “Medtech Valley”? In the shadow of the big university hospitals such as the CHUV (Centre Hospitalier Universitaire Vaudois) and the HUG (Hôpitaux Universitaires de Genève) and the corporate giants, such as Medtronic and Johnson & Johnson, new generations of young medtech companies are emerging from Western Switzerland’s laboratories and research institutes every year. So much so that the companies, especially SMEs, are turning to the academic world for the know-how they lack or the innovation potential they need to

reinvent themselves.

### The academic gold mine

Throughout the whole of Western Switzerland, new procedures or devices are seeping out of academic medical technology and finding industrial outlets. For several years now, the University of Bern has monopolised the CTI Swiss Medtech Award – one of the sector’s most prominent prizes – which is awarded by the Commission for Technology and Innovation.

THROUGHOUT WESTERN SWITZERLAND, NEW PROCEDURES OR DEVICES ARE SEEPING OUT OF ACADEMIC MEDICAL TECHNOLOGY

Among the university’s latest achievements are the development of a procedure that uses lasers for surgery on the abdominal cavity and which requires no incision – the fruit of a collaboration with Schaffhausen-based SME Storz Endoskop Produktions – and simulation software for cataract surgery launched by the Biel-based company ISS.

This performance can be explained, in part, by the University of Bern’s investment in an ad hoc structure, the Biomedical Imaging Research Centre, otherwise known as Artorg. The centre makes no secret of its hopes to “integrate training, discoveries, innovation and entrepreneurship” by “encouraging new partnerships between clinicians, fundamental researchers and engineers” through technology transfer.

The collaboration between Artorg and a young Bernese company, CAScination, is a good example of the kind of bonds that can be established between academic institutions

and the real economy. The partners developed a navigation system that helps surgeons locate metastatic tumours with great precision. With this device, practitioners can intervene on an organ with a very complex vascular system – such as the liver, the brain or the kidneys – by building a virtual model that uses data supplied by a scanner, while being able to consult real-time ultrasound images of the inside of the organ. “The technical challenge consisted in the integration of the different images,” notes Stefan Weber, director of Artorg and project manager. Now that the procedure has been developed, CAScination, as the industrial partner, is responsible for transforming it into a marketable product.

For the procedure to reach this point, two factors played an important role: the project was financially supported by the CTI; and the two partners knew each other well – the CEO of CAScination, Matthias Peterhans, was Stefan Weber’s doctoral student.

### Public private partnerships

Do successful medtech collaborations always depend on the two same ingredients? They do seem to be found in many successful public-private partnerships. And this is how the Swiss Centre for Electronics and Microtechnology (CSEM) succeeded in designing the Bioindenter – an innovative device for measuring the elasticity of biological tissues – with CSM Instruments, a company also based in Neuchâtel and now a subsidiary of the Austrian group Anton Paar. “The first important element was the geographical and historical proximity between CSEM and CSM Instruments. CSM Instruments is a CSEM spin-off that was launched about twelve years ago. The teams

knew each other and had already worked together on another project,” explains Gilles Weder, the engineer in charge of the project.

SMEs are not the only companies to approach Western Switzerland’s institutes. In the medtech sector, CSEM boasts famous names within its network of industrial partners: Phonak, Johnson & Johnson, Roche and Medtronic for instance, with which the Neuchâtel-based research institute led a CTI project for an alarm system to warn of cardiac-induced blackouts.

Many firms have been established for several decades and are now looking for ways to boost their innovative strength. Produits Dentaires SA, a family business based in Vevey and founded in 1940, has discovered novel instruments to clean dental root canals by collaborating with the “Industrial Microtechnology Institute of University of applied sciences HE-Arc”. Hearing aid manufacturer Phonak has turned to the expertise of the Laboratory of Electromagnetics and Acoustics at EPFL to develop a new generation of prostheses

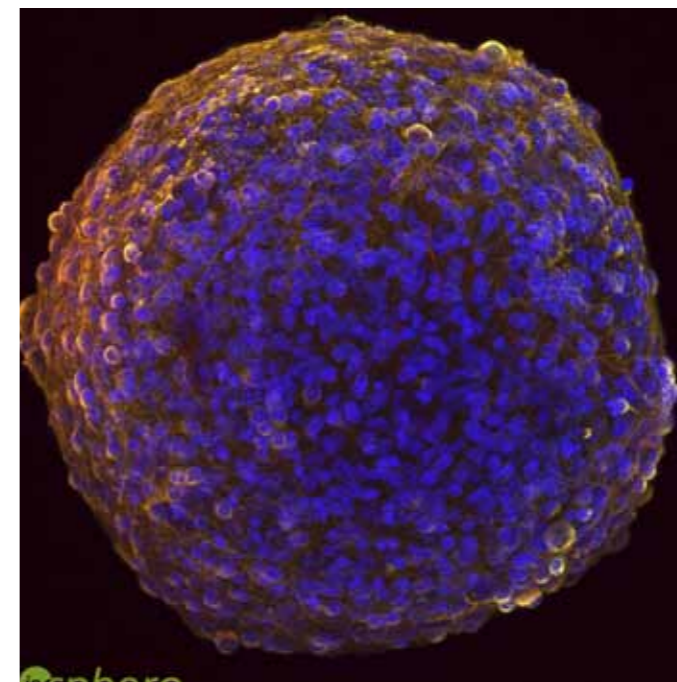
to help patients with impaired hearing to locate their speaker spatially. And it is thanks to the University of Geneva that one of the heavyweights in the biopharmaceutical industry, UCB Farchim, was able to master a technical obstacle in the manufacturing process of an anti-allergic agent.

Academic institutions do not seek the industry’s interest merely to boost innovation within laboratories. In 2005 for instance, EPFL set up the Innogrants programme, providing financial support in the form of non-repayable subsidies to allow students and employees to launch their own start-ups. It has become one of the elements contributing to the vitality of the medtech sector in Western Switzerland.

“The Lake Geneva region offers extremely fertile soil in the field of medical technology, which itself stems from the fields of microtechnology and robotics. Young companies like Endoart, Sensimed and Aleva Neurotherapeutics have been able to raise important capital. A few companies, like DistalMotion, were first

launched with the support of their laboratory before benefiting from financial aid. One of DistalMotion’s characteristics is to use high-precision mechanics to increase the performance of delicate surgical interventions,” explains Hervé Lebre, in charge of Innogrants.

Engaging in the medtech sector, however, is not a guarantee of success. The young EPFL spin-off Stereotools had to close down a few months ago because of a lack of finance, despite a revolutionary innovation for guiding surgical procedures on the brain. Missed opportunities can also occur on the innovation front – but this may be the price to be paid when a technology cluster scales up.



InSphero offers 3D cell-based screening services.

PHOTOS: DR



# How the World Health Organization is betting on medtech innovation

Since 2007, Geneva-based WHO is guiding the medtech policies of member countries to improve access to life-critical technologies. We are seeing a paradigm shift for the developing world. **BY FABRICE DELAYE**

**A**s Coordinator, Diagnostic Imaging and Medical Devices at the World Health Organization in Geneva, Adriana Velazquez Berumen has been leading the WHO's recent efforts to orient health technologies and innovation toward low-resource settings requirements, as is already the case for drugs and vaccines. Technology by Bilan talks to her to understand why and how these technologies have recently emerged as a major topic for the leading health authority in the world. Interview.

## How does WHO sees its role in medical technologies?

One of WHO's six objectives is to increase access to affordable, quality and safe medical products. This includes medical devices. One way to improve access in the member states is to implement the right policies to favour access to these technologies. Currently, only 34% of the 145 member countries have a national health technology policy that is part of the national health programme, while only 9% have an independent national health technology policy.

## What guidelines do these policies have?

They have four components. One is innovation: WHO favours innovation if it matches the needs of the population and focuses on prioritised diseases such as malaria. The second thing we focus a lot on is regulation: we want to make sure that countries have a regulatory body that

is competent not only for drugs but also for medical devices – that is still not the case in 35% of the member countries. The third one is assessment: we want to check whether the technologies are really cost effective and match existing social needs and infrastructures. The fourth component is technology management: this involves several things, from selection, needs assessment, procurement, donation and installation to maintenance, safe use and decommissioning

## Are there specific challenges in implementing this strategy?

Progress in medical technology is amazing. Innovation happens every day. And with medical devices, unlike with drugs or vaccines, you have upgrades or maybe add a new function to a given technology, creating de facto a new product. And it can be done in six months. So everything changes very quickly and the spectrum is wide. WHO considers as medical devices any health-related items, apparatus or technologies that do not have a pharmaceutical aspect. So they can apply in diagnostic treatment, rehabilitation and palliative care. If we put that together there are more than 20,000 types of medical devices. So making the right selection is a very complicated matter. Often people do not know what to choose among so many brands.

How do you help them? WHO has established a

network of health technology contacts within health ministries – usually will biomedical engineers with knowledge of medical devices. We provide them with technical guidelines. We have documents describing policies on medical devices, with guidance for assessment and procurement. We also hold a lot of workshops at country, region and global levels. We collect and promote best practices from different countries for others to emulate them. For example, the second Global Forum for Medical Devices here in Geneva last November drew more than 600 people from 110 countries. We held the first forum in 2010 in Bangkok and will hold them every three years. In Geneva, we had 200 papers submitted, 150 presentations and 38 workshops. I believe that reflects a deep need for information.

## Why that need and why now?

The WHO's resolution on medical technology was approved in 2007, thanks to funding from the Gates foundation. This Global Initiative on Health Technology triggered a lot of awareness. There was also a key publication about priorities in medical technology, thanks to support for WHO from the government of Netherlands. The conclusion emphasised a mismatch: there is a boom in medtech, but also confusion and a lack of information because the industry is doing a lot of market push instead of being driven by market needs. And there was a lack of proper nomenclature as well as of standard regulatory processes. That is when WHO stepped in.

## It seems late...

The need was there before but WHO had no tools. Now we get

**THE SECOND GLOBAL FORUM FOR MEDICAL DEVICES HERE IN GENEVA LAST NOVEMBER DREW MORE THAN 600 PEOPLE FROM 110 COUNTRIES**

PHOTOS: DR



Adriana Velazquez Berumen, Coordinator, Diagnostic Imaging and Medical Devices at the WHO.

EssentialTech redesigns medical technologies to make them affordable, robust and adapted to the local context of low-income countries.

a lot of requests from member states because they know there is a unit for medical devices inside WHO. Industry, too, wants to engage. Companies ask what devices are needed now and which diseases we want to target. And academics are asking the same. They want to do research on things that have an impact, so they are asking us. We go back to the countries and try to find out their exact needs. On the other hand, the health ministries are asking us to recommend which devices they should buy. We list the medical devices that should be in a hospital but we do not recommend specific brands. For example, we are releasing a book now about all the material you need in a maternal unit. The problem we have noticed is that hospitals or community points of care often part of the system. And we are dealing with the specific issue of donations.

**How donations could be a problem?**

They are a huge problem. Too often, developed countries are giving their garbage, really. Some get tax refunds, others do big PR operations to announce that they are donating equipment. In reality, what they are giving are problems. Where they arrive there are no parts or consumables. Manufacturers often have no local distributors, and nobody does maintenance. We did workshops to empower people, explaining to them it is better to say no to a donation than to receive a problem. And we wrote guidance on donations.

**What principles are behind the guidance?**

What matters is not the equipment but the operating costs. With medtech, you need the skills, the training, the electricity, the consumables, the maintenance, and so on. It is really expensive, and most countries do not see that. We are trying to raise awareness about the total costs of ownership. It has driven us to launch a massive survey to understand a specific problem beyond donations – namely, we have noticed price differences between developed and low-income countries of up



to 300% for exactly the same product. That means the poor are paying a high price. We are now trying to identify the origins of the problem. Is it taxes? Transport? Corruption? Or, at it appears to be often the case, does it result from a cascade of distributors? We hope find evidence to tackle the problem later this year.

**If you say some donations are nothing but garbage, doesn't it raise the issue of decommissioning?**

Sure. It could be that donations are in fact a cheap way to decommission. That's not the general case – often not having the right electricity or even adaptors is the first problem. 75% of health centres in Africa have no electricity, or no stable electricity. But what really worries us is that in some cases medical technologies have been donated without even being cleaned. That has driven us to write a new book about decommissioning medical technologies, with detailed procedures both for developed and developing countries.

**Considering the infrastructure problems in developing countries, won't it make sense to innovate with products**

**addressing the specific needs and contexts of low-resources countries instead of adapting medical technologies developed for high-income economies? Why don't medtech companies see the opportunity there?**

First, there is the funding issue. And medtech companies are used to requesting marketing authorisations for the most sophisticated products. It is in their culture. Still, things are changing. During the past three to five years, some companies have started to open offices in developing economies. Manufacturers are getting interested in the base of the pyramid. Some are doing "reverse innovation". GE, for example, is making an electrocardiograph with just one channel.

**And what can WHO do to help this sort of innovation?**

We have just launched a compendium of new and emerging technologies. The idea is to get from companies and academia the products they have or are currently developing that would meet the needs of low-income and emerging countries. For example, they may have technologies that are

**HOW COULD WE MAKE THE BEST USE OF MOBILE HEALTH TECHNOLOGIES TO DIAGNOSE, MONITOR AND SEND MEDICAL MESSAGES TO PATIENTS?**

**World's first digital radiography for low-income**

**RESEARCH** Launched by the Cooperation and Development Center of EPFL, EssentialTech aims to contribute to reducing poverty by developing essential technologies, particularly in the field of healthcare. The approach relies on completely redesigning technology to make it affordable, robust and adapted to the local context of low-income countries. It also involves the development of business models ensuring that technologies will be deployed in sustainable ways. Project GlobalDiagnostiX, EssentialTech's current flagship, is developing the world's first digital X-ray imaging system entirely designed for low-income countries. "Access to radiographic [X-ray] imaging is still unavailable to an estimated two-thirds of humanity today. This lack of access is especially dramatic given the high burden of road traffic accidents in developing countries: WHO estimates that there are up to 50 million victims annually worldwide, 90% of them living in developing countries," explains Klaus Schönenberger, co-founder of EssentialTech. The goal is to develop a device at a tenth of the cost of any system on the market today, taking into account the initial purchase and a minimum of 10 years of operating costs. The system will be designed for use in district hospitals where electrical supply is erratic, where the climate is harsh and where most existing systems fail within a few months. Little to no maintenance will be required, and use by incompletely trained personnel will be facilitated. Teleradiology, which allows images to be sent to remotely located experts, will be integrated using the existing cellphone network. Under the leadership of the EssentialTech team, an alliance has been created that includes around 40 researchers, specialists and engineers across Switzerland and Africa. The project began in 2012, and elements of the first prototype are already available, such as a robust X-ray generator.

used in a low-resource environment in the industrial countries – such as an emergency vehicle – that might be applied in the context of low-income countries.

**Could WHO commission specific research to match the medtech needs of low-income countries?**

No, because we do not have an independent R&D budget. We use our network of stakeholders, NGOs, academia and other organisations to multiply the activities. For example, we know pneumonia diagnostics are really poor in low-income countries. So we bring experts together to spark research in this field. The only exception is for tuberculosis, HIV and malaria, where there is funding thanks to the Gates Foundation and UNTAID.

**In developed economies, eHealth is now all the rage, with promises of better and cheaper healthcare. Won't it make sense for low-income countries to leapfrog health development by adopting eHealth technologies directly?**

eHealth is one of the medical technologies we are following. We are very well aware that the digitisation of health is happening right now. Our main concern there is that if you want to use things like smartphones or other connected devices to do diagnostics, you need to have a medical-grade product. Does that mean such devices have to be regulated and approved in the same way as other medical devices? The question is still open: How could we make the best use of these mobile health technologies to diagnose, monitor and send medical messages to the patient?

**And what about the opportunity for low-income countries?**

Telemedicine has much more power and acceptance in low-income countries, because they do not have specialists. And the cost of bandwidth has decreased, while smartphones are getting more powerful. But there are issues. For example, remote patients may be asked to take a picture of an X-ray image they keep

at home, but the flash in their cameras may alter the quality of the image and therefore induce a wrong telediagnostic.

**When it comes to health, the issue of cost control is not one for developing economies only. How does WHO see it for medtech?**

Since the economic crisis of 2008, and because all countries want to achieve universal health coverage, medtech's costs have become much more significant. Countries are not purchasing like they did before. The selections are more rational. Even high-income countries are requesting the help of WHO when selecting new technologies. Regulatory procedures are also converging to accelerate the market reach of innovations. That is rather new: the International Medical Devices Regulators Forum, which is leading this harmonisation process, started only two years ago

**The WHO is based in Western Switzerland, right in a middle of a major medtech hub. How do you interact with it?**

The industrial companies used to make their own visits or send their own requests. So we asked them to group together in trade organisations. One is call GMTA (Global Medical Technologies Alliance) and the other is the Global Diagnostic Imaging, Healthcare IT, and Radiation Therapy Trade Association or DITTA, which is more IT-oriented. We meet with them and provide information, an ethical code, etc. With academia, we normally interact a lot through international expertise. Still, major universities such as MIT, Northwestern, Rice or Stanford have now global health programmes. They send their students to places like Malawi, Tanzania and so on. to see what is needed. When they come back they do a project within their university to develop an adapted technology. At EPFL (the Swiss Federal Institute of Technology in Lausanne) they have a remarkable programme called Essential Tech. There they develop technology specifically for low-income countries, such as simplified X-ray machines. That is truly visionary.

# Western Switzerland, a conducive

Switzerland is among the global medical technology (medtech) hotspots, with Western Switzerland a strikingly active and strong player. Switzerland has higher relative medtech shares of employment, gross domestic product (GDP) and exports than Germany, the United Kingdom, the European Union, and the United States. Today, 1.1% of all employment and 4.8% of all industrial employment in Switzerland is in the medtech sector; medical devices represent 2.1% of GDP and 5.5% of all export goods from Switzerland. Some 1,600 companies throughout Switzerland span manufacturing, service provision, trade and distribution in non-metabolic products, instruments and equipment, and diagnostics.

Like the rest of the healthcare industry, medtech is facing major challenges: changing regulatory environments, increased pressure on pricing, patient demand for quality, increased patient co-payment with less individual purchasing power for many people, and strong global competition. Despite this, the medtech community in Western Switzerland is thriving, thanks to the political will to support medtech and the palette of institutions, companies and research facilities which all contribute to this growth sector.

There are many reasons for Western Switzerland's presence and success in the global medtech market. The first is that the industry has grown out of the knowhow of centuries that the region has in micro-technology, mechanical engineering and the watch-making industry. Western

Switzerland still values the spirit of the 16th-century watchmakers, through the nurturing and continued growth of its high-quality, high-precision medtech sector, focusing on innovation and cutting-edge technologies as the cornerstone for its competitive edge. The more recent development of microelectronics has enabled the region to build deep insights and bring disruptive technologies to the market. For example, cardiac stents and cardiac stimulation were first developed in Western Switzerland, opening lucrative worldwide markets. These technologies have evolved directly from the knowhow in the region, giving patients a new lease of life.

A second source of success is that Western Switzerland comprises a unique medtech ecosystem. A whole infrastructure exists for medtech companies, ranging from R&D to production and commercialisation, including subcontractors. Every step in the value chain can be fully achieved within close geographic proximity. There is a high density of institutions, small and large medtech companies, and service companies. Efficient technology transfer enables scientific and technological research and innovation to be translated into marketable products.

Experts assist companies to internationalise their products. Collaboration, dedication to quality, business consistency and a long-term perspective are characteristic of Western Switzerland.

The tightly knit community also has access to some of the top research and teaching facilities in the world, as well as a highly

HERE, EVERY STEP  
IN THE VALUE CHAIN  
CAN BE FULLY  
ACHIEVED WITHIN  
CLOSE GEOGRAPHIC  
PROXIMITY

# business environment for medtech

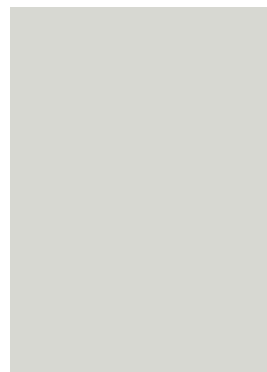
qualified workforce of some 50,000 people. Such prestigious institutions as the Ecole Polytechnique Fédérale de Lausanne (EPFL), and the Universities of Bern, Geneva and Lausanne have close links with the teaching hospitals, which provide the infrastructure and expertise for clinical trials, while CSEM and technical high schools are perfect partners for designing very high-precision devices and improved manufacturing processes. The region hosts state-of-the-art core facilities to carry out basic research, applied research and product development.

The unique combination of an attractive geographic location nestled in the heart of Europe, stable economic conditions and flexible labour laws has led major multinationals such as Medtronic, Stryker, Johnson & Johnson, Beckman Coulter and Edwards Lifesciences to locate their European headquarters within Western Switzerland. This has, in turn, attracted medium-sized companies and promoted the creation of many start-ups spanning the whole range of the medtech industry. An additional attraction is the financing of young technologies and life science companies through coordinated activity supported by multiple institutions and funding pools. The cantons of Western Switzerland are more dedicated than ever to promoting conditions conducive to business development and R&D.

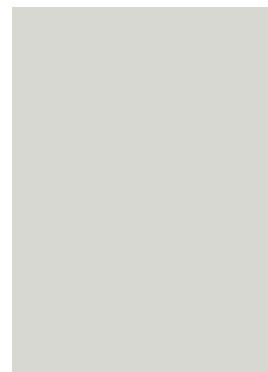
The cantons in Western Switzerland, namely Bern, Fribourg, Vaud, Neuchâtel, Geneva, Valais and Jura, support the BioAlps cluster, together with the Swiss State Secretariat for Economic Affairs (SECO) and the key research institutions in the region. The life science

cluster organises, alone or with others, events to promote business opportunities. Whether it is the annual spring medtech investing event in Lausanne or the autumn BioAlps Networking Day, BioAlps offers a platform to investors, innovators, researchers and the many other players to create opportunities for growth.

The 2014 BioAlps Networking Day will take place in October in the canton of Neuchâtel to showcase competences and opportunities in the medtech industry. It will be a perfect occasion to demonstrate just how attractive a region Western Switzerland is.



**MR PHILIPPE LEUBA**  
Minister of Economy and Sport, Canton of Vaud  
President of the Conference of Economic Departments of Western Switzerland Cantons (CDEP-SO)



**MR JEAN-NATH KARAKASH**  
Minister of Economy and Social Affairs  
Canton of Neuchâtel  
State Councilor

# AC Immune is creating a cure for Alzheimer's through excellent science

AC Immune builds leadership and makes good progress in Alzheimer's disease drug development and beyond...

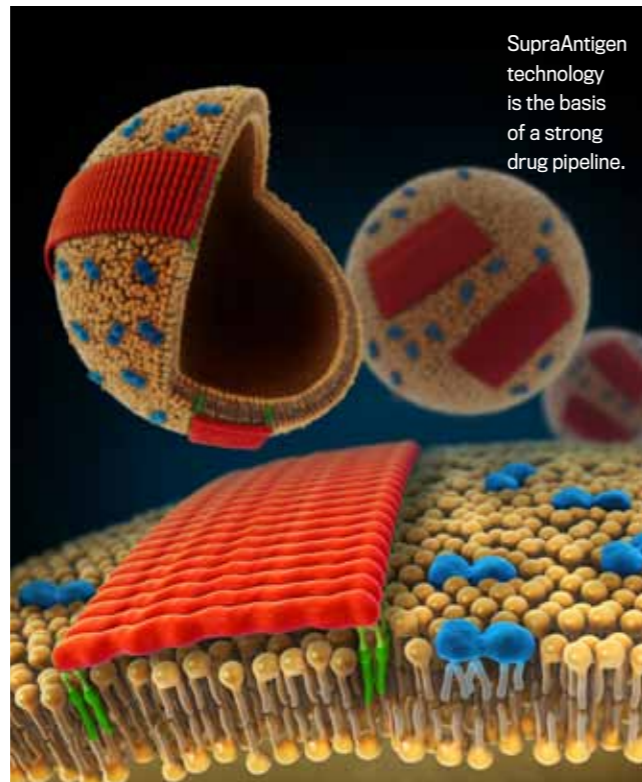
EVA SCHIER, CORPORATE COMMUNICATIONS MANAGER, AC IMMUNE

**D**iseases where misfolded proteins play a major role represent a significant portion of the world's most serious health problems. These diseases include Alzheimer's Disease (AD), Parkinson's Disease, Amyotrophic Lateral Sclerosis and other Tauopathies, and Glaucoma among others. AC Immune focuses on AD as a primary indication. AD is recognized as one of the most significant health challenges of this century with an enormous personal, social and economic impact.

Forty-four million patients are currently suffering from dementia, a number that is growing due to increased life expectancy. To date, there is no known cure. Scientists still do not fully understand what causes AD, but it has become increasingly clear that the disease develops over a long period of time starting well before the disease actually manifests. Two proteins – Tau and Abeta – are considered the major hallmarks in people with Alzheimer's disease: tangles and other abnormal forms of Tau protein accumulate inside the brain cells, while plaques and oligomers formed by Abeta occur outside the brain cells.

## Best-in-Class Therapies and Diagnostics

Since 2003, AC Immune has created one of the world's most promising Alzheimer's disease drug pipelines thanks to the high productivity of the company's 50-employee team at the Innovation Park of the EPFL campus in Lausanne and the unique and innovative research approach. The pipeline consists of seven therapeutics



SupraAntigen technology is the basis of a strong drug pipeline.

and two diagnostics encompassing antibody therapeutics, therapeutic vaccines, small molecules, diagnostic imaging agents and in vitro diagnostics.

The three clinical products and numerous pre-clinical candidates were developed using two unique, innovative and proprietary technology platforms: SupraAntigen Technology and Morphomer Technology. Both technologies enable AC Immune to specifically target only the misfolded versions of normal proteins and leave their normal function intact.

First, the SupraAntigen technology targeted misfolded Abeta, resulting in an anti-Abeta vaccine that is in Phase I/IIa clinical development for AD, and crenezumab which was out-licensed to Genentech in 2006. The monoclonal antibody cre-

nezumab completed Phase II clinical trials in July 2014 showing encouraging cognition data in mild Alzheimer's patients. It was also chosen by the US National Institute of Health (NIH) and international health authorities for the first-ever Alzheimer's preventative trial. We believe its binding profile and very favorable safety profile were major drivers in its selection. With Tau as the second target, AC Immune developed the ACI-35 vaccine and started the first ever pTau vaccine Phase I trial early in 2014. A pre-clinical anti-Tau antibody for the treatment of AD has been out-licensed to Genentech in 2012.

The early diagnosis of Alzheimer's disease is becoming more important. So far there are no approved imaging technologies to detect Tau protein in patients, presenting a challenge in AD diagnosis and the development of disease modifying treatments. In 2014, AC Immune has agreed an exclusive worldwide license agreement with Piramal for the research, development and commercialization of AC Immune's Tau protein positron emission tomography (PET) tracers supporting the diagnosis and clinical management of Alzheimer's disease (AD) and potential Tau-related disorders.

## Significant opportunities to leverage drug molecule and diagnostic platforms

Misfolded proteins being involved in multiple different disease areas opens a big opportunity for AC Immune in leverage existing drug molecules. Also the two technology platforms can be used to target misfolded proteins to rapidly develop new drugs and diagnostics in multiple disease areas underlining the significant potential of the company for future growth.

### AC IMMUNE IN NUMBERS

- 135 MILLION** Alzheimer's patients worldwide in 2050
- 50** Highly skilled employees dedicated to find a cure
- 7** Disease modifying therapeutics
- 3** Out-licensing deals for products
- 2** Unique and proprietary technology platforms

PHOTOS: DR



The company develops software to enable design, creation and use of CNC machines.

# Productec: watchmaking precision for the medical field

A Jura-based company is optimising the production processes for machined medical parts thanks to state-of-the-art software.

FRANÇOIS STEULET, EXECUTIVE DIRECTOR, PRODUCTEC SA

**P**roductec is a Swiss leader in programming complex parts for the medical and food industry sectors. In the past 25 years, following its success in the fields of microtechnology and watchmaking, the Jura-based firm has developed all the tools necessary to develop software for machined medical parts, as well as their management and traceability.

Currently, Productec is able to supply complete CAM (Computer Aided Manufacturing) programming solutions thanks to GibbsCAM and a DNC (Direct Numerical Control) software solution which ensures the traceability of the components produced.

## From watchmaking production to medical components and food items

For the past few years, GibbsCAM has been renowned for its complex milling and turning applications in watchmaking and the medical fields. Productec is an established company in Swiss turning, and has developed comprehensive capabilities in the procedures of this particular field. A number of procedures have been conserved and can be applied to new parts, resulting in a drastic decrease in programming time.

Productec has transposed this productivity growth into other fields of application – most notably the food industry. Working with other renowned global food industry brands – including a world leader based in Uzwil, St Gallen, that produces machines for the grain, pasta and flour industries – Productec has offered

software solutions adapted to needs, while meeting the strict standards required by the various fields.

## Experts for customer service

With its twenty-odd employees, Productec is one of GibbsCAM's most important retailers. Besides acting as retailer, the company also works shoulder to shoulder with the software manufacturer in the USA, where it co-develops modules specifically adapted to Swiss and European needs in micro-technology.

With its multiple skill sets, Productec can offer high-quality user support, programming skills and the guarantee of targeted training programs.

Apprentices, technicians and engineers are given GibbsCAM training in secondary and tertiary education, but over 350 machining professionals are also trained every year on GibbsCAM software within the premises of Productec. Because GibbsCAM's software is easily accessible, managers have collaborators at their disposal who can manage their own production. Such almost immediate operability makes for rapid and efficient Return On Investment (ROI).

## Services that evolve

With the continuous aim of meeting its customers' demands, Productec also offers solutions in keeping with needs in the medical field. Quality and traceability of components, or indeed machine performance calculation within the framework of important series, are daily requirements in the medical field.

To ensure the best production possible, Productec offers all the skills needed to deploy both its production surveillance system and its OEE (Overall Equipment Effectiveness) computing surveillance system via its DNC solution. In an age when every second counts and quality cannot be minimised, Productec stands apart from its competitors by offering a complete digital chain adapted to the relevant sector.

A new offer for 2014 within Productec's new range of services is robot steering for an optimised toolpath.

The speed and complexity of medical components deserve specific safety systems and round-the-clock operation. Naturally, this implies resorting to robots to ensure both repeatability and precision.

**PRODUCTEC OFFERS A COMPLETE DIGITAL CHAIN ADAPTED TO THE RELEVANT SECTOR.**



Alpine plant extracts are used to develop new care products.

## PhytoArk: innovations are in Alpine plants

Through its technological platform and network of competences, PhytoArk revisits the ancestral traditions of harvesting Alpine plants by bringing their qualities into high-added-value innovative products. **BY KARINE BOURGEOIS, PHYTOARK SION-CONTHEY SITE MANAGER, AND MASSIMO NOBILE, BIOARK MONTHY SITE MANAGER**

**T**he harvest of the so-called «les simples» was a traditional practice of the mountains populations in Valais. Plants were collected for their food usages and medicinal benefits, and prepared as teas or liqueurs. PhytoArk, through its technological platform, network of competences and modern technological assets, intends to renew these ancestral traditions by incorporating the qualities of the alpine plants into high-added-value products in strong-growth markets.

### The value of plants used in traditional pharmacopoeias

According to the World Health Organization (WHO), between 70 to 80% of the population in developing countries depend on traditional medicines and pharmacopoeias for primary health care. In China, for example, traditional herbal drugs still represent 50% of the total “consumption” of medicines (WHO, 2013).

The growing interest in traditional drugs and ingredients is opening new business opportunities distinguished by intensive

R&D activities. For example, Indian Himalaya Drug Company has developed a full line of products derived from Ayurvedic traditional medicine as therapeutics, food supplements and cosmetics. Closer to us in Europe, Clarin develops cosmetics inspired from local populations uses, such as Sabline’s extract incorporated into the “Capital Lumière” product line.

### A story of investment on local resources

Therapeutic uses of plants are pretty well described in Valais. Indeed, one of the first texts highlighting the use of aromatic and medicinal plants (MAPs) goes back to the beginning of the 20th century: in 1906, Ferdinand Wolf wrote a book on the local medicinal plants in Valais. Later, alpine medicinal plants harvested in the wild by the mountain dwellers continued to meet the needs of herbalists and pharmacists, and even for pharmaceutical companies such as Zeller and Bioforce.

In the 1980s, driven by Ricola and Agroscope, the cooperative MAP grower Valplantes was created to meet the requi-

rements of the food and cosmetics industries for more professional raw material sourcing.

In 2013, the PhytoArk Sion-Conthey technology park was launched with the aim of developing and turning natural ingredients into high-value-added products for the cosmetics, health-nutrition and phytopharmacy markets.

### Gathering competences for innovation

The technological park, occupying 1,500 square metres and dedicated to the extraction and purification of natural ingredients, is focused on the needs of companies, start-ups and researchers for product innovation. The PhytoArk platform will allow the development of brand-new natural ingredients, from the R&D to the industrial process, going through a first pilot batch. PhytoArk also offers fully equipped offices and laboratories, plus an open-space for young companies and start-ups.

PhytoArk is also a network of specialists in the field of natural ingredients, comprising outstanding competences from the raw materials to the market launch. PhytoArk has established several close collaborations with three key partners. The first, Mediplant, the Swiss Research Centre on Medicinal and Aromatic Plants, deals with plant bioprospecting, upscaling and pilot crops, especially alpine plants. Second, through Agroscope IPV, the PhytoArk network uses state-of-the-art fields, greenhouses and laboratory facilities adapted for research, domestication, breeding and cultivation of MAPs. Finally, the University of Applied Sciences offers R&D activities related to natural products such as the isolation and characterisation of active substances from plants.

### The PhytoArk network

As an example, the two companies below illustrate the competences and activities on the site of PhytoArk and in its network:

**ALCHILAB SA** Alchilab is a company with full facilities and expertise for the industrial production of cosmetics, food supplements and herbal remedies based on local and regional raw materials, essentially alpine plants.

**PHARMALP SA** Pharmalp develops and markets food supplements and women’s health products whose scientific and clinical effectiveness have been proven.

PHOTOS: DR

## At Cremo, milk is the first biotech product

A major dairy processor in Switzerland, Cremo is strengthening its ties with the biotech community to build a portfolio of new products that will contribute to the wellbeing of society.

**BY DR. BERNARD L. ROY, CHIEF SCIENTIFIC OFFICER, CREMO SA**

**F**rom its inception in 1927, Cremo has always drawn on traditions and quality to meet the challenge of new technologies. Cremo has 800 employees in five main sites and processes around 600 million kg of milk per year. The headquarters are in Villars-sur-Glâne Switzerland. Cremo is a major dairy processor in the Swiss landscape and an important partner in a series of international strategic alliances. While not forgetting its roots, Cremo has decided to move forward and strengthen its ties with the biotech community.

### From grass to proteins

Cremo’s strategic vision for the future as a “new-style” dairy research company is based on the following points. Sustainable development based on a natural renewable resource that is milk from cows. Invest in projects and alliances such as the technology of “milk cracking” and process automation. Combine our knowledge and expertise to develop innovative and

healthy products while being at the forefront of scientific and technological developments. Proteins and peptides are perfectly suitable substances for delivering a benefit to people of all ages. Milk has always been known for its “goodness” and Cremo is going to translate that quality into healthy ingredients.

### The “whey” forward

Whey is a by-product from cheese production and has been used as animal feed, but its nutritional and pharmaceutical potential have long been overlooked. Change started with the use of membrane filtration methods to separate protein types and to remove lactose without the use of enzymes. This has opened the door to several product improvements and new uses for dairy ingredients. Enzymes are not new to the dairy industry, but choosing the right one for selective hydrolysis is becoming a standard method for the

preparation of bio-active peptides. The use of membrane filtration and other techniques such as electrodialysis or adsorption chromatography will permit further separation of the components. Temperature control of the size of globular proteins is another method that is being evaluated to “trick” the membranes and separate sub-types within a protein class.

Bio-peptides that are isolated in this way can be screened in standard high-throughput assays to identify potential disease areas where they can be used as leads or considered as additives for chronic, prophylactic use in food. Protein properties can also be modified by shear stress or temperature-induced denaturation. This has effects on gel strength, among other properties.

**“CREMO TAKES PART IN THE WORLDWIDE EFFORT TO FIGHT THE SCOURGE OF OBESITY”**

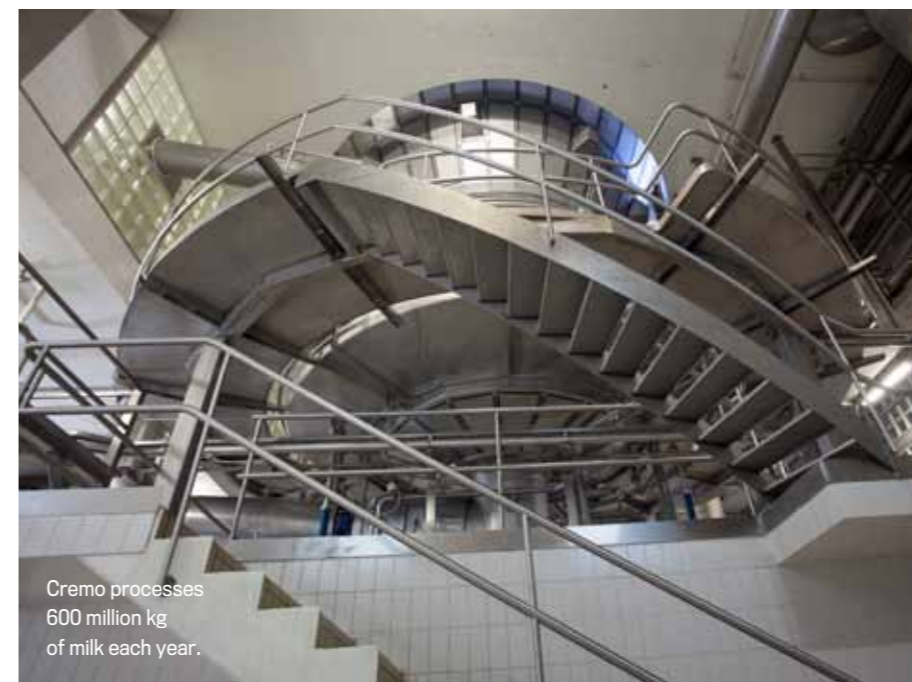
Microencapsulation of ingredients such as vitamins or probiotics using whey proteins creates a protective matrix that may overcome problems associated with oral administration. As ubiquitous

foodstuffs, dairy products are an excellent vector for distributing ingredients to the body.

### Food and healthcare

Cremo has started to take part in the worldwide effort to fight the scourge of obesity and furnish healthy foods that promote satiety. Whether through fibres or the right type of proteins, it is possible to have some level of control on the glycaemic index, which is an important factor for diabetes management. An important aspect in dairy protein research is the involvement of branched chain amino acids (BCAAs) in muscle repair. BCAAs are abundant in whey proteins. With increasing numbers of aged people, loss of muscle mass (sarcopenia) is a condition that cannot be ignored. Dairy proteins or derived bio-peptides have shown activity in fields as varied as apoptosis and immunology. Cremo is a partner in research collaborations looking into several of these topics.

The research model for Cremo is a dynamic one that identifies global needs and searches the top world players. We then initiate collaboration, when possible, that will satisfy all our stakeholders. Cremo is a company that wants to add value to its traditional pipeline and build a portfolio of new products that will contribute to the wellbeing of all age groups. Milk is more than a drink!



Cremo processes 600 million kg of milk each year.

# CSL Behring selects the canton of Bern for its new manufacture

A global leader in the plasma protein therapeutics industry, CSL Behring will produce recombinant haemophilia therapies in Switzerland. **UWE E. JOCHAM, SENIOR VICE PRESIDENT**

**AND GENERAL MANAGER, CSL BEHRING AG**

**A**fter two-and-a-half years of intense negotiations, the Australian company CSL Behring has finally chosen the city of Lengnau, in the canton of Bern, to build a new state-of-the-art production unit. The choice was made at the expense of Singapore in the final bidding round. But early in the process, no fewer than 45 sites were competing.

The life-saving therapies of CSL Behring trace its beginnings to the 1904 founding of Behringwerke, a company established by Emil von Behring, the first recipient of the Nobel Prize in Medicine. In 1916 CSL Behring's parent company, CSL Limited, was founded to supply vaccines to the people of Australia. In 1946, Behringwerke became the first company in Europe to begin fractionating plasma proteins from human plasma on an industrial scale. During the 20th century, leading companies came together to form CSL Behring.

From then, CSL Behring has evolved into a world leader in biotherapies, competing directly with Baxter.

## A leader in biotherapies

Biotherapies differ from conventional chemical-derived pharmaceuticals in many ways, but the main one is that they are derived from human plasma, or produced as their recombinant equivalents, instead of from chemicals. Therefore, the group also operates CSL Plasma, one of the world's largest plasma collection networks, throughout the United States and Germany. The Australian company researches, develops, manufactures and markets biotherapies that are used to treat serious and rare conditions. These conditions include coagulation (bleeding) disorders such as haemophilia and von Willebrand disease, immune deficiencies and genetic emphysema (inherited respiratory disease).

Biotherapies are also used in critical care settings to treat shock, sepsis and severe burns, during cardiac surgery and for wound healing. In addition, biotherapies are used to prevent haemolytic disease in newborn babies resulting from Rh factor incompatibilities.

CSL Behring's presence in Switzerland dates back to 1949 when the «ZLB Zentrallaboratorium Blutspendedienst SRK», a department of the Swiss Red Cross, was founded. This central laboratory (ZLB) in Bern was designed to produce and supply blood products to Switzerland. After its acquisition by CSL in 2000, a few name changes, and many important health care breakthroughs, that location is now known as CSL Behring AG. Today, the Bern site is a fully integrated fractionation and manufacturing facility specialising in the production of immunoglobulins. Due to the tremendous demand for immunoglobulin therapies, it has experienced significant growth in recent years.

## 300 new jobs

In Switzerland, the biotechnology company CSL Behring already employs more than 1,250 people on its site in the city of Bern. It plans to invest between 300 and 400 million francs in its new location in Lengnau, where it will manufacture three new products for patients with haemophilia A or B. Some 300 new jobs will be created. It could also be the start of more development to come. The company will utilise 145,000 square metres of land in total. And at its five other global production sites the group (with 12,500 employees in total), employs no fewer than 700 people at each site.

The proposed investment in the canton of Bern will complement recently completed manufacturing expansion projects at CSL Behring sites in Germany, Australia and the USA. This investment is part of an ongoing global capacity expansion strategy and plays an important role in the company's long-term growth plans. The new products that will be manufactured in Lengnau have been developed jointly by CSL employees in Germany and Australia.

With Celgene, which has announced the construction of a new production site in the canton of Neuchâtel, and the opening of the Europe Middle-East Africa headquarters of radiation oncology company Accuray in Morges, Western Switzerland's Health Valley is attracting major new international investment.



FRM housed biomedical start-up since the late 90's.

## From bedside to bench and back at the FRM

The Fondation pour Recherches Médicales (FRM), a Geneva-based institution, specialises in translational medicine research.

**BY WERNER SCHLEGEL, CONSULTANT FOR START-UP COMPANIES AT THE FRM, FORMER DIRECTOR OF THE FRM, COFOUNDER AND BOARD MEMBER OF THE FONDATION ECLOSION.**

**T**he Fondation pour Recherches Médicales or FRM (Foundation for Medical Research) was created in the late 1960s, a period when medical research was expanding rapidly. At the time, the medical faculty as well as the university hospital lacked laboratory space; private sponsorship of a research building was thus extremely welcome. The FRM was founded to facilitate research which would take issues from the "bedside to the bench" and back. The FRM thus mostly hosts research groups from Geneva University Hospital (HUG), directed by clinicians. The FRM is housed in a very distinctive building, La Tulipe, a glass-concrete "sculpture" ideally situated close to the HUG. Research groups at La Tulipe also benefit from the proximity of the CMU (Centre Medical Universitaire).

## Incubating NovImmune

Right from the start, a major objective of the FRM was to create a bridge between

academic institutes and private research and development. This was re-emphasised in the late 1990s when the FRM housed its first biomedical start-up company, Europroteome. Founded by Marc Reymond, Europroteome analysed cancer proteomics to find drug targets and markers that would allow an optimal choice of individualised anticancer therapy. Based finally near Berlin, Europroteome operated with over 35 staff for two years, but had to close due to insufficient funding.

In 2001, the University of Geneva started to create incubators where start-up companies would be housed, guided and co-financed during the early phase of their development. The FRM was very active during the creation of Eclosion, Geneva's incubator for life sciences companies, which opened in 2004. During the same time, the FRM was hosting several small start-up companies, among them NovImmune SA (<http://www.novimmune.com/>). In 1999, this

company started in a small office at La Tulipe with a single staff member. It left the FRM having grown to over 30 staff and is now the largest medical biotech company in Geneva.

## The Fondation Eclosion

The FRM is complementary to the Eclosion incubator. Start-up companies hosted by the FRM are not looking for the intensive guidance provided by an incubator, either because their staff are experienced or because they are still in a very early phase, searching proof of concept. The FRM provides adequate and adaptable laboratory space at reasonable and flexible cost, as well as access to animal facilities and common equipment.

In summary, the Fondation pour Recherches Médicales aims to accelerate progress in medicine by providing infrastructure, services and contacts at two crucial interfaces: first, between clinical and laboratory research; and second, between academic institutions (HUG; medical faculty of Geneva University) and the private sector, where biomedical start-ups are a key element in innovation in modern diagnostics and novel therapies.

## Home for spin-offs

Currently, five start-up companies operate at "La Tulipe" or are housed at the FRM.

**TRANSCURE** (<http://www.transcure-biosciences.com/>). This platform company provides access to humanised immune system (HIS), HIV, and many other mouse models for studying infectious and non-infectious diseases.

**STEMERGIE** (<http://www.stemergie.com/>). Stemergie develops treatments and diagnostics for cancers by targeting cancer-initiating cells (CIC, "cancer stem cells"), the roots of cancer.

**AMAL THERAPEUTICS** (<http://www.amaltherapeutics.com/>). Amal uses its proprietary cell-penetrating peptide platform to develop and progress therapeutic vaccines in oncology.

**MAXIVAX** This company aims to boost anticancer vaccination by the implantation of encapsulated cells which release immune-stimulating growth factors. Maxivax is currently conducting a phase 1 clinical study.

**WEZENBIO** (<http://www.wezenbio.com/>). This business development company specialises in building bridges between human and veterinary medicine.



CSL Behring will add a new manufacturing site to its existing one in Bern.

PHOTOS: DR



FKG installed a clean room to deliver sterile single used products.

## FKG Dentaire, always one innovation ahead!

In 20 years, FKG Dentaire has seen a six-fold increase in turnover. It is focusing on innovation in order to be a key player in the world of endodontics. **BY PATRICIA BORLOZ, MARKETING DIRECTOR OF FKG DENTAIRE**

**F**lexible, quick to react and above all, innovative: FKG Dentaire is a mid-sized company that remains close to its markets and plays in the big leagues.

Company owner, Jean-Claude Rouiller, a visionary with a knack for anticipating the needs of dental practitioners, surrounded himself with a highly qualified and motivated team and built partnerships with the best universities in the world.

In just 20 years, FKG Dentaire has seen a six-fold increase in turnover, the number of staff quadruple and an average annual growth rate of between 15 and 20%. It manufactures around 15 million products each year, 95% of which are exported to over 80 countries. No surprise, then, that in 2012 the enterprise, based in the Neuchâtel mountains, was named by the Swiss Venture Club as Western Switzerland company of the year!

### Fusing watch-making precision with materials science

Founded in La Chaux-de-Fonds in 1931 by a dental engineer with ties to a

watch-making supplies expert, the company initially produced parts for dentures as well as dials for watches. Then, when Jean-Claude Rouiller, who had joined the company a few years earlier, took over the reins of the dental branch in 1994, he changed its focus to endodontics (treatment of the dental pulp) and gave it the name of FKG Dentaire.

Back then, dental reaming instruments were made of stainless steel. But because the root of the tooth can sometimes be very narrow or have strong curvatures, the steel tools were simply too rigid and could lead to breakage inside the root canal. In an effort to simplify the work of practitioners, Mr. Rouiller turned to an alloy of nickel and titanium (NiTi) and exploited its exceptional qualities: namely, its shape-memory effect and superior flexibility and elasticity. The instruments would also undergo an electro-chemical treatment to improve the surface condition and resistance to torsion. They can thus be used with an

engine running at a speed of 600 revolutions per minute.

### Innovation in its DNA

FKG has invested heavily in innovation, opening a new production site in 2007 and bringing a host of new products to market. Indeed, over the years the R&D team has submitted several patents: one for Race instruments, developed to avoid blocking and screwing-in effect (the cause of breakage); another for the Safety Memory Disc, which allows the practitioner to have better control of instrument fatigue; and one for the S-Apex, an inverted cone drill designed in such a way as to eliminate all risks of breakage at the tip.

As the production of these instruments grows ever more complex and sales numbers increase, FKG has stepped up design and development of its own machines. At the same time, the company regularly undergoes a certification process in accordance with the principal quality management systems and medical norms of the industry.

In 2013, FKG installed a clean room in order to deliver sterile, single-use products that minimise the risks of cross-contamination for the patient. In an effort to reduce production costs, the company also automated several steps of the manufacturing process and set up automated packaging equipment.

### International reach

To market its products worldwide, FKG attends the biggest international trade fairs, where it offers product demonstrations. But the company is also involved in training local dentists at three training centres (La Chaux-de-Fonds, Oslo and Dubai), as part of its belief in transferring knowledge on the optimal use of these ultra-sophisticated tools. Furthermore, FKG has in place a network of distributors that are carefully selected on the basis of their structure and compatibility with its own strategies.

“Our goal is to save the dentist time, provide more comfort to the patient and thus offer greater work safety, quality and ease of use,” says Jean-Claude Rouiller’s son, Thierry Rouiller who has been leading the company since 2012. “As for the future, the way is already clear,” he adds. “FKG intends to continue to” focus on innovation in order to be a key player in the world of endodontics.”

**“OUR GOAL IS TO SAVE THE DENTIST TIME AND PROVIDE MORE COMFORT TO THE PATIENTS”**

PHOTOS: DR

## The first 3D-printed organ is Swiss-made

Based in Fribourg, regenHU is introducing 3D printing into R&D, paving the way for it to become a standard technology in tomorrow’s clinics. **BY FABRICE DELAYE**

**W**hat could Dr Jing Yang, a researcher from Nottingham University, possibly be looking for in Villaz St-Pierre, a peaceful village in the canton of Fribourg? He is visiting regenHU, a young Swiss biomedical company, part of CPA Group Ltd and a flagship of its private technology park, Le Vivier. Pointing to a rotating 3D nose model on a display, he explains: “Scanners allows accurate pictures of an organ such as a nose that has to be removed from a patient. Today, it is already possible to print a 3D implant derived from the scanned image. Soon enough we believe we will be able to print 3D transplantable living tissues.”

Welcome to the world of 3D-printed

human spare parts. regenHU is a world leader in this new generation of medical technology. The Swiss company has been developing 3D bio-printers for seven years now, and may be the first to offer commercial 3D-printed living implants.

Standing behind one of the cafeteria tables, Marc Thurner, co-founder of regenHU, unwraps from its packaging a small white block that looks very much like a sugar cube. On closer inspection, one can see tiny channels in the piece. “They are intended to allow the jawbone cells to fill up the space left by the loss of a tooth to provide a new ‘root’ to insert an implant,” explains the young CEO.

In order to find success in the dental implant market, regenHU came up with an original business model. Instead of

directly marketing this discovery, developed with the University of Geneva, the company created a spin-off, VIVOS Dental. With European CE marking expected this year, the 3D-printed living implants should be marketed shortly. This will allow regenHU to supply VIVOS Dental with its 3D printers, leaving it free to focus on developing other applications, from which new spin-offs may emerge.

### 3D-Printable organs

Instead of focusing on 3D printers for design or manufacturing, regenHU is betting on biology. It’s a fast-growing niche, with a backlog of orders. Two years ago the company delivered one 3D printer a year. Currently it provides around 20 printers a year, costing between CHF 80,000 and CHF 500,000. Some buyers, such as the National University of Singapore, have ordered its high-end 3D printer, the BioFactory, while other Asian universities have bought the 3DDiscovery systems. regenHU is taking orders from US universities that figure among the top 10 in Shanghai University’s Academic Ranking of World Universities.

These universities need the printers to assay which organs could be printed with a combination of biocompatible materials and tissue engineering. When you talk to Dr Jing Yang, it is easy to figure out why. He is trying to print 3D matrixes that are biocompatible and functionalised (with growth factors) to grow stem cells that will become cartilage cells. He does admit that it will require extensive research, but also says that 3D printers are becoming essential in life sciences researches.

“The range of possible applications is wide and enables researchers to be creative,” explains Mark Thurner. regenHU is planning a spin-off specialising in 3D-printed parts for maxillofacial plastic surgery. It is even working with a physician from Zurich on 3D-printed tissue models for liver transplants.

Learning from past experience in the history of regenerative medicine, Marc Thurner is wary about making promises that he cannot to fulfill in the short term and that might leave patients disappointed. “3D printing generates a trend to our benefit. However, we don’t want to play the same game as some of our competitors, with PR stunts at events such as TED. 3D-printed organs still require years of development and there are risks related to the outcome of clinical trials as well as of regulation.”



Bioprinters generate 3D constructs of cells, proteins and extracellular matrix components.





High-performance liquid chromatography's pumping systems use parts made of advanced ceramics.

## Ceramaret: small parts in advanced ceramics

Ceramaret has achieved leadership in precision parts made from advanced ceramics for analytical and medical components, among others. **BY HUGUES LEUZINGER, VP MARKETING & SALES, CERAMARET SA**

**B**ased in the Canton of Neuchâtel, Switzerland, Ceramaret has developed tremendous experience in the manufacture of precision parts made from advanced ceramics. The outstanding qualities of advanced ceramics make them ideal for use in high-tech applications such as analytical and medical instrumentation. Besides being very hard, ceramic materials are inert, resistant to aggressive solvents, biocompatible, insulating and resistant to both high temperatures and highly abrasive fluids.

One of Ceramaret's areas of expertise is the manufacture of complex high-precision parts used in high-performance liquid chromatography (HPLC) instrumentation. Cylinders and plungers made from advanced ceramics are used in the pumping systems of HPLC units, which must be able to reach very high pressure, mainly to overcome the flow resistance up to the chromatographic column. These parts are first pressed from high-grade ceramic powders and sintered into near-net-shape blanks, which are then machined to customer specifications, within micrometres of geometric tolerance and with outstanding surface finishes. In some applications, sapphire can be specified for the plunger of the pumping system, which is also manufactured by Ceramaret. Sapphire or ceramic plungers are also used in other fluidic

systems, for instance in precision biomedical liquid dispenser systems.

### Key fluidic components

Other important components of the HPLC pumping system are the high-precision flow valves mounted at the head of the cylinder to coordinate and direct the solvent flow, e.g. an inlet valve to let the liquid into the cylinder during the suction travel of the plunger and the discharge valve allowing the fluid out to the chromatographic columns during the forward stroke of the plunger. Ceramaret manufactures high-precision check valves either as separate elements (seats & balls) or pre-mounted in cartridges. The company manufactures both single- and double-valve cartridges, depending on the application. All check valves can undergo a standard leak test according to specific customer requirements.

Another key fluidic component in HPLC instrumentation is the high-pressure distribution valve, which also requires high-precision ceramic parts. Once again, the distribution rotor and stator are machined to outstanding geometric tolerances (flatness) to guarantee the tightness of the valve and precise fluid distribution.

With regard to medical instrumentation, Ceramaret manufactures high-quality ceramic insulator tips for

various medical endoscopes. The specific ceramic material for these particular insulators is an yttria-stabilised zirconia (YTZP). This material is very hard and resistant, capable of withstanding shocks and strong mechanical abuse. All insulators are machined to tolerances of a few micrometres according to specific customer requirements.

### Continuous growth

Ceramaret has enjoyed continuous growth and recently opened two new production buildings on its site in Bôle, near Neuchâtel. These new additions have increased the available manufacturing area to 8,000 square metres. Besides a growing interest in ceramic parts, this continued success is due to the company's basic attention to customer expectations throughout all the steps of the value chain. This starts with the strong involvement of an engineering team to help customers identify the best design to allow full expression of the basic ceramic properties for the particular customer assembly, and all at a minimal cost. Quality and traceability are priorities at Ceramaret, and the company is certified to ISO-9001, ISO-14001, ISO-13485 and OHSAS-18001. It also works closely with customers on specific quality aspects and requirements. Last but not least, strong emphasis is placed on the logistics service provided to customers, to simplify and optimise their complete sourcing process.

Additional growth is expected in other important strategic fields (sensor technology, automotive industry, avionics, oil and gas, etc.) and Ceramaret is also actively promoting the substitution market for advanced technical ceramics, an area where this exceptional materials could improve the performance and durability of many products.

**"CERAMARET HAS ENJOYED CONTINUOUS GROWTH AND RECENTLY OPENED TWO NEW PRODUCTION BUILDINGS"**

PHOTOS: DR



Valtronic helped hundreds of companies to launch thousands of Class II & III medical devices.

## At Valtronic, implants become smart

Valtronic is a full-service global provider of engineering, industrialization and manufacturing for medical devices.

**BY JIM OHNECK, CHIEF MARKETING OFFICER, VALTRONIC SA**

**V**altronic has been headquartered in Switzerland, in the Valley of Joux, since 1982. With 400 employees worldwide, the 130 employees of the Swiss site provide group competencies in engineering and manufacturing specialized in electronic miniaturization and mechatronics to grow ideas and take innovations to the next level. Its two subsidiaries in Solon, Ohio, USA, and in Casablanca, Morocco, also specialize in electronics and assemblies. All production sites are registered under ISO 90001 and ISO 13485 (the facility in Casablanca was the first Moroccan company to achieve registration). The Swiss site is FDA inspected.

For over 30 years, the company has helped hundreds of companies to launch Class II & III medical devices and advanced miniaturised electronic assem-

blies from its facilities worldwide. Among Valtronic's customers are the leading global suppliers of medical devices and implants, and diagnostic equipment, as well as sensitive aerospace and industrial companies.

Valtronic offers different solutions in three main domains:

- **Engineering consulting**
- **Design & development**
- **Manufacturing services**

Valtronic develops partnership based on the creation of innovative ideas, technology and positive outcomes for all. So it is not rare that Valtronic adapts to customer's needs, by reviewing all steps of the product lifecycle. With about 60% of its business in the medical industry and 40% in high-level industrial mar-

kets, Valtronic focuses on five selected market segments:

- **Active implants**
- **Sensor assembly**
- **Medical equipment**
- **Orthopaedics**
- **Industrial**

Each location hosts a modern cleanroom with temperature, humidity and contamination controls, giving Valtronic the ability to package electronic and mechanical assemblies in a sterile environment. As microelectronics is a core competency, the focus is on different technologies: Chip-on-Chip, Ultra-fine pitch wire-bonding and heavy wire-bonding, Chip-on-Board with Al & Au wires, Flip-Chip (soldered, glued, ultrasonic, with thermo-compression). Together with the high-precision Surface Mount Technology (SMT) and manual assembly, this enables Valtronic to provide product miniaturisation on 01005-sized surface-mounted components.

Valtronic regularly acquires new technologies to stay current with changing business needs and ensure that its customers receive both quality and dependable products. Already proven in other industries, Valtronic's latest technology is Glass Encapsulation. It provides a reliable sealing process, a high-density feed-through and an extended lifetime for active implants. Due to its competencies in this field, Valtronic was awarded the Golden Mousetrap Award in the Materials and Assembly Category during the MD&M West Show in Anaheim 2014.

Valtronic Switzerland has also opened a new state-of-the-art building in July 2012 dedicated to precision mechanics and orthopaedic implants. The facility specialises in the industrialisation and manufacture of surgical implants and ancillaries, as well as mechanical parts for the assembly of medical and industrial devices. A complete supply chain management structure is in place for the manufacture of products, which permits better reactivity and logistics planning.

For all customers in the medical field, the company profits of its worldwide presence: adding innovation, development and production capacities to the Swiss headquarter, the Moroccan and American subsidiaries provide high volume and preferential cost production to a Swiss quality.

Valtronic really positioned as a unique innovative solutions provider of technological advance.



A leader in toxicology, Covance is a top provider of Central Laboratory Services and phase I-IV clinical development services.

## Covance provides critical central lab services

Covance is committed to science and its promise of a healthier world helping pharma and biotech companies to bring their products to market more quickly and cost effectively.

BY JEAN-MARC LEROUX, GENERAL MANAGER, CENTRAL LABORATORIES, MEYRIN/GENEVA

Headquartered in Princeton, New Jersey, Covance is one of the world's largest and most comprehensive drug development services companies, with revenues of \$2.4 billion, more than 12,000 employees and a presence in 60 countries. The Company is the world's largest provider of Central Laboratory services with labs in Geneva, Tokyo, Singapore, Shanghai and Indianapolis and is generating more safety and efficacy data for regulatory submissions than any other organization in the world.

It takes about 10-15 years to develop one new medicine from the time it is discovered to when it becomes available for treating patients. The average cost to research and develop each successful drug is estimated to be \$800 million to \$1 billion. This number doesn't include the cost of the thousands of failures: For every 5,000-10,000 compounds that enter the research and development (R&D) pipeline, only one will get to market. Success requires immense resources - the best scientific minds, highly sophisticated technology and complex project management. Ultimately, though, the development of new, innova-

tive therapies helps to improve the lives of millions of patients across the world.

### Taking cost out the process

Committed to science and its promise of a healthier world, Covance collaborates with pharmaceutical and biotech companies of all sizes to help bring their products to market more quickly and cost effectively. Covance has deep expertise in all areas of drug development, from discovery through clinical and post-marketing safety studies. It is the market leader in toxicology and central laboratories services and is a top five provider of Phase I-IV clinical development services.

The trend towards outsourcing research and development activities among pharmaceutical, biotechnology, and medical device industries will continue to increase due to growing pressure to contain costs and the need for faster development time for new drugs. Covance helps companies make the process of drug development more efficient by providing services that generate high-quality and timely data to support new drug approvals and expand

the use of existing therapies. The value as a drug development partner is evidenced by the company's relationship with small and mid-sized biotech companies as well as multi-billion-dollar, long-term research and development partnerships with company's such as Lilly, Sanofi, Bayer, Takeda and Merck.

### Covance presence in Geneva

Present in Geneva since 1992, Covance provides central laboratory services to more than 120 biotechnology and pharmaceutical customers and contributes over 16% to the overall company revenue. The lab for European clinical trials specialized in services like clinical chemistry, Genomics, Hematology, Microbiology, Immunology and Histology. In continuous development, Covance in Geneva now runs its operations in using the 18'000 sqm of the building.

Since its opening in 1992 the Geneva site has grown from 20 employees to 620 employees.

Covance is one of the world's most experienced providers of clinical trial central laboratory services with a market share of over 40%. Over the last five years, the Company's laboratories have conducted over 183 million laboratory tests for more than 4,200 clinical trial protocols in over 95 countries working with more than 125,000 investigator sites.

Testing kits are sent to the multiple investigator sites, where patient samples from clinical trials (e.g. blood, urine, tissue, etc.) are quickly collected and returned to one of the Company's five central laboratory sites and tested within 24 hours. Using its proprietary clinical trial management system, which enables it to input the exact study protocols directly into a central database, Covance can provide its partners with a customised data report within 24 hours of test completion. The data base allows laboratory data to be audited at any stage during the study.

Clients are able to review and query laboratory data on a near real-time basis, using LabLink, Covance's internet-based client access program.

The Company's central laboratory service also offers pharmacogenomics microarray testing as an integral part of its clinical trial service, allowing pharmaceutical and biotechnology firms to conduct genomic microarray testing for patients anywhere in the world.

« SINCE 1992, THE GENEVA SITE OF COVANCE HAS GROWN FROM 20 TO MORE THAN 620 EMPLOYEES. »

PHOTOS: DR

## TRB Chemedica's innovative market strategy

Its successful response to unmet medical needs explains the rapid growth of the Geneva-based pharma company. BY MARCO J. BETANCOURT,

BUSINESS DEVELOPMENT MANAGER AT TRB CHEMEDICA INTERNATIONAL SA

Headquartered in Geneva, TRB Chemedica International SA has since its foundation in 1982 been at the forefront of bringing to patients, doctors and society top-quality, highly innovative and efficacious medicines in the rheumatology, ophthalmology and neurology fields.

Every day at TRB we make it our business to bring disruptive and innovative thinking to the challenge of discovering and developing new medicines. TRB's aim has one outstanding motivation: to improve therapeutic outcomes for patients.

This forward-looking philosophy, combined with the company's family size, has always allowed TRB to think locally while moving globally, keeping the patient at the centre of

its research and business development activities.

### Network of subsidiaries

TRB remains anchored to its core values and principles: integrity, respect, collaboration, excellence, resilience and leadership - qualities applied on a worldwide basis by all TRB employees, and reflected all the way from the initial drug creation process to the actual treatment delivered to the patient.

TRB's core strength lies in developing and manufacturing various pharmaceutical products in-house, with production units in Vouvry, Switzerland, Argentina and Brazil. TRB commercialises its products through its own marketing infrastructure across territories (TRB's own subsidiaries) and through relationships with local, regional or global pharmaceu-



Nested in the mountains of Switzerland TRB Vouvry's plant general view.

tical companies (in- and out-licensing activities) in more than 70 countries.

TRB has a well diversified income base thanks to its business coverage in the international markets. TRB Chemedica is a growing organisation, currently employing more than 700 people worldwide.

### Addressing unmet medical needs

TRB's product lines address a range of ailments including orthopedic/rheumatic, ophthalmological and neurological diseases (soft tissues and joints disorders, osteoarthritis, dry eye syndrome, blepharitis and disorders of the central nervous system).

The company aims to improve people's quality of life with its products. To achieve this target, TRB concentrates on the research and development of innovative drugs and novel therapeutic approaches. And at the same time, TRB is continuously improving its established products.

Challenging the unmet medical needs of society and patients has been second nature to TRB from its beginnings: its hyaluronic acid-based eye drops, sold under the trademark VISMED, have become the benchmark for the ophthalmic industry when talking about treating the dry eye syndrome.

Another example of TRB's creative expertise and knowledge in the use of hyaluronic acid is the treatment of osteoarthritis (in the knee, the hip, shoulder and small joints). TRB's OSTENIL brand was recognised as a breakthrough at the time of its launch.

A lot of pressure is coming from local and regional regulatory and other related government bodies today. In this ever more complex environment, TRB strives first to maintain its niche market approach and second to deliver to its patients worldwide the best Swiss-quality healthcare products.



TRB chemedica's dedicated hyaluronic acid processing line.

# Baccinex: excellence in contract manufacturing

Founded in 1999, Baccinex is a recognized fill & finish partner for the sterile supply of clinical material and commercial batches. **BY URSULA BAUSCH, CEO BACCINEX**

**B**accinex is a privately owned Swiss company founded in 1999 at Courroux (Switzerland). Baccinex obtained in 2004 its Good Manufacturing Practice (GMP) certificate and its manufacturing license to produce sterile lyophilized and liquid products from Swissmedic (Swiss Regulatory Authorities). Since then, Baccinex releases commercial batches and development batches for clinical trials performed in Switzerland.

## From pharmaceutical development to drug product

Baccinex is a full-service pharmaceutical contract manufacturing organization (CMO) specialized in fill and finishing of sterile lyophilized or liquid dosage forms.

Our field of expertise spreads from pharmaceutical development and manufacturing of clinical trial material, to

commercial manufacturing, packaging, analytical services, stability studies and logistics. Over the years, we have developed special competences in aseptic fill / finish and lyophilisation of small molecules and biological products in vials and ampoules.

Our mission is to provide customized product manufacturing and support services in combining customer requirements, flexibility and compliance with high quality standards.

Baccinex emphasis to be a "one-stop-shop" for fill and finishing activities: we provide a wide range of support services from development steps (process development, scale-up...) to GMP manufacturing (production of clinical or commercial batches).

**BACCINEX EMPHASIS TO BE A "ONE-STOP SHOP" FOR FILL AND FINISHING ACTIVITIES**

Due to the high amount of development batches manufactured in our site, Baccinex has a thorough knowledge in industrial scale-up and adap-



Visual inspection of injectable products

tation of new process in compliance with regulatory requirements (GMP...). We have the expertise for rapid and successful completion for scale-up of a new process.

Thanks to its expertise in lyophilisation field, Baccinex can propose complementary activities like:

- **Development or optimization of lyophilisation cycles**
- **Consultancy for transition from research laboratory to GMP environment**
- **Scale-up and optimisation of production processes**
- **Compatibility / adsorption studies with filter / medical devices**
- **Stability studies according to ICH**

Baccinex has developed a cutting-edge know-how in order to fit onto each process and to manufacture in the best conditions for both clinical trials materials (Investigational medicinal products (IMP) or non-IMP for Phase I to III) and commercial batches: 70% of the batches produced are clinical material and 30% are for commercial purposes.

Our clients are mainly located in Europe. 40% of our batches produced last year were for Swiss clients. Then 23% were exported to France, 21% to UK and 12% to the Netherlands. But these statistics are changing each year: as we mainly produce clinical material, the amount of batches for our clients can completely change from one year to the next.

## Growth strategy in Europe

Our growth strategy is defined by two major goals:

- **First, to continuously increase our visibility as a reliable partner able to provide high-quality and customized services either as contract manufacturer or in terms of complete project management for clinical trial material.**
- **Secondary, to increase the percentage of commercial routine productions in long term client relationships for small-size batches such as necessary for orphan drugs or drugs for specific indications.**

Today, we are confronted during half of our productions with APIs such as proteins and peptides. During several years, we have developed an excellent expertise in dealing with these molecules all along the development and manufacturing process. We are convinced that good opportunities will keep coming up as a majority of the biotech compounds needs to be developed as sterile liquid or freeze-dried injectables.



At MPS, operators pair components to a precision of less than 0.2 micrometres in series production.

# MPS: customised solutions in microspace

Biel-based MPS engineers and manufactures implantable products and high-precision kinetic microsystems.

**BY GREGOIRE BAGNOUD, DIRECTOR BUSINESS DEVELOPMENT**

**W**ith headquarters located in Biel, Switzerland, MPS Micro Precision Systems AG develops and manufactures highly complex and very precise mechanical and electromechanical microsystems for the medtech, automation and watch industries. In spacious and modern architecture the 420 employees of MPS transform customer requirements and specifications into robust and reliable products and systems.

## High precision, low friction and low energy consumption

MPS supplies the dosing system for a programmable implantable infusion pump to a blue-chip medtech company in the US. The pump's main requirement is to deliver a specific amount of medication using the energy stored in an embedded battery. To guarantee this requirement over the entire lifetime of the product (7 years), MPS has optimised a very precise implantable microsystem which performs the function with almost no friction and therefore with minimal energy consumption.

Spine surgery is a very delicate operation, with success depending on the individual performance of the surgeon. MPS manufactures a small and very precisely adjustable robotic spine surgery tool (accurate to 1 micrometre), making the accuracy of the surgical procedure less dependent on the surgeon's performance.

## Biocompatible actuators

MPS's biocompatible actuator technology consists of an encapsulated motor, electronics and power element, as well as a gearbox and leadscrew made of biocompatible materials. The actuators and electronics are designed for long-term implantation and for wireless data and energy transfer. This technology has a wide range of applications in the orthopaedic, spine, urology markets, among others.

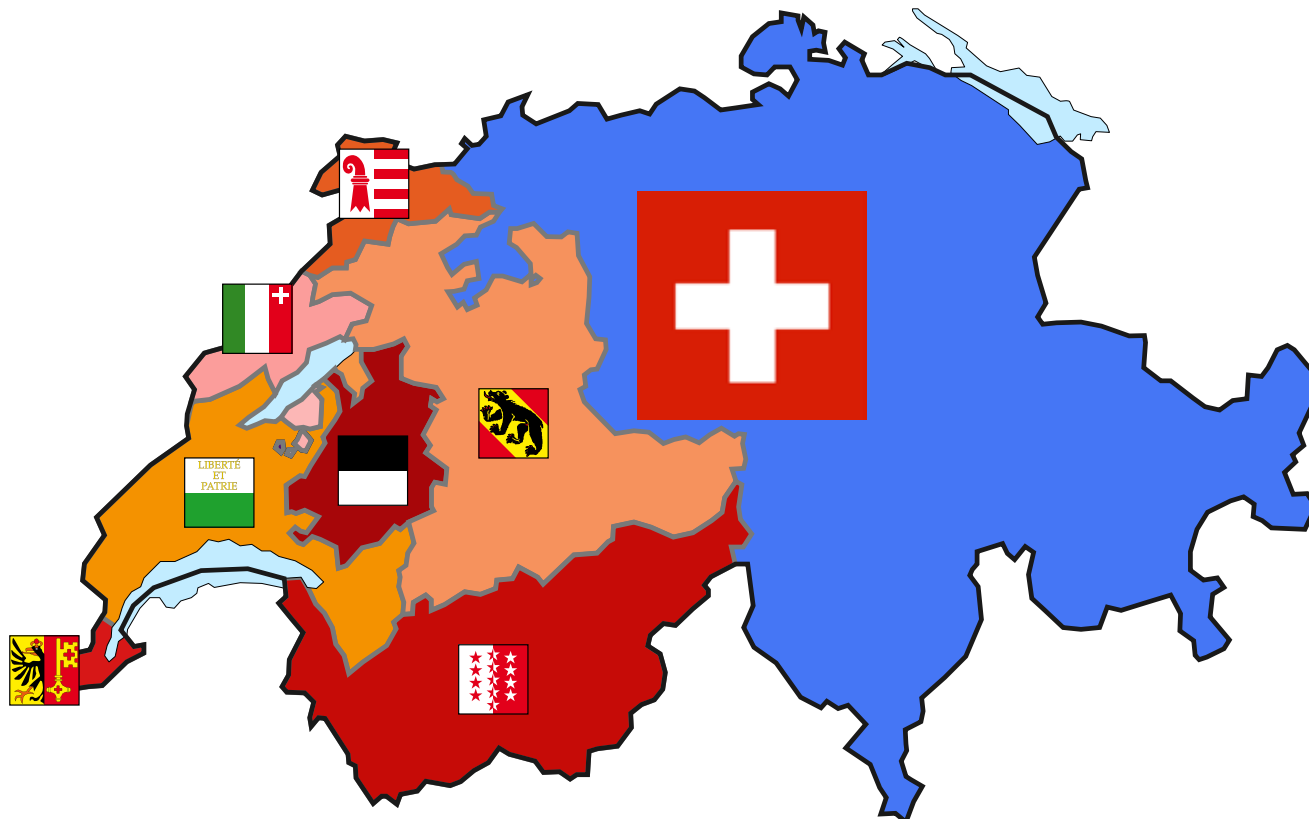
Integrating as much functionality as possible into the smallest available space is a key competence of MPS and a market requirement for active implants. MPS engineers are combining their own knowhow in micro-bearing technologies and that of their parent company Faulhaber in micro-motors and gear-

boxes with the competences of their electronic partner to develop and manufacture implantable, intelligent microsystems featuring low energy consumption.

Very precise components are at the heart of MPS' microsystems. These components are manufactured at MPS's own workshops in Biel/Bienne: Swiss turning, flat, round and centreless grinding as well as polishing yield components with tolerances lower than 1 micrometre and to a surface roughness of less than 0.1 micrometre (roughness average). MPS is also well equipped for heat treatment and component cleaning.

Particularly impressive are MPS's microsystem assembly capabilities: the company has developed its own processes that keep the system stiff enough to reach the required repeatable precision and the lowest possible friction. Using MPS-made assembly benches and jigs, operators pair components to a precision of less than 0.2 micrometres in series production. Depending on the requirements, system assembly takes place either in a dust-free room or in an ISO-standard clean room. MPS projects and product documentation conform to CE standards, and meet the standards of the US FDA's 510k pathway and PMA premarketing processes. MPS customers may use this documentation to complete their submission dossier.

In December 2012 MPS created a new subsidiary, MPS Precimed, at Corgémont in the Bern Jura. With its 90 employees MPS Precimed develops and manufactures innovative orthopaedics instruments for blue-chip orthopaedic companies. Its product portfolio includes reamers, impactors and drills.



## BioAlps a vibrant life science cluster

- Some 20 world class academic institutions with over **5'000 life science students** from over 70 countries
- More than **500 research facilities**
- **750 companies**
  - 450 in biotech
  - 300 in medtech
- More than **20'000 employees** specialised in the life sciences

## What we do...

- **Develop exchange** between scientific, economic, financial and political communities in relation to the life sciences
- **Promote** and **reinforce** existing synergies between **members**
- **Promote innovations** emerging from academic institutions
- **Promote** favourable conditions for the emergence of new companies
- **Maintain relationships** with similar initiatives at national and international levels



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

BioAlps is supported by the Cantons of Berne, Fribourg, Vaud, Neuchâtel, Geneva, Valais and Jura, by the Swiss State Secretariat for Economic Affairs (SECO), and by all key research institutions in the region.

Département fédéral de l'économie DFE  
Secrétariat d'Etat à l'économie SECO

# A Guide to life science companies

The Health Valley of Western Switzerland hosts a large number of biotech, medtech and pharma companies. The following business guide lists all the member companies of the BioAlps network.

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Aardex Group SA	Valais	R&D Services and Technology Platforms - Bioinformatics / Genomics & Proteomics	www.aardex.ch
AB2 Bio SA	Vaud	R&D Services and Technology Platforms - Drug Discovery	www.ab2bio.com
ABC Orthodontics SA	Jura	Medical Technology - Devices	www.abc-orthodontics.ch
Abionic SA	Vaud	Medical Technology - Devices	www.abionic.com
ABL Analytics SA	Neuchâtel	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.abl-analytics.com
Abrema	Vaud	Professional Services & Consulting - Patents & Trademarks	www.abrema.com
AC Immune SA	Vaud	Therapeutics and Diagnostics - Vaccines	www.acimmune.com
AC Solutions Sarl	Jura	Supplier & Engineering - Consumables & Reagents	
Accuratus AG	Bern	Medical Technology	www accuratus.ch
Achronis Sarl	Vaud	Professional Services & Consulting - Financial Services; Human Resources Services - Investor	www.achronis.ch
Acrostak International Distribution Sarl	Geneva	Medical Technology - Devices	www.acrostak.com
Actidot	Valais	Nutrition	www.actidot.ch
Actigenomics SA	Vaud	Nutrition	www.actigenomics.com
Actimed SA	Vaud	Supplier & Engineering - Consumables & Reagents	www.actimed.ch
ADC Therapeutics SA	Vaud	Therapeutics and Diagnostics - Chemical Drug	www.adctherapeutics.com
Addex Pharma SA	Geneva	Therapeutics and Diagnostics - Chemical Drug	www.addexpharma.com
Adima AG	Bern	Therapeutics and Diagnostics	www.galenica.com
Administrative Management Concept	Geneva	Professional Services & Consulting - Patents & Trademarks	www.amc-b.com
Adolf Merkle Institute	Fribourg	Academic Institutions	www.am-institute.ch
Adoptics SA	Bern	Medical Technology - Implants	www.riptiderealtime.com
Aerni-Leuch AG	Bern	Supplier & Engineering	www.aerni-leuch.ch
AFE Partners SA	Geneva	Professional Services & Consulting - Financial Services	www.afepartners.com
Agilent Technologies SA	Geneva	Supplier & Engineering	www.agilent.com
Akenco Pharma SA	Geneva	Pharmaceutical supplier	www.akenco-pharma.com
Akka Switzerland SA	Vaud	Professional Services & Consulting - Information Provider	www.akka.eu
Albedis SA	Vaud	Professional Services & Consulting - Other	www.albedis.com
Alchilab	Valais	Phyto; Nutrition	www.alchilab.ch
Alchimie Forever Sarl	Geneva	Cosmetics	www.alchimie-forever.com
Alcimed Sarl	Vaud	Professional Services & Consulting - Other	www.alcimed.com
Alcon Management SA	Geneva	Supplier & Engineering - Consumables & Reagents	www.alcon.com
Alcon Pharmaceuticals Ltd	Fribourg	Medical Technology - Devices	www.alcon.com
Aleva Neurotherapeutics SA	Vaud	Medical Technology - Devices	www.aleva-neuro.com
Alexion Pharma International Sarl	Vaud	Therapeutics and Diagnostics - Proteins / Peptides	www.alxn.com
Alkopharma SA	Valais	Pharmaceutical supplier	
Allergan Medical Sarl	Vaud	Medical Technology - Devices	www.allergan.com
Almedica AG	Fribourg	Supplier & Engineering	www.almedica.ch
Alpes Lasers SA	Neuchâtel	Medical Technology	www.alpeslasers.com
Alphacos SA	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.alphacos.ch
Alro Engineering SA	Valais	Supplier & Engineering	www.alro.ch
ALS - Anti-Ageing Laboratories Switzerland SA	Fribourg	Professional Services & Consulting - Other	www.als-als.com
Altacare	Vaud	Professional Services & Consulting - Business Development Services	www.altacare.fr
Altran AG	Geneva	Professional Services & Consulting - Quality; Other	www.altran.ch
ALYS Technologies SA	Vaud	Supplier & Engineering - Consumables & Reagents	www.als-technology.com
Amal Therapeutics SA	Geneva	Therapeutics and Diagnostics - Proteins / Peptides; Vaccines	www.amaltherapeutics.com
Amazentis SA	Vaud	Therapeutics and Diagnostics	www.amazentis.com
American Orthodontics Switzerland Sarl	Valais	Medical Technology - Devices	www.americanortho.de
Amires Sarl	Neuchâtel	Professional Services & Consulting - Business Development Services; Financial Services	www.amires.eu
Amotec Technique de montage SA	Bern	Medical Technology	www.amotec.ch
Amsonic SA	Bern	Medical Technology	www.amsonic.ch
Analytecon SA	Neuchâtel	Supplier & Engineering	
Andre Roland SA	Vaud	Professional Services & Consulting - Patents & Trademarks	www.andreroland.com
Andrew Alliance SA	Geneva	Medical Technology - Devices; R&D Services and Technology Platforms - Technology Platforms; Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.andrewalliance.com
Andromis SA	Geneva	Medical Technology - Devices	www.andromis.ch
Anecova SA	Vaud	Medical Technology - Devices	www.anecova.com
Anergis SA	Vaud	Therapeutics and Diagnostics - Vaccines	www.anergis.ch

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Angiotech Switzerland SA	Vaud	Therapeutics and Diagnostics - Chemical Drug	www.angiotech.com
Anteis SA	Geneva	Medical Technology	www.anteis.com
Antero Partners	Vaud	Professional Services & Consulting - Business Development Services	www.anteropartners.com
Anti-Ageing, Diagnostics & Stem Cell Laboratories Switzerland SA	Fribourg	Cosmetics	
Antlia SA	Vaud	Medical Technology - Devices	www.ithetis.com
Anton Meyer & Co AG	Bern	Medical Technology	www.meyco.ch
A-Pack Technologies SA	Jura	Supplier & Engineering	www.bausch-group.com
Apidel	Geneva	Therapeutics and Diagnostics	www.apidel.com
Apimec SA	Neuchâtel	Supplier & Engineering	www.apimec.ch
Applimed SA	Fribourg	Supplier & Engineering	www.applimed.ch
Aptissen	Geneva	R&D Services and Technology Platforms - Drug Delivery	www.apptissen.com
Arachnova Pharma SA	Fribourg	Therapeutics and Diagnostics	
Argenius Sàrl	Vaud	Professional Services & Consulting - Other	www.argenius.com
Ariad Pharmaceuticals SA	Vaud	R&D Services and Technology Platforms - Drug Delivery	www.ariad.com
ArisGen SA	Geneva	R&D Services and Technology Platforms - Drug Delivery	www.arisgen.com
Arnold Deppeler SA	Vaud	Medical Technology - Devices	www.deppeler.ch
Arpasan Switzerland	Geneva	Nutrition; Cosmetics	www.arpasan.com
Arrayon Biotechnology SA	Neuchâtel	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.arrayon.com
Artefact SA	Vaud	Professional Services & Consulting - Regulatory & Clinical Services	
Asceneuron	Vaud	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.asceneuron.com
ASSCO Engineering Monthey SA	Valais	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.assco.ch
Assut Medical Sàrl	Vaud	Medical Technology	www.assutsutures.com
Aston Life Sciences Sàrl	Vaud	Professional Services & Consulting - Regulatory & Clinical Services	www.astongroup.ch
Astral Technologies Sàrl	Jura	Supplier & Engineering	
Asulab SA	Neuchâtel	Medical Technology - Devices	www.asulab.ch
Asyrl SA	Fribourg	Supplier & Engineering	www.asyrl.ch
Atelier Mécanique René de Siebenthal & Fils SA	Vaud	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.desiebenthal.ch
Atheris Laboratories SA	Geneva	R&D Services and Technology Platforms - Diagnostic / Analytical Services; Technology Platforms	www.atheris.ch
Atokalpa SA	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.atokalpa.ch
Atracsys Sàrl	Vaud	Medical Technology - Devices	www.atracsys.com
Attolight SA	Vaud	Supplier & Engineering - Electronics	www.attolight.com
Augurix SA	Valais	Medical Technology	www.augurix.com
Auxyme SA	Valais	Phyto; Nutrition; Cosmetics	www.auxyme.ch
Aximed SA	Jura	Supplier & Engineering - Consumables & Reagents	
Axis biodental SA	Jura	Medical Technology - Implants	www.axis-biodental.ch
AXPharma	Vaud	Professional Services & Consulting - Regulatory & Clinical Services	www.axpharma.com
Ayanda Biosystems SA	Vaud	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.ayanda-biosys.com
AZAD Pharma AG	Bern	Therapeutics and Diagnostics - Generics / Biosimilars	www.azadpharma.com
B Braun Medical SA	Vaud	Medical Technology	www.bbraun.ch
B.C. Development SA	Jura	Supplier & Engineering - Consumables & Reagents	
Baccinex SA	Jura	R&D Services and Technology Platforms - CMO	www.baccinex.com
Bachem SA	Valais	Fine Chemicals; Biotechnology	www.bachem.com
Baldelli SA	Neuchâtel	Supplier & Engineering - Electronics	www.baldelliautomation.com
Balluff HyTech AG	Bern	Medical Technology - Devices	www.hytech.ch
Bangerter Microtechnik AG	Bern	Supplier & Engineering	www.ba-micro.com
BASF Pharma (Eviornaz) SA	Valais	Supplier & Engineering	www.pharma-ingredients.basf.com
BASF Suisse SA	Valais	Fine Chemicals	www.basf.ch
Battelle Memorial Institute Geneva Research Center	Geneva	R&D Services and Technology Platforms - CRO	www.battelle.org
Bausch Advanced Technology Group	Jura	Supplier & Engineering	www.bausch-group.com
Baxter BioScience Manufacturing Sàrl	Neuchâtel	Therapeutics and Diagnostics	www.baxter.ch
Baxter Recombinant Sàrl	Neuchâtel	Therapeutics and Diagnostics	www.baxter.ch
Bayer International SA	Fribourg	Therapeutics and Diagnostics	www.bayer.com
BC Consulting & Solutions Sàrl	Geneva	Medical Technology - Devices; Implants - Professional Services & Consulting - Other; Regulatory & Clinical Services	www.bcconsulting.eu.com
BCCC Avocats Sàrl	Geneva	Professional Services & Consulting - Patents & Trademarks	www.bccc.ch
Be Ceuticals	Valais	Cosmetics	www.be-ceuticals.com
Beckman Coulter Eurocenter SA	Vaud	Supplier & Engineering	www.beckmancoulter.ch
Belidis Natural Product Laboratory SA	Jura	Supplier & Engineering - Consumables & Reagents	
Bellus Health (International) Limited	Vaud	Therapeutics and Diagnostics	www.bellushealth.com
Bench International Sàrl	Geneva	Professional Services & Consulting - Human Resources Services	www.benchinternational.com
Berdar Charles	Jura	Supplier & Engineering - Consumables & Reagents	www.charlesberdar.ch

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Bernafo AG	Bern	Medical Technology - Implants; Biomaterials / Coatings	www.bernafo.com
Berney Précision SA	Vaud	Medical Technology	www.berney-precision.ch
Biar SA	Valais	Chemical Industry Equipments	www.biar.com
Bien-Air Dental SA	Jura	Medical Technology - Devices	www.bien-air.ch
Bien-Air Surgery SA	Jura	Medical Technology - Devices	www.bien-air.ch
BioAGM	Vaud	Medical Technology	
BioAlliance Pharma Switzerland SA	Geneva	Therapeutics and Diagnostics - Chemical Drug	www.bioalliancepharma.com
BioArk SA	Valais	Incubator and seed fund	www.bioark.ch
Biocartis SA	Vaud	Medical Technology	www.biocartis.com
BioCell Interface SA	Neuchâtel	Supplier & Engineering	www.biocell-interface.com
Biofield SA	Neuchâtel	Medical Technology - Devices	www.biofield.com
Biofluid Systems SA	Vaud	Medical Technology - Devices	www.biofluidsystems.com
Biokaizen Lab SA	Valais	Therapeutics and Diagnostics; Medical Technology	www.biokaizen.com
Biokema SA	Vaud	Therapeutics and Diagnostics - Chemical Drug	www.biokema.ch
Biolabo Scientific Instruments SA	Fribourg	Supplier & Engineering	www.biolabo.ch
Biomedix SA	Fribourg	Medical Technology	www.thegard.com
BioMérieux (Suisse) SA	Geneva	Medical Technology - Devices	www.biomerieux.com
BionActis SA	Vaud	Cosmetics	www.bionactis.com
BioPack Medical Sàrl	Vaud	Medical Technology - Devices	www.biopack.ch
Biopôle SA	Vaud	Science & Technology Park / Incubator and seed fund	www.biopole.ch
Biosafe SA	Vaud	Medical Technology - Devices	www.biosafe.ch
Biosensors Europe SA	Vaud	R&D Services and Technology Platforms - CMO	www.biosensorsintl.com
Biosideral SA	Vaud	Therapeutics and Diagnostics - Cell Therapy / Stem Cells	
Biosite International Sàrl	Vaud	Medical Technology	www.biosite.com
Biosmart GmbH	Bern	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.biosmart.ch
Biotech SA	Jura	Supplier & Engineering	
Biotelligences Sàrl	Vaud	Professional Services & Consulting - Information Provider	www.biotelligences.com
Bio-Ur SA	Jura	R&D Services and Technology Platforms - Drug delivery	www.bio-ur.ch
Bioway GmbH	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.bioway.eu.com/
BioWebSpin	Valais	Professional Services & Consulting - Information Provider	www.biowebspin.com
BioXPress Therapeutics	Geneva	Therapeutics and Diagnostics - Chemical Drug	www.bioxpress.com
Bista Consulting	Vaud	Therapeutics and Diagnostics - Gene Therapy	www.bista-consulting.com
BM Laser, Broquet et Monin	Jura	Supplier & Engineering	
Boiron SA	Geneva	Therapeutics and Diagnostics	www.boiron.com
Bordier Affinity Products SA	Vaud	Medical Technology - Devices	www.bordier.ch
Botta Orthopédie AG	Bern	Medical Technology	www.bottaweb.ch
Bracco Suisse SA	Geneva	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.bracco.com
Bredam SA	Vaud	Professional Services & Consulting - Business Development Services	www.bredam.ch
Bricad Associates Sàrl	Geneva	Professional Services & Consulting - Business Development Services	www.bricad.com
Bridgehead International Ltd	Vaud	Professional Services & Consulting - Business Development Services; Patents & Trademarks	www.bridgeheadinternational.com
Brook Automation AG	Bern	Medical Technology	www.brooks.com
BT Bienne Special Tools Sàrl	Bern	Medical Technology	www.btbiene.ch/
Büchi Optik AG	Bern	Medical Technology - Devices	www.buechioptik.ch
Bumotec SA	Fribourg	Medical Technology	www.bumotec.ch
Business & Decision (Suisse) SA	Geneva	R&D Services and Technology Platforms; Professional Services & Consulting - CRO (Contract Research Organization); Technology Platforms; Quality; Regulatory & Clinical Services;	www.businessdecision-lifesciences.com
Câlinesse	Valais	Cosmetics	www.calinesse.com
Calypto Biotech SA	Geneva	Therapeutics and Diagnostics	www.calyptobiotech.com
Calypte Biomedical Corporation	Geneva	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.calypte.com
Capesal SA	Vaud	Medical Technology	www.capesal.ch
Capsant Neurotechnologies SA	Geneva	Medical Technology - Tissue Engineering / Regenerative Medicine	
Carbagas	Bern	Supplier & Engineering	www.carbagas.ch
Cardinal Health Switzerland Sàrl	Vaud	Medical Technology	www.cardinal.com/europe
CareFusion Switzerland 317 Sàrl	Vaud	Medical Technology - Devices; Supplier & Engineering - Consumables & Reagents	www.carefusion.com
Carestream Health Suisse SA	Vaud	Medical Technology - Devices	www.carestreamhealth.com
CCS Schweiz AG	Bern	Supplier & Engineering - Electronics	www.ccsholding.com
CCV (Centre Chimie Vouvry) Sàrl	Valais	Fine Chemicals	www.ccv-chimie.ch
Cdm Centre de diagnostic moléculaire SA	Fribourg	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.labodcm.ch
Celgene International Sàrl	Neuchâtel	Therapeutics and Diagnostics	www.celgene.com
CELLnTEC Advanced Cell Systems	Bern	R&D Services and Technology Platforms - Technology Platforms	www.cellntec.com
Cendres + Métaux SA	Bern	Medical Technology - Devices	www.cmsa.ch
Centredoc	Neuchâtel	Professional Services & Consulting - Information Provider	www.centredoc.ch

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Ceramaret SA	Neuchâtel	Medical Technology - Devices; Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.ceramaret.ch
Cerebel SA	Vaud	Therapeutics and Diagnostics	
Ceres Heilmittel AG	Valais	Nutrition	www.ceresheilmittel.ch
Chemsis SA	Valais	Supplier & Engineering	www.chemsis.com
Chirmat Sarl	Valais	Medical Technology - Devices	www.chirmat.ch
Chord Therapeutics	Geneva	Therapeutics and Diagnostics - Chemical Drug	www.chordtherapeutics.com
CHUV	Vaud	Academic Institutions	www.chuv.ch
Ciba Vision Europe AG	Fribourg	Medical Technology - Devices	www.alcon.com
CimArk	Valais	Incubator and seed fund	www.cimark.ch
Cimo Compagnie Industrielle de Monthey SA	Valais	Fine Chemicals	www.cimo.ch
Ciposa SA	Neuchâtel	Supplier & Engineering	www.ciposa.com
CLA Clinical Laboratory Automation SA	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.cla.ch
Claude Ammann Consulting	Vaud	Professional Services & Consulting - Quality	www.clauammann.com
Clinical Research Consultant	Vaud	Professional Services & Consulting - Regulatory & Clinical Services	
Clinopsis SA	Vaud	Professional Services & Consulting - Business Development Services; Regulatory & Clinical Services	www.clinopsis.com
Codan Argus AG	Bern	Medical Technology - Diagnostic and therapeutic devices	www.codanargus.com
Codman Neuro Sciences Sarl	Neuchâtel	Medical Technology - Devices	www.codman.com
Comelec SA	Neuchâtel	Supplier & Engineering - Electronics	www.comelec.ch
Comet AG	Fribourg	Supplier & Engineering - Electronics	www.comet.ch
Compex Medical SA	Vaud	Medical Technology - Devices	www.compex.info
Composites Busch SA	Jura	Supplier & Engineering	www.compositesbusch.ch
Confrérie Clinique SA	Vaud	R&D Services and Technology Platforms - Technology Platforms	www.confrerie-clinique.com
Contelec AG	Bern	Medical Technology - Devices	www.contelec.ch
CoPexis SA	Vaud	Supplier & Engineering	www.drddpharma.com
Coraffo Sarl	Vaud	Medical Technology	www.smartcanula.com
CordSavings	Valais	Therapeutics and Diagnostics - Cell Therapy / Stem Cells	www.cordsavings.ch
Cosmotec SA	Valais	Cosmetics; R&D Services and Technology Platforms	www.cosmotec.ch
Covance Central Laboratory Services SA	Geneva	R&D Services and Technology Platforms - CRO	www.covance.com
CPAutomation SA	Fribourg	Supplier & Engineering	www.cpaautomation.ch
Creaholic SA	Bern	Medical Technology - Devices	www.creaholic.com
Créapôle	Jura	Incubator and seed fund	www.creapole.ch
Createch AG	Bern	Medical Technology	www.createch.ch
Crema	Fribourg	R&D Services and Technology Platforms	www.crema.ch
Crisalix SA	Vaud	Medical Technology - Implants	www.crisalix.com
Crucell Switzerland AG	Bern	Therapeutics and Diagnostics - Vaccines	www.bernabiotech.com
Crystal Vision Microsystems SA	Vaud	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.crystalvision-microsystems.com
CSEM - Centre Suisse d'Electronique et de Microtechnique SA	Neuchâtel	R&D Services and Technology Platforms - CRO; Technology Platforms	www.csem.ch
CSL Behring SA	Bern	Therapeutics and Diagnostics - Proteins / Peptides	www.cslobehring.ch
CSSR SA - Centre de Stérilisation de Suisse Romande	Fribourg	Supplier & Engineering	www.cssr.ch
Cukierman & Co. Life Sciences	Vaud	Professional Services & Consulting - Business Development Services; Financial Services	www.cukiermanlifesciences.com
Cyrex Sarl	Fribourg	Supplier & Engineering - Consumables & Reagents	www.cyrex.ch
DAA Pharma SA	Vaud	Therapeutics and Diagnostics - Generics / Biosimilars	www.daapharma.ch
DAC-Ortho SA	Geneva	Medical Technology - Dental Devices	
Dade Behring Diagnostics	Fribourg	Supplier & Engineering	www.dadebehring.com
Dassym SA	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	
Dassym SA	Neuchâtel	Supplier & Engineering - Mechanical Engineering / Micro Engineering	
Data Mining Int Inc	Geneva	R&D Services and Technology Platforms - Bioinformatics / Genomics & Proteomics	www.datamining-international.com
Debio Research & Manufacturing SA	Valais	R&D Services and Technology Platforms - Drug delivery	www.debiopharm.com
Debiopharm Diagnostic SA	Fribourg	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.debiopharm.com
Debiopharm Investment SA	Vaud	Investor - Corporate / Institutional / Private investors	www.debiopharm.com
Debiopharm SA	Vaud	Therapeutics and Diagnostics - Proteins / Peptides	www.debiopharm.com
Debiotech SA	Vaud	Medical Technology - Devices	www.debiotech.ch
Décovi SA	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.decovi.ch
Degonda-Rehab SA	Vaud	Medical Technology - Devices	www.degonda.ch
Degonda-Rehab SA	Bern	Medical Technology - Devices	www.turbo-twirst.ch
Delman SA	Geneva	Professional Services & Consulting - Financial Services	www.delman.ch
Deloa SA	Jura	Medical Technology - Devices	www.borruat.ch
DentalPrestige SA	Vaud	Medical Technology - Devices	
Dentsply IH SA	Vaud	Medical Technology - Devices	www.dentsplyimplants.com
Dentsply Maillefer Sarl	Vaud	Medical Technology - Devices	www.dentsplymaillefer.com

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
DePuy Ace Sarl	Neuchâtel	Medical Technology - Devices	www.depuy.com/
DePuy Mitek Sarl	Neuchâtel	Medical Technology - Devices	www.depuy.com/
DePuy Motion Sarl	Neuchâtel	Medical Technology - Devices	www.depuy.com/
Detech SA	Jura	Supplier & Engineering	www.detech.ch
DFB Pharmaceuticals Inc.	Vaud	Supplier & Engineering - Consumables & Reagents	www.healthpoint.com
Diacosa AG	Bern	Medical Technology - Devices	www.diacosa.ch
Diagnoplex	Vaud	Medical Technology - Devices	www.diagnoplex.com
DiagnoSwiss SA	Valais	R&D Services and Technology Platforms - Diagnostic / Analytical Services; CRO	www.diagnoswiss.com
Diamed AG (Bio-Rad Laboratories)	Fribourg	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.diamed.ch
Diepharmex SA	Geneva	Therapeutics and Diagnostics	www.audispray.com
Digma SA	Bern	Supplier & Engineering	www.digma.com
Dineras International SA	Geneva	Nutrition	
Discretio	Vaud	Supplier & Engineering	www.discretio.ch
Disetronic Medical Systems AG	Bern	Medical Technology - Devices	www.disetronic.com
DM2TC Sarl	Vaud	Professional Services & Consulting - Quality; Regulatory & Clinical Services; Other	www.dm2tc.ch
Dompe International SA	Vaud	Therapeutics and Diagnostics	www.dompe.com
Donawa Consulting Sarl	Vaud	Professional Services & Consulting - Regulatory & Clinical Services	www.donawa.com
Dorix SA	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.dorix.ch/
Dorphan	Vaud	R&D Services and Technology Platforms - Drug Discovery	www.dorphan.com
Dr E Graub AG	Bern	R&D Services and Technology Platforms - CMO	www.graub.com
Dr WiCARE SA	Fribourg	Professional Services & Consulting	
Drug Design Technologies	Geneva	R&D Services and Technology Platforms - Bioinformatics / Genomics & Proteomics	www.drugdesigntech.com
Drugs for Neglected Diseases Initiative (DNDI)	Geneva	R&D Services and Technology Platforms - Drug Discovery	www.dndi.org
DSM Nutritional Products AG	Valais	Supplier & Engineering	www.dsmnutritionalproducts.com
D-Target	Vaud	Professional Services & Consulting - Regulatory & Clinical Services	www.premier-research.com
DuPont de Nemours Holding SA	Geneva	Supplier & Engineering	www.dupont.com
Dynamics Group SA	Geneva	Professional Services & Consulting - Communication / PR / Market research / Events	www.dynamicsgroup.ch
Dynatec SA	Vaud	Supplier & Engineering	www.dynatec.ch
EasyMed Services SA	Geneva	Professional Services & Consulting - Business Development Services; Information Provider	www.easymedmobile.com
Ecllosion SA	Geneva	Incubator and seed fund	www.ecllosion.ch
Ecole Polytechnique Fédérale de Lausanne - EPFL	Vaud	Academic Institutions / Incubator and seed fund	www.epfl.ch
Ecosafe SA	Vaud	Supplier & Engineering	www.ecosafesa.com
Edel-for-Life SA	Vaud	Medical Technology - Devices	www.edeltherapeutics.com
Edwards Lifesciences SA	Vaud	Medical Technology - Devices	www.edwards.com
Effik SA	Vaud	Therapeutics and Diagnostics	www.effik.ch/
Egatec SA	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	egatecsa.gelbseiten.ch/home.aspx
Electro Medical Systems SA	Vaud	Medical Technology	www.ems-company.com
Electro Müller AG	Bern	Supplier & Engineering - Electronics	www.electro-mueller.ch
Electromag SA	Vaud	Medical Technology - Devices	www.electromag.ch
Eli Lilly (Suisse) SA	Geneva	Supplier & Engineering	www.lilly.ch
encreTpixel	Vaud	Professional Services & Consulting - Communication	www.encretpixel.com
Endeavour Vision SA	Geneva	Professional Services & Consulting - Financial Services	www.endeavourvision.com
Engqvist Consulting	Vaud	Professional Services & Consulting - Business Development Services	www.engqvistconsulting.com
EP Solutions SA	Vaud	Medical technology	www.ep-solutions.ch
Epithelix Sarl	Geneva	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.epithelix.com
Eqval SA	Vaud	Medical Technology - Devices; Implants	www.eqval.ch
Erib Corp SA	Bern	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.eribch.com
Espace Création	Valais	Professional Services & Consulting - Business Development Services	www.espacec.ch
EspeRare Foundation	Geneva	R&D Services and Technology Platforms - Drug Discovery	www.esperare.org
Estalin SA	Jura	Supplier & Engineering - Consumables & Reagents	www.estalin.ch
Estoppey-Addor SA	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.estoppey-addor.ch
Estoppey-Reber AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.estoppey.ch
Etameca SA	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.etameca.ch
ETAVIS TSA SA	Vaud	Supplier & Engineering	www.etavis.ch
Ethicon Sarl	Neuchâtel	Medical Technology - Devices	www.ethiconinc.com
Ethimedix SA	Geneva	Medical Technology - Devices; Supplier & Engineering - Consumables & Reagents; Electronics	www.ethimedix.com
Eurofin Medical SA	Vaud	Therapeutics and Diagnostics	www.eurofinmedical.ch
Evasensor SA	Neuchâtel	Supplier & Engineering - Electronics; Mechanical Engineering / Micro Engineering	www.evasensor.com
Exabone GmbH	Vaud	Medical Technology - Implants	www.exabone.com
ExcellGene SA	Valais	R&D Services and Technology Platforms	www.excellgene.com
ExCellness Biotech SA	Vaud	Medical Technology - Tissue Engineering / Regenerative Medicine	www.excellness.com
Fabrial SA	Neuchâtel	Supplier & Engineering - Medical devices	www.fabrial.ch

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Fasteris SA	Geneva	R&D Services and Technology Platforms - Diagnostic / Analytical Services; CRO	www.fasteris.com
Ferring International Center SA	Vaud	Therapeutics and Diagnostics - Proteins / Peptides	www.ferring.com
Firmenich SA	Geneva	Cosmetics	www.firmenich.com
Fischer Connectors SA	Vaud	Supplier & Engineering	www.fischerconnectors.ch
FKG Dentaire SA	Neuchâtel	Medical Technology	www.fkg.ch
Flexxe Sàrl	Vaud	Professional Services & Consulting - Other	www.flexxe.ch
Fluid Automation Systems Technologies SA	Geneva	Medical Technology	www.fas.ch
FMC Production	Geneva	Professional Services & Consulting - Communication / PR / Market research / Events	www.fmcproduction.com
FME AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.fme-ag.com
Fondation Artères	Geneva	Professional Services & Consulting	www.arteres.org
Fondation Campus Biotech	Geneva	Academic Institutions / Incubator and seed fund	www.campusbiotech.ch
Fondation Genevoise pour la Formation et la Recherche Médicale	Geneva	Professional Services & Consulting / Academic Institutions	www.gfmer.ch
Fondation H. Dudley Wright	Geneva	Professional Services & Consulting	www.hdwright.org
Fondation ISREC	Vaud	Professional Services & Consulting	www.isrec.ch
Fondation Jeantet	Geneva	Professional Services & Consulting	www.jeantet.ch
Fondation pour Recherche Medicale	Geneva	Incubator and seed fund	www.unige.ch
Fongit	Geneva	Incubator and seed fund	www.fongit.ch
Fontax SA	Vaud	Medical Technology	www.fontax.ch
Fors AG	Bern	Supplier & Engineering	www.fors.ch
Foundation for Innovative New Diagnostics (FIND)	Geneva	R&D Services and Technology Platforms	www.finddiagnostics.org
Frey + Messmer AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.freymess.ch
Friadent Schweiz AG	Bern	Medical Technology - Devices	www.friadent.ch
Frimorfo SA	Fribourg	R&D Services and Technology Platforms - CRO	www.frimorfo.com
Fritz Gyger AG	Bern	Supplier & Engineering	www.fgyger.ch
FSC - Fondation Suisse pour les Cyberthèses	Valais	R&D Services and Technology Platforms	www.fsc-sfc.org
Future Health Biobank	Fribourg	Therapeutics and Diagnostics - Cell Therapy / Stem Cells	www.futurehealthbiobank.ch
Future Health Cell Bank SA	Geneva	Professional Services & Consulting - Other	www.futurehealth.co.uk
Galderma Pharma SA	Vaud	Therapeutics and Diagnostics	www.galderma.ch
Galexis AG	Bern	Supplier & Engineering	www.e-galexis.com
Gene Predictis SA	Vaud	Therapeutics and Diagnostics - Gene Therapy	www.genepredictis.com
Gene Signal International SA	Vaud	Therapeutics and Diagnostics - Gene Therapy	www.genesignal.com
GeneBio - Geneva Bioinformatics SA	Geneva	R&D Services and Technology Platforms - Bioinformatics / Genomics & Proteomics	www.genebio.com
GeNeuro SA	Geneva	Therapeutics and Diagnostics - Proteins / Peptides	www.geneuro.com
Geneva Biotech	Geneva	Therapeutics and Diagnostics - Vaccines; R&D Services and Technology Platforms	www.geneva-biotech.com
Genevensis Sàrl	Geneva	Professional Services & Consulting - Communication	www.genevensis.com
Genevest Consulting Group SA	Geneva	Professional Services & Consulting - Financial Services	www.genevest.ch
Genge & Thoma AG	Bern	Supplier & Engineering - Electronics	www.gengethoma.com
GeniSoft Sàrl	Fribourg	R&D Services and Technology Platforms - Bioinformatics / Genomics & Proteomics	www.genisoft.ch
GenKyoTex SA	Geneva	Therapeutics and Diagnostics - Chemical Drug	www.genkyotex.com
Genomic Health International Sàrl	Geneva	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.genomichealth.com
Gersteltec Sàrl	Vaud	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.gersteltec.ch
Gevaltec Sàrl	Valais	Supplier & Engineering - Electronics	
GF Machining Solutions SA	Geneva	Medical Technology - Delivery devices	www.gfac.com
Gibaud (Suisse) SA	Geneva	Medical Technology	www.gibaud.com
Givaudan Suisse SA	Geneva	Cosmetics	www.givaudan.com
GlaxoSmithKline AG	Bern	Therapeutics and Diagnostics - Chemical Drug; Vaccines	www.glaxosmithkline.ch
Glenmark Pharmaceuticals SA	Neuchâtel	Therapeutics and Diagnostics	www.glenmarkpharma.com
GMP SA	Vaud	Medical Technology - Devices	www.gmp.ch
GMT Fine Chemicals SA	Neuchâtel	Therapeutics and Diagnostics - Chemical Drug	www.gmtfinechemicals.ch
Gomina AG	Valais	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.gomina.ch
Greatbatch Medical SA	Bern	Medical Technology - Devices	www.greatbatchmedical.com
Gribi AG	Bern	Supplier & Engineering	www.gribi.ch
Groupe Genitec Holding SA	Jura	R&D Services and Technology Platforms	www.genitec.net
Groupe PP Holding SA	Geneva	Professional Services & Consulting - Other	www.groupe-pp.ch
G-Therapeutics	Vaud	Supplier & Engineering - Mechanical Engineering / Micro Engineering	
Gymetrics SA	Vaud	Medical Technology - Devices	www.gymetrics.com
H. Hilderbrand Cie & SA	Geneva	Medical Technology - Biomaterials / Coatings	www.hilderbrand.ch
Haag-Streit Holding AG	Bern	Medical Technology - Devices	www.haag-streit.com
Hader SA	Neuchâtel	Medical Technology	www.hader-swiss.com
Haemonetics SA	Vaud	Supplier & Engineering	www.haemonetics.com
Hanco Schleiftechnik AG	Fribourg	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.hanco.ch

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Harald Nordin SA	Vaud	Medical Technology	www.nordin-dental.com
Haslab GmbH	Bern	Supplier & Engineering - Electronics	www.haslab.ch
Haute Ecole Vaudoise	Vaud	Academic Institutions	www.hev.ch
HE Arc	Neuchâtel	Academic Institutions	www.he-arc.ch
Health Systems and Technology	Geneva	Professional Services & Consulting - Other	www.hst-consulting.ch
HEIG-VD	Vaud	Academic Institutions	www.heig-vd.ch
Heiland Schweiz AG	Bern	Supplier & Engineering	www.heiland.ch
Helbling Technik Bern AG	Bern	Professional Services & Consulting - Other	www.helbling.ch
Helvemed SA	Geneva	Supplier & Engineering - Consumables & Reagents	www.helvemed.com
Helvetica Health Care Sàrl	Geneva	Supplier & Engineering	www.helveticahealthcare.com
Hemacore SA	Valais	Medical Technology - Devices	www.hemacore.com
Henry Schein Medical AG	Bern	Medical Technology - Devices	www.henryschein-medical.ch
Hepia	Geneva	Academic Institutions	www.hepia.hesge.ch
Heraeus Materials SA	Vaud	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.heraeus-medicalcomponents.com
Heska SA	Fribourg	Therapeutics and Diagnostics	www.heska.com
HES-SO Fribourg	Fribourg	Academic Institutions	www.hefr.ch
HES-SO Genève	Geneva	Academic Institutions	www.hesge.ch
HES-SO Valais	Valais	Academic Institutions	www.hevs.ch
HighPoint Solutions	Geneva	Professional Services & Consulting	www.highpoint-solutions.com
Hilderbrand Cie & SA	Geneva	Medical Technology - Biomaterials / Coatings	www.hilderbrand.ch
Hilfsmittelstelle HMS Bern AG	Bern	Medical Technology	www.hilfsmittelstelle.ch
HL Technology	Neuchâtel	Medical Technology - Dental Devices; Prosthetics; Implants	www.hl-technology.ch
HMT Microelectronic AG	Bern	Supplier & Engineering - Electronics	www.hmt.ch
Hock'n Roll AG	Bern	Medical Technology	www.hocknroll.ch
Hoffmann Neopac AG	Bern	Supplier & Engineering	www.hoffmannneopac.ch
Hologic Europe Middle East and Africa SA	Vaud	Medical Technology - Devices	www.hologic.com
Homeolab SA	Valais	Therapeutics and Diagnostics	
Huco Vision SA	Neuchâtel	Medical Technology - Devices	www.hucovision.com
HUG - Hôpitaux Universitaires de Genève	Geneva	Academic Institutions	www.hcuge.ch
Huntsman Advanced Materials (Switzerland) Sàrl	Valais	Fine Chemicals	www.huntsman.com
Hygie-Tech SA	Vaud	Supplier & Engineering	www.hygie-tech.ch
Hy-Tech AG	Bern	Supplier & Engineering - Electronics	www.hytech.ch
ID Quantique SA	Geneva	Supplier & Engineering - Electronics	www.idquantique.com
I-Dent Innovation For Dentistry SA	Vaud	Medical Technology - Devices	www.i-dent-dental.com
Idexx Switzerland AG	Bern	Medical Technology	www.idexx.com
IE Life Science Engineering	Geneva	Supplier & Engineering	www.ie-group.com
IHMA Europe Sàrl	Vaud	R&D Services and Technology Platforms - CRO	www.ihmainc.com
IMG - Instruments, Industrial & Medical Group SA	Fribourg	Supplier & Engineering	
i-Med Tec SA	Bern	Supplier & Engineering	www.ilmedtec.ch
ILP Lüthi + Partner AG	Bern	Professional Services & Consulting - Other	www.ilp-switzerland.ch
ILS Services SA	Geneva	Supplier & Engineering - Electronics	www.integralife.eu
Inartis Foundation	Vaud	Professional Services & Consulting	www.inartis.ch
Inartis Network	Vaud	Professional Services & Consulting	www.inartis-network.ch
Include Consulting Sàrl	Vaud	Professional Services & Consulting - Patent & Trademarks; Regulatory & Clinical Services	www.includeconsulting.com
Index Ventures	Geneva	Venture Capital Fund	www.indexventures.com
Indigo Consulting Sàrl	Geneva	Professional Services & Consulting	www.indigoconsulting.ch
Infinity Dental (Suisse) SA	Vaud	Medical Technology - Devices	www.infinity-dent1.com
Inflamalps SA	Valais	R&D Services and Technology Platforms - Drug Delivery	www.inflamalps.com
Infomed SA	Geneva	Medical Technology - Devices	www.infomedsa.ch
InnoPeritus Sàrl	Geneva	Professional Services & Consulting	www.innoperitus.com
Innosurf SA	Fribourg	Supplier & Engineering	www.innosurf.ch
Innovaud	Vaud	Professional Services & Consulting	www.innovaud.ch
Inomed Technology SA	Jura	Medical Technology - Devices	www.inomed.ch
Inovorto Medical SA	Neuchâtel	Medical Technology	
Inselpital, Hôpital universitaire de Berne	Bern	Academic Institutions	www.insel.ch
Institut de Recherche en Ophtalmologie	Valais	Therapeutics and Diagnostics	www.iro.vsneth.ch
Institut de Recherche en Réadaptation (IRR)	Valais	Medical Technology - Diagnostic and therapeutic devices	www.irr-valais.ch
Instrumat AG	Vaud	Professional Services & Consulting - Quality	www.instrumat.ch
Intercosmetica Neuchâtel SA	Neuchâtel	Cosmetics	www.intercosmetica.ch
Interdelta SA	Fribourg	Therapeutics and Diagnostics	www.interdelta.ch
Interdigit SA	Vaud	Professional Services & Consulting - Information Provider	www.interdigit.com
Interlabor Belp AG	Bern	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.interlabor.ch



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InterMedService Sàrl	Jura	Professional Services & Consulting - Other	
Intersteri AG	Bern	Supplier & Engineering	www.intersteri.ch
Intrace Medical SA	Vaud	Professional Services & Consulting	www.intrace-medical.com
Intrachem Bio SA	Geneva	Supplier & Engineering	www.intrachembio.com
Intuitive Surgical Sàrl	Vaud	Medical Technology - Devices	www.intuitivesurgical.com
Invacare International Sàrl	Vaud	Medical Technology	www.invacare.eu.com
Ipstudies Sàrl	Fribourg	R&D Services and Technology Platforms - APIs	www.ipstudies.ch
Ismea Europe Semiconductor SA	Neuchâtel	Medical Technology - Devices	www.cohuseg.com
ISS AG - Integrated Scientific Services	Bern	Professional Services & Consulting - Information Provider; Regulatory & Clinical Services	www.iss-ag.ch
IVA Biotechnology	Valais	Biotechnology; Phyto	www.iva-biotechnology.ch
Ivers-Lee MedTec AG	Bern	Medical Technology - Devices	www.iverslee.com
ixeo Healthcare SA	Vaud	Professional Services & Consulting - Other; Patents & Trademarks	www.ixeo.com
Jacques Allemann SA	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.jacques-allemann.ch
JAG Jakob AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.jag.ch
JAG Jakob AG	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.jag.ch
JB Metrics SA	Neuchâtel	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.jbmetrics.ch
Jet Medical SA	Neuchâtel	Medical Technology - Devices	www.jetmedical.net
JetSolutions SA	Fribourg	Supplier & Engineering - Consumables & Reagents; Mechanical Engineering / Micro Engineering	www.jetsolutions.ch
Jinfo SA	Jura	Supplier & Engineering	www.jinfo.ch
Johnson & Johnson	Neuchâtel	Medical Technology - Devices	www.jnj.com
Juratec SA	Jura	Professional Services & Consulting - Human Resources Services	www.juratec.ch
Katzarov SA	Geneva	Professional Services & Consulting - Other; Patents & Trademarks	www.katzarov.com
Kelly Services SA	Geneva	Professional Services & Consulting - Human Resources Services	www.kellyservices.ch
Kemopharm SA	Geneva	Supplier & Engineering - Consumables & Reagents	
Kenta Biotech Ltd	Bern	Therapeutics and Diagnostics - Proteins / Peptides	www.kentabiotech.com
Kergrohen & Associates Sàrl	Geneva	Professional Services & Consulting - Business Development Services	
Kessler & Co SA	Vaud	Professional Services & Consulting - Other	www.kessler.ch
KeySep	Geneva	R&D Services and Technology Platforms - CRO	www.keysep.com
Komax Systems LCF SA	Neuchâtel	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.komax.ch
Kuhn und Bieri AG	Bern	Medical Technology	www.kuhnbieteri.ch
Kyburz & Cie SA	Neuchâtel	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.kyburz-cie.ch
Kyphon Sàrl	Neuchâtel	Medical Technology - Devices	www.kyphon.com
La Colline Cellular Research Laboratories	Valais	Cosmetics	www.lacolline-skincare.com
La Manufacture Ressorts CML	Vaud	Medical Technology	www.lamanufacture.ch
Labodia SA	Vaud	Therapeutics and Diagnostics - Chemical Drug	www.labodia.com
Laboratoire Bailleul	Geneva	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.bailleul.com
Laboratoire Dr. Bregnard SA	Jura	R&D Services and Technology Platforms - Diagnostic / Analytical Services	
Laboratoire Gibro SA	Neuchâtel	Cosmetics; Phyto	www.laboratoiregibro.com
Laboratoire SCM SA	Jura	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.genitec.net
Laboratoires Anesa SA	Valais	Therapeutics and Diagnostics	
Laboratoires Biologiques Arval SA	Valais	Cosmetics	www.arvalcosmetics.com
Laboratoires Plan SA	Geneva	Therapeutics and Diagnostics - Chemical Drug	www.laboratoiresplan.com
Laborial Suisse SA	Vaud	Therapeutics and Diagnostics	www.laborial.com
Lamineries Matthey SA	Bern	Supplier & Engineering - Implants; Other; Mechanical Engineering / Micro Engineering	www.matthey.ch
Lascco SA	Geneva	Therapeutics and Diagnostics - Diagnostics	www.lascco.com
Laser Automation Gekatronik SA	Neuchâtel	Medical Technology - Implants; Devices	www.laser-automation.com
Laserix Sàrl	Neuchâtel	Supplier & Engineering	www.tecvision.ch/laserix/
Laserix Sàrl (Laboratoire)	Vaud	Supplier & Engineering	www.tecvision.ch/laserix/
Laser-Jura Sàrl	Jura	Supplier & Engineering - Consumables & Reagents; Mechanical Engineering / Micro Engineering	www.laserjura.ch
Lasermed AG	Vaud	Medical Technology - Devices	www.lasermed.ch
Lastec AG	Bern	Medical Technology - Devices	www.lastec.ch
Laubscher Präzision AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.burde-metall.at/glc.htm
Lauener et Cie SA	Neuchâtel	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.lauener.ch
Laurylab Sàrl	Fribourg	Supplier & Engineering	
Le Vivier	Fribourg	Incubator and seed fund	www.vivier.ch
Leitner SA	Bern	Medical Technology - Devices	www.leitner-ag.ch
Leman Cardiovascular SA	Vaud	Medical Technology - Devices	www.lemancardiovascular.com
Leman Consulting SA	Vaud	Professional Services & Consulting - Other; Patents & Trademarks	www.lemanconsulting.ch
Leman Medical Technologies	Vaud	Medical Technology	www.lemanmedical.com
Leman Micro Devices SA	Vaud	Medical Technology	www.leman-micro.com
Lemo SA	Vaud	Supplier & Engineering - Electronics	www.lemo.com
Lemur-Scouting Sàrl	Jura	Professional Services & Consulting - Devices; Business Development Services	www.lemur-scouting.ch

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Les Naturelles Predige SA	Vaud	Cosmetics	www.les-naturelles.com
Lifescience Consulting SA	Geneva	Professional Services & Consulting - Business Development Services; Information Provider	www.lifescience-consulting.com
Link Implants AG	Bern	Medical Technology - Devices	www.link-implants.ch
LMA Urology Suisse SA	Vaud	Medical Technology - Devices	www.lmaurology.com
Locatis SA	Jura	Supplier & Engineering - Electronics	www.locatis.ch
Logival SA	Valais	Supplier & Engineering	www.logival.ch
Lonza AG	Valais	Supplier & Engineering	www.lonza.com
Loroch CTLS	Vaud	Professional services & Consulting - Business Development Services; Regulatory & Clinical Services	www.loroch.ch
Louis Bélet SA	Jura	Supplier & Engineering	www.beletsa.ch
LPS Services SA	Fribourg	Supplier & Engineering - Medical devices	www.lps-services.ch
L-Techs SA	Fribourg	Medical Technology	
Ludwig Center for Cancer Research	Vaud	R&D Services and Technology Platforms - Drug Discovery	www.ludwigcancerresearch.org
Lugaia AG	Valais	Medical Technology	www.lugaia.ch
Lunaphore Technologies SA	Vaud	Medical Technology - Devices	www.lunaphore.ch
Lyncée Tec SA	Vaud	Service provider or subcontractor; Consulting	www.lynceetec.com
Madep SA	Neuchâtel	Supplier & Engineering	www.madep-sa.com
Mandatec AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.mandatec.ch
Mane SA	Valais	Phyto	www.mane.com
Manigley SA	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.manigley.ch
Manufactures D'Outils Dumont SA	Jura	Medical Technology - Devices	www.dumonttools.com
Manuplast SA	Vaud	Supplier & Engineering	www.manuplast.ch
Mapag Maschinen AG	Bern	Medical Technology - Devices	www.mapag.ch
MAPE Engineering Switzerland SA	Jura	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.groupe-mape.com
Marcel Blanc et Cie SA	Vaud	Medical Technology - Devices	www.marcel-blanc.ch
Marcel Jaccard SA	Neuchâtel	Supplier & Engineering	www.jaccard.ch
Masimo Sàrl	Neuchâtel	Medical Technology - Devices	www.masimo.com
Max Jung AG	Bern	Medical Technology	www.maxjung.ch
MaxiMed Sàrl	Vaud	Professional services & Consulting - Business Development Services	www.maximed.ch
MCL Medizinische Laboratorien	Bern	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.mcl.ch
MCS Laboratordatenysteme AG	Bern	Professional Services & Consulting - Other	www.mcs-ag.com
MD-Clinicals	Vaud	Supplier & Engineering - Medical devices	www.md-clinicals.com
Mecaplast SA	Fribourg	Supplier & Engineering	www.mecaplast.ch
Mecha Ch Rohr	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.mecha.ch
Med Discovery SA	Vaud	Therapeutics and Diagnostics - Proteins / Peptides	www.med-discovery.com
Medacta International SA	Jura	Medical Technology - Devices	www.medacta.ch
MedC. Partners Sàrl	Vaud	Professional Services & Consulting - Other	www.medcpartners.ch
Medeco-ch Sàrl	Vaud	Medical Technology - Implants	www.medeco-ch.com
Medelec Minimeca SA	Vaud	Supplier & Engineering	www.medelec-tubes.com
MedExpansion	Vaud	Professional Services & Consulting	www.medexpansion.ch
Medical Cluster	Bern	Professional Services & Consulting - Business Development Services	www.medical-cluster.ch
Medical Device Solutions AG	Bern	Medical Technology - Devices	www.mds-ag.ch
Medical Devices Lease SA	Neuchâtel	Professional Services & Consulting - Financial Services	www.mdifinance.com
Medical Titanium Sàrl	Geneva	Medical Technology - Devices	www.medicaltitanium.com
Medic-Micro Sàrl	Jura	Medical Technology - Devices	www.medicmicro.ch
Medico Technique SA	Neuchâtel	Medical Technology - Devices	
Medicontur	Geneva	Medical Technology	www.medicontur.com
Medics Labor	Bern	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.medics-labor.ch
Medidee Services SA	Fribourg	Professional Services & Consulting	www.medidee.com
Mediliant SA	Neuchâtel	Medical Technology - Devices	www.biometeuropa.com
Medimaps Group	Geneva	Medical Technology - Devices	www.medimapsgroup.com/
Medinel Sàrl	Vaud	Professional Services & Consulting - Other	www.medinel.com
Medinorma Sàrl	Vaud	Professional Services & Consulting - Information Provider	www.medinorma.ch
Medion Diagnostics AG	Fribourg	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.medion-diagnostics.ch
Mediplant	Valais	Phyto	www.mediplant.ch
Medipol SA	Vaud	Therapeutics and Diagnostics	www.medipol.ch
Medirio	Valais	Medical Technology - Diagnostic and therapeutic devices	www.medirio.com
Mediseeds	Valais	Phyto	www.mediseeds.ch
Medistri SA	Fribourg	Supplier & Engineering	www.medistri.com
Meditec Consulting GmbH	Bern	Professional Services & Consulting - Other; Regulatory & Clinical Services	www.meditec-consulting.ch
Medlight SA	Vaud	Medical Technology - Devices	www.medlight.com
Medos International Sàrl	Neuchâtel	Medical Technology - Devices	www.jnj.com
MedPlast SA	Valais	Medical Technology - Diagnostic and therapeutic devices	www.medplast.ch

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Medtronic Biopharma Sàrl	Neuchâtel	Medical Technology - Devices	www.medtronic.ch
Medtronic Europe Sàrl	Vaud	Medical Technology - Devices	www.medtronic.ch
Medvantis	Bern	Professional Services & Consulting - Other	www.medvantis.ch
Meister + Cie AG	Bern	Supplier & Engineering	www.meister-ag.ch
Melcure SA	Geneva	Therapeutics and Diagnostics - Chemical Drug	www.eclosion.ch
Melet Schloesing Pharmaceuticals SA	Neuchâtel	Therapeutics and Diagnostics	
Memedge Consulting Sàrl	Vaud	Professional Services & Consulting - Communication services	www.memedge-consulting.ch
Mensys Group	Vaud	Professional Services & Consulting - Human Resources Services	www.mensys-group.com
Mensys Group	Bern	Professional Services & Consulting - Human Resources Services	www.mensys-group.com
Merck Serono SA	Vaud	Therapeutics and Diagnostics - Chemical Drug; Proteins / Peptides	www.merckserono.net
Meridian AG	Bern	Medical Technology - Devices	www.meridian.ch
Métafil-Lagrolle SA	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.metafil-lagrolle.ch
Meyer Sintermetall AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.sintermetall.ch
MH LOG	Bern	Professional Services & Consulting - Other	www.mh-log.ch
Michael Page Healthcare & Life science	Geneva	Professional Services & Consulting - Human Resources Services	www.michaelpage.ch
Micro Precision Systems AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.mpsag.com
Microcity	Neuchâtel	Academic Institutions	www.microcity.epfl.ch
Microscan Service SA	Vaud	R&D Services and Technology Platforms - Diagnostic / Analytical Services; Information Provider	www.microscan.ch
Microsens SA	Neuchâtel	Supplier & Engineering - Electronics	www.microsens.ch
Micrus Endovascular SA	Vaud	Medical Technology - Devices	www.micrusendovascular.com
MiCS - MicroChemical Systems SA	Neuchâtel	Medical Technology - Devices	
Mikron Holding AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.mikron-tg.com
Milian SA	Geneva	Medical Technology - Devices	www.milian.com
Milupa SA	Fribourg	Nutrition	www.milupa.ch
MindMaze SA	Vaud	Medical Technology - Devices	www.mindmaze.ch
Mintaka Medical Research Foundation	Geneva	Professional Services & Consulting - Other	www.mintakafoundation.com
MLF Consulting Services Sàrl	Vaud	Professional Services & Consulting - Quality; Communication; Other	www.mlf-consulting.com
MMV Medicines For Malaria Venture	Geneva	Professional Services & Consulting	www.mmv.org
Moinas & Savoye SA	Geneva	Professional Services & Consulting - Patents & Trademarks	www.msc-ip.com
Monnier & Zahner AG	Bern	Medical Technology	www.monnier-zahner.ch
Motilis Medica SA	Vaud	Medical Technology - Devices	www.motilis.com
MTA - Unitechnologies SA	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.mta.ch
Mycotec SA	Neuchâtel	Professional Services & Consulting - Quality	www.mycotec.ch
Mymetics SA	Vaud	Therapeutics and Diagnostics - Vaccines	www.mymetics.com
MyoPowers Medical Technologies SA	Vaud	Medical Technology	www.myopowers.com
Myotest SA	Valais	Medical Technology - Devices	www.myotest.ch
Nano Bridging Molecules SA	Vaud	Medical Technology - Tissue Engineering / Regenerative Medicine	www.nbmolecules.com
Nanolive SA	Vaud	Medical Technology	www.nanolive.ch
Nanologica Pure Sàrl	Jura	R&D Services and Technology Platforms - Drug Delivery; Therapeutics, Chemical Drug	www.nanologica.com
Nanosensors	Neuchâtel	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.nanosensors.com
NanoWorld AG	Neuchâtel	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.nanoworld.com
NanoWorld Technologies Sàrl	Neuchâtel	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.nanoworldtechnologies.com
NBB Biotech GmbH	Fribourg	Medical Technology - Devices	www.nbbbiotech.com
NeoCoat	Neuchâtel	Medical Technology	www.neocoat.ch
Neocutis SA	Vaud	Therapeutics and Diagnostics	www.neocutis.com
Neode SA	Neuchâtel	Incubator and seed fund	www.neode.ch
NeoMed Medical Sàrl	Geneva	Professional Services & Consulting - Financial Services	www.neomed.net
Nestec SA	Vaud	Nutrition	www.nestlenutrition.com
Nestlé Institute of Health Sciences SA	Vaud	R&D Services and Technology Platforms	www.nestleinstitutehealthsciences.com
Nestlé SA	Vaud	Nutrition	www.nestle.ch
NetModule AG	Bern	Professional Services & Consulting - Other	www.netmodule.com
Neurix SA	Geneva	R&D Services and Technology Platforms - Diagnostic / Analytical Services; Technology Platforms	www.neurix.ch
NeuroAssets Sàrl	Vaud	R&D Services and Technology Platforms - Diagnostic / Analytical Services; Technology Platforms	www.neuroassets.com
NeuroLite	Bern	Medical Technology - Electro mechanical Medical devices	www.neuro-lite.ch
Niklaus	Geneva	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.niklaus-sa.com
Novadaq Technologies	Vaud	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.novadaq.com
Novagraaf International SA	Geneva	Professional Services & Consulting - Patents & Trademarks	www.novagraaf.ch
Novartis Centre De Recherche Santé Animale SA	Fribourg	Therapeutics and Diagnostics - Chemical Drug	www.novartis.com
Novartis Consumer Health SA	Vaud	Therapeutics and Diagnostics - Chemical Drug	www.consumer-health.ch
NovImmune SA	Geneva	Therapeutics and Diagnostics - Proteins / Peptides	www.novimmune.com
Novipart Health & Life Sciences Sàrl	Valais	Professional Services & Consulting - Other; Business development services; Regulatory & Clinical services; Quality	www.novipart.com

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Novo Business Consultants AG	Bern	Professional Services & Consulting - Information Provider	www.novo-bc.ch
Novoglas	Bern	Supplier & Engineering - Other; Consumables & Reagents	www.novoglas.ch
Nufer Medical AG	Bern	Medical Technology - Devices	www.nufer-medical.ch
Numelec SA	Geneva	Professional Services & Consulting	www.numelec.com
Nutricia SA	Fribourg	Supplier & Engineering	www.nutricia.ch
Nutrilinks	Vaud	Nutrition	www.nutrilinks.net
Nutrimec SA	Fribourg	Nutrition	www.nutrimec.ch
NV Logistics SA	Geneva	R&D Services and Technology Platforms - Drug Delivery	www.nvlogistics.com
ObsEva SA	Geneva	R&D Services and Technology Platforms - Drug Discovery	www.obseva.com
Obtech Medical Sàrl	Neuchâtel	Medical Technology - Devices	www.ojn.com
Odinelixir SA	Valais	Phyto	www.odinelixir.ch
Olympus Biotech SA	Vaud	Medical Technology - Devices; Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.olympus.ch
Omega Statistical Consulting	Vaud	Professional Services & Consulting - Other	www.omegastatco.ch
OmniScience SA	Geneva	Professional Services & Consulting - Communication services	www.omniscience-td.com
OncoEthix SA	Vaud	Supplier & Engineering	www.oncoethix.com
ONCommit Sàrl	Vaud	Professional Services & Consulting	www.oncommit.ch
Ondaco SA	Geneva	Professional Services & Consulting - Business development services	www.ondaco.com
One Drop Diagnostic Sàrl	Neuchâtel	Medical Technology - Diagnostic and therapeutic devices	www.onedropdiagnostics.com
Oriflame Cosmetics SA	Fribourg	Cosmetics	www.oriflame.com
Orphée SA	Geneva	Professional Services & Consulting	www.orphee-medical.com
Ortho.Kern SA	Vaud	Supplier & Engineering	www.ortho-kern.ch
Orthoglobal Sàrl	Vaud	Therapeutics and Diagnostics	www.orthoglobal.ch
Ortho-Team AG	Bern	Medical Technology - Devices	www.ortho-team.ch
Oscimed SA	Neuchâtel	Medical Technology - Devices	www.oscimesa.com
Osterwalder AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.osterwalder.com
Otsuka SA	Geneva	Therapeutics and Diagnostics - Chemical Drug; Medical technology - Devices	www.otsuka.com
Outcome Europe Sàrl	Vaud	Professional Services & Consulting - Information Provider	www.outcome.com
P&TS SA	Neuchâtel	Professional Services & Consulting - Patents & Trademarks	www.patentattorneys.ch
P.T.M.	Geneva	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.ptm.ch
Pact & Partners International	Vaud	Professional Services & Consulting - Other	www.pactpartners.com
PACTT	Vaud	Academic Institutions	www.pactt.ch
PAP Cosmetics Sciences SA	Valais	Cosmetics	
Parvulus Suisse SA	Vaud	Medical Technology - Implants	www.parvulus-suisse.com
PB&B SA	Vaud	R&D Services and Technology Platforms	www.pbbtech.ch
Pearlwater Mineralquellen AG	Valais	Nutrition	
Pen-fix Sàrl	Jura	Medical Technology - Devices	www.pen-fix.ch
Performance Thérapeutique Sàrl	Jura	Supplier & Engineering	
Petitpierre SA	Neuchâtel	Medical Technology - Devices	www.petitpierre.ch
Petz Industries AG	Fribourg	Supplier & Engineering	
Pevion Biotech AG	Bern	Therapeutics and Diagnostics - Vaccines	www.pevion.com
Pewatron AG	Fribourg	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.pewatron.com
PFL Antralux SA	Neuchâtel	Medical Technology - Dental Devices; Prosthetics; Implants	www.precel.ch
PFM Medical Sàrl	Neuchâtel	Medical Technology	www.cppswiss.ch
Pharma Consulting Marion Senn GmbH	Bern	Supplier & Engineering	www.pharmaconsulting.ch
Pharma Futura SA	Valais	Supplier & Engineering	www.nutritiondusport.ch
Pharmacap Holding SA	Fribourg	Professional Services & Consulting - Financial Services	
PharmAlp SA	Valais	Therapeutics and Diagnostics - Nutrition	www.pharmalp.ch
PharmaSys	Neuchâtel	Professional Services & Consulting - Quality; Information Provider	www.pharmasys.fr
Pharmatic AG	Bern	Professional Services & Consulting - Other	www.pharmatic.ch
Phasis Sàrl	Geneva	Supplier & Engineering - Consumables & Reagents	www.phasis.ch
Phenosystems SA	Vaud	Medical Technology - Devices	www.phenosystems.com
Phonak Communication AG	Fribourg	Medical Technology - Devices	www.phonak-communications.com
PhotoDerma SA	Vaud	Therapeutics and Diagnostics	www.photoderma.com
PHT Corporation Sàrl	Geneva	Professional Services & Consulting - Regulatory & Clinical Services	www.phtcorp.com
Phyt-Inov SA	Jura	Therapeutics and Diagnostics	www.phyt-inov.com
PhytoArk SA	Valais	Incubator and seed fund	www.phytoark.ch
PhytoConcept	Valais	Phyto	
Phytomed AG	Bern	Therapeutics and Diagnostics	www.phytomed.ch
Phytopharma SA	Fribourg	Therapeutics and Diagnostics	www.phytopharma.ch
Pibor Iso SA	Jura	Supplier & Engineering	www.pibor.ch
Pico Drill SA	Vaud	Medical Technology	www.picodrill.com
Pierre Kern Orthopédie	Vaud	Medical Technology - Devices	www.ortho-kern.ch

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Piguet Frères & Cie SA	Vaud	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.piguet-freres.ch
Pimatron Medizintechnik + Consulting GmbH	Bern	Medical Technology - Devices	
Pixon Engineering SA	Valais	R&D Services and Technology Platforms - CMO	www.pixon-ch.com
Plaspaq SA	Fribourg	Supplier & Engineering	www.plaspaq.ch
Pnn Medical SA	Vaud	Medical Technology - Devices	www.pnnmedical.ch
Polar Electro Europe B.V., Schipol-Zuid	Neuchâtel	Professional Services & Consulting	www.polar.com
Polydec SA	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.polydec.ch
Polyform Kopp AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.polyform.ch
Polykem Sàrl	Vaud	Supplier & Engineering	www.polykem.com
Precipart SA	Bern	Supplier & Engineering	www.precipart.ch
Précision électronique Prececl SA	Neuchâtel	Medical Technology - Dental Devices; Prosthetics; Implants	www.prececl.ch
Preclin Biosystems AG	Vaud	Cosmetics; CRO (Contract Research Organization)	www.preclinbiosystems.com
Predige SA	Vaud	Cosmetics	
PreenTec AG	Fribourg	Supplier & Engineering	www.preentec.ch
PregLem SA	Geneva	Therapeutics and Diagnostics - Proteins / Peptides	www.preglem.com
Pretec AG	Bern	Supplier & Engineering - Electronics	www.pretec.ch
Prexton Therapeutics	Geneva	R&D Services and Technology Platforms - CRO; CMO	
Primequal SA	Geneva	Medical Technology - Devices	www.primequal.com
Pro Valplantes SA	Valais	Phyto	www.provalplantes.ch
Product Life AG	Vaud	Professional Services & Consulting - Regulatory & Clinical Services	www.productlife.ch
Productec SA	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.productec.ch
Produits Dentaires SA	Vaud	Medical Technology - Devices	www.pdsa.ch
Protec Medical Sàrl	Geneva	Supplier & Engineering	www.protec-shop.ch
ProTool AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.protool-ltd.ch
Proxilab Analyses Médicales SA	Vaud	R&D Services and Technology Platforms - Diagnostic / Analytical Services	
PulmonX International Sàrl	Neuchâtel	Medical Technology - Devices	www.pulmonx.com
Pure by Switzerland SA	Jura	Cosmetics	www.purebyswitzerland.com
PX Dental SA	Neuchâtel	Medical Technology - Devices	www.pxdental.ch
PX Services SA	Neuchâtel	Professional Services & Consulting	www.pxservices.ch
QGel SA	Vaud	Supplier & Engineering - Consumables & Reagents	www.qgelbio.com
Qloudlab	Vaud	Medical Technology - Diagnostic and therapeutic devices / Imaging	www.qcloudlab.com
Qualimatest SA	Geneva	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.qmt.ch
Qualimetro SA	Vaud	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.qualimetro.com
Quantis International	Vaud	Professional Services & Consulting - Communication; Information Provider	www.quantis-intl.com
Quantum Pharmaceuticals SA	Neuchâtel	Cosmetics	www.quantumpharmaceuticals.com
Quartz Bio SA	Geneva	Bioinformatics / Genomics & Proteomics	www.quartzbio.com
R-Action Distribution	Vaud	Professional Services & Consulting - Business Development Services	www.radistribution.com
Recomatic SA	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.recomatic.ch
Redelec Technologie SA	Valais	R&D Services and Technology Platforms - Technology Platforms (BioSystems, BioChips, BioMems)	www.redelec.ch
Regen Lab SA	Vaud	Medical Technology - Tissue Engineering / Regenerative Medicine	www.regenlab.com
RegenHU SA	Fribourg	Medical Technology - Tissue Engineering / Regenerative Medicine	www.regenhu.com
«RegioMed Fred Riesen»	Bern	Medical Technology	www.regjomed.ch/
RehaxOne SA	Valais	Professional Services & Consulting - Quality; Business Development Services	www.rehaxone.com
Remp AG	Bern	Supplier & Engineering	www.remp.com
ReseaChem GmbH	Bern	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.reseachem.ch
Reuteler & Cie SA	Vaud	Professional Services & Consulting - Patents & Trademarks	www.reuteler.net
RF Pharmaceuticals Sàrl	Geneva	Professional Services & Consulting - Communication / PR / Market research / Events	
RiboVax Biotechnologies SA	Geneva	Therapeutics and Diagnostics - Proteins / Peptides	www.ribovax.com
Ridepharm Consulting Sàrl	Valais	Professional Services & Consulting - Other	www.ridepharm.com
Riotex AG	Bern	Supplier & Engineering	www.riotex.ch
RNI CONSULTING Healthcare	Valais	Supplier & Engineering	www.rni-consulting.com
Rodanotech Sàrl	Geneva	R&D Services and Technology Platforms - CMO (Contract Manufacturing Organization); CRO (Contract Research Organization)	www.rodanotech.ch
Roewasys AG	Bern	Supplier & Engineering - Other; Mechanical Engineering / Micro Engineering	www.roewasys.com
Romedic SA	Vaud	Medical Technology - Devices	www.romedicsa.ch
Rosin Entreprise Sàrl	Vaud	Medical Technology	www.rosin-ent.com
Ruetschi Technology AG	Fribourg	Medical Technology - Devices	www.ruetschi.com
Ruetschi Technology AG	Vaud	Medical Technology - Devices	www.ruetschi.com
Rüfenacht AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.starbowl.ch
Rüsch (Schweiz) AG	Bern	Medical Technology - Devices	www.ruesch-schweiz.ch
S&S Sàrl	Bern	Medical Technology - Devices	www.ssgmt.com
Safrima AG	Bern	Medical Technology	www.safrima.ch

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Sandozmedica Ltd	Vaud	Professional Services & Consulting - Business Development Services; Financial Services; Human Resources Services; Patents & Trademarks	www.sandozmedica.com
Sanex Pharm Sérolab SA	Fribourg	Therapeutics and Diagnostics	www.serolab.ch
Saniswiss SA	Geneva	Medical Technology - Devices	www.saniswiss.com
Sanitex SA	Jura	Medical Technology - Devices	www.sanitex.ch
Sankom Switzerland SA	Jura	Nutrition	www.sankom.com
Sanofi-Aventis (Suisse) SA	Geneva	Therapeutics and Diagnostics - Chemical Drug; Vaccines	www.sanofi-aventis.ch
Saphirwerk Industrieprodukte AG	Bern	Medical Technology - Devices	www.saphirwerk.com
SATYAtek SA	Vaud	Medical Technology - Devices; Supplier & Engineering - Electronics	www.satyatek.com
SAV-IOL SA	Neuchâtel	Medical Technology - Biomaterials / Coatings	www.sav-iol.ch
SBG - Healthcare Strategic Marketing & Communication	Vaud	Professional Services & Consulting - Business Development Services; Communication	www.sbg-marcom.ch
Sccopi Engineering Sàrl	Geneva	Professional Services & Consulting - Business Development Services	www.sccopi.com
Schaerer Mayfield Schweiz AG	Bern	Medical Technology - Devices	www.schaerermayfield.com
Schlaflì Engineering AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.schlaflì.ch
Schneiter & Vuille	Vaud	Professional Services & Consulting - Patents & Trademarks	www.sv-ip.com
ScienceVisuals Sàrl	Vaud	Medical Technology - Delivery devices	www.sciencevisuals.com
Scientis Pharma SA	Geneva	R&D Services and Technology Platforms - Drug Discovery	www.scientispharma.ch
Scitec Research SA	Vaud	Supplier & Engineering - Electronics	www.scitec-research.com
SDI Surgical Device International Sàrl	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.sdigmbh.ch
Second Sight Medical Products Sàrl	Vaud	Therapeutics and Diagnostics	
Sedia AG	Fribourg	Medical Technology - Devices	www.sedia.ch
Selectus SA	Geneva	Professional Services & Consulting - Information Provider	www.selectus.ch
Selexis SA	Geneva	R&D Services and Technology Platforms - Other; Bioinformatics / Genomics & Proteomics	www.selexis.com
Semadeni AG	Bern	Supplier & Engineering	www.semadeni.com
Sensimed SA	Vaud	Medical Technology - Devices	www.sensimed.ch
Sérolab SA	Fribourg	R&D Services and Technology Platforms	www.serolab.ch
Servicos AG	Bern	Cosmetics	www.servicos.ch
Servier Suisse SA	Geneva	Therapeutics and Diagnostics - Chemical Drug	www.servier.com
Seyonic SA	Neuchâtel	Supplier & Engineering - Electronics	www.seyonic.com
SGS M-Scan SA	Geneva	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.m-scan.com
SGX Sensortech SA	Neuchâtel	Supplier & Engineering	www.sgxsensortech.com
Shire AG	Vaud	Therapeutics and Diagnostics - Chemical Drug	www.shirepharma.ch
Siemens Suisse SA	Vaud	Supplier & Engineering - Electronics; Other	www.siemens.ch
Signal Processing SA	Vaud	Supplier & Engineering - Electronics	www.signal-processing.com
Simatec AG	Bern	Medical Technology	www.simatec.com
Simpex Tech AG	Bern	Supplier & Engineering	www.simpex.ch
SimplicityBio	Valais	R&D Services and Technology Platforms - Technology Platforms (BioSystems, BioChips, BioMems)	www.simplicitybio.com
Sintetica Bioren SA	Neuchâtel	Therapeutics and Diagnostics	www.sintetica-bioren.com
Sirad SA	Neuchâtel	Supplier & Engineering	www.sirad.ch
SISPha SA	Valais	Supplier & Engineering	www.sispha.com
Skin Cell Technologies	Valais	Phyto; Cosmetics	
Smartcanula Sàrl	Vaud	Medical Technology - Devices	www.smartcanula.com
SmartCardia Sàrl	Vaud	Medical Technology - Devices	
SmartGene Services Sàrl	Vaud	R&D Services and Technology Platforms - Bioinformatics / Genomics & Proteomics	www.smartgene.ch
SME BioAdvisor Ltd	Vaud	Professional Services & Consulting - Regulatory & Clinical Services; Financial Services; Business Development Services	www.smebioadvisor.com
SMR Engineering & Development SA	Bern	Professional Services & Consulting - Other	www.smr.ch
SMT Swiss Microtechnology AG	Bern	Medical Technology - Devices	www.ziemergroup.com
Snortec Sàrl	Geneva	Supplier & Engineering	www.snortec.ch
SNP Consulting	Fribourg	Professional Services & Consulting - Business Development Services; Communication; Patent & Trademarks	www.swissnp.ch
Socar Research SA	Vaud	Professional Services & Consulting - Regulatory & Clinical Services - R&D Services and Technology Platforms - CRO (Contract Research Organization)	www.socar-research.com
Société Suisse des Explosifs	Valais	Fine Chemicals	www.explosif.ch
Socorex Isba SA	Vaud	Supplier & Engineering	www.socorex.com
Solae Europe SA	Geneva	Nutrition	www.solae.com
Solid Drug Development SA	Geneva	R&D Services and Technology Platforms - CRO; Professional Services & Consulting - Patents & Trademarks	www.soliddrugdevelopment.com
Sompharmaceuticals	Vaud	Therapeutics and Diagnostics	www.sompharmaceuticals.com
Sonoscope SA	Fribourg	Supplier & Engineering - Electronics	www.sonoscope.ch
Sophia Genetics SA	Vaud	R&D Services and Technology Platforms - Bioinformatics / Genomics & Proteomics; Diagnostics / Analytical Services	www.sophiagenetics.com

COMPANY NAME	CANTON	MAIN SECTOR & SUBSECTORS	Internet
Spagyros SA	Jura	Therapeutics and Diagnostics	www.spagyros.ch
SpineArt	Geneva	Medical Technology - Implants; Biomaterials	www.spineart.ch
Spinomix SA	Vaud	Supplier & Engineering - Electronics	www.spinomix.com
SpirAlps SA	Valais	Nutrition	www.spiralps.ch
SPsolutions SA	Valais	Professional Services & Consulting	www.spsolutions.ch
St. Jude Medical	Geneva	Medical Technology - Devices	www.endsense.com
Staar Surgical AG	Bern	Medical Technology - Devices	www.staar.com
Startech Consulting	Vaud	Professional Services & Consulting	www.startech-consulting.ch
Station de recherche Agroscope			
Changins-Wädenswil	Valais	Phyto	www.agroscope.admin.ch
Steiger Galvanotechnique SA	Fribourg	Medical Technology	www.steiger.ch
Stemedica International SA	Vaud	Therapeutics and Diagnostics - Cell Therapy / Stem Cells	www.stemedica.com
Stemergie Biotechnology SA	Geneva	Therapeutics and Diagnostics - Cell Therapy / Stem Cells; Chemical Drug	www.stemergie.com
Steris AG	Bern	Supplier & Engineering - Consumables & Reagents	www.steris.com
SteriSwiss Sarl	Geneva	R&D Services and Technology Platforms	www.steriswiss.ch
SteriSwiss Vaud SA	Vaud	Medical Technology	www.steriswiss.ch
Stiftung für Technologische Innovation	Bern	Professional Services & Consulting - Financial Services	www.sti-stiftung.ch
Stoppiani AG	Bern	R&D Services and Technology Platforms - CMO	www.stoppiani.com
Stragen Pharma SA	Geneva	Therapeutics and Diagnostics - Generics / Biosimilars	www.stragen.ch
Stratarium Sarl	Vaud	Medical Technology - Tissue Engineering / Regenerative Medicine; Devices	www.stratarium.com
Straumann Villeret SA	Bern	Medical Technology - Implants; Biomaterials	www.straumann.com
Stryker EMEA Headquarter	Vaud	Medical Technology - Devices	www.stryker.ch
Stryker Spine SA	Neuchâtel	Medical Technology - Devices	www.stryker.ch
Stryker Trauma SA	Geneva	Medical Technology - Devices	www.stryker.ch
Suisse Med Technologies SA	Valais	Medical Technology	www.suissem.com
Sunrise Medical AG	Bern	Medical Technology - Devices	www.sunrisemedical.ch
Sunstar Suisse SA	Vaud	Cosmetics	
Supply Chain Operations SA	Vaud	Professional Services & Consulting - Human Resources Services; Quality	www.supplychainoperations.ch
Surcotec SA	Geneva	Supplier & Engineering	www.surcotec.ch
Surgical Instrument Engineering AG	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	
Süss MicrOptics SA	Neuchâtel	Supplier & Engineering	www.suss-microoptics.com
Swiss Arab BioPharma	Geneva	Cosmetics; Medical Technology - Devices; Nutrition - Professional Services & Consulting - Business Development Services; Therapeutics - Chemical Drug	www.swissarab-biopharma.com
Swiss Dental Material SA	Valais	Medical Technology	www.sdm-sa.com
Swiss Institute of Bioinformatics	Geneva	R&D Services and Technology Platforms - Bioinformatics / Genomics & Proteomics	www.isb-sib.ch
Swiss Institute of Cell Therapies (SICT)	Geneva	Therapeutics and Diagnostics	www.swiss-ict.ch
Swiss Malaria Foundation	Vaud	Therapeutics and Diagnostics	www.swissmalaria.ch
Swiss Medical Care SA	Vaud	Medical Technology - Devices	www.swissmedcare.com
SWISS TM Sarl	Geneva	Medical Technology - Implants; Devices	
Swissatec Sarl	Jura	Medical Technology	
Swissaustral Biotech SA	Valais	R&D Services and Technology Platforms - CMO	www.swissaustral.ch
Swissderm AG	Fribourg	Therapeutics and Diagnostics	www.swissderm.ch
Swissfillon AG	Valais	R&D Services and Technology Platforms - CMO	www.swissfillon.com
SwissLens SA	Vaud	Medical Technology - Devices	www.swisslens.ch
Swiss-Medical-Consultants Sarl	Vaud	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.swiss-medical-consultants.com
SwissMIM SA	Jura	Medical Technology - Devices	www.swissmim.com
Swissurgical Sarl	Vaud	Medical Technology - Devices; Professional Services & Consulting - Quality; Regulatory & Clinical Services	www.swissurgical.com
Swortec SA	Valais	Medical Technology - Devices	www.swortec.ch
Symbion Medical Systems Sarl	Vaud	Supplier & Engineering	www.symbion-medical.com
Symbios Orthopédie SA	Vaud	Medical Technology - Implants; Biomaterials	www.symbios.ch
Symetis SA	Vaud	Medical Technology - Tissue Engineering / Regenerative Medicine	www.symetis.com
Syngenta Crop Protection Monthey SA	Valais	Fine Chemicals	www.syngenta.com
Synthes Raron GmbH	Valais	Professional Services & Consulting	www.synthes.com
Sysmelec SA	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.sysmelec.ch
Sysmex Digitana SA	Vaud	Supplier & Engineering - Electronics	www.sysmex.ch
Systems Assembling SA	Neuchâtel	Supplier & Engineering - Electronics	www.sysa.ch
Tabrasco SA	Vaud	Supplier & Engineering - Electronics	www.tabrasco.com
Tagator	Vaud	Professional Services & Consulting - Business development Services	www.tagator.com
TauDerma Sarl	Valais	Nutrition	-
Tech-Laser Sandoz SA	Vaud	Supplier & Engineering	www.techlaser.ch
Techma Consult Sarl	Vaud	R&D Services and Technology Platforms - CMO; Technology Platforms (BioSystems, BioChips, BioMems)	www.techma-consult.com
TechniCAD Engineering SA	Valais	Professional Services & Consulting - Other	www.technicad.ch

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Technilab SA	Geneva	Medical Technology	
TechnoCut SA	Jura	Supplier & Engineering	www.technocutsa.ch
Techno-Lens SA	Vaud	Medical Technology - Devices	www.technolens.ch
Temmentec AG	Bern	Cosmetics	www.temmentec.ch
Tenax SA	Jura	Supplier & Engineering	www.jic.ch/tenax
The Ark	Valais	Professional Services & Consulting	www.theark.ch
The MathWorks GmbH	Bern	R&D Services and Technology Platforms - Bioinformatics / Genomics & Proteomics	www.mathworks.ch
Thermo Fisher Scientific SA	Vaud	Medical Technology - Devices	www.thermofisher.com
Topotarget Switzerland SA	Vaud	Therapeutics and Diagnostics	www.topotarget.com
Tornos SA	Bern	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.tornos.com
Tötzke & Dreher Scientific SA	Geneva	Professional Services & Consulting - Communication; Regulatory & Clinical Services	www.td-s.com
TQM Insight	Geneva	Medical Technology	www.tqm-insight.com
Trabold & Co AG	Bern	Supplier & Engineering	www.trabold.ch
TransCure BioSciences SA	Geneva	Therapeutics and Diagnostics - Cell Therapy / Stem Cells; Gene Therapy	www.transcurebiosciences.com
TRB Chemedica International SA	Geneva	Therapeutics and Diagnostics - Chemical Drug	www.trbchemedica.com
TRB Chemedica SA	Valais	Therapeutics and Diagnostics - Chemical Drug	www.trbchemedica.com
Triflo Medical Switzerland Sarl	Neuchâtel	Therapeutics and Diagnostics	
Trimastek Sarl	Neuchâtel	Medical Technology - Devices	www.trimastek.ch
Triskel Integrated Services SA	Geneva	Professional Services & Consulting - Other; Regulatory & Clinical Services	www.triskel.com
Typon Medical Systems	Bern	Supplier & Engineering	www.typon.ch
UCB Farchim SA	Fribourg	Therapeutics and Diagnostics	www.ub.com/worldwide/switzerland
Unident SA	Geneva	Medical Technology - Devices	www.unident.ch
Unident SA	Geneva	Medical Technology - Devices	www.unident.ch
Unilabs SA	Geneva	R&D Services and Technology Platforms - Diagnostic / Analytical Services	www.unilabs.ch
Unimed SA	Vaud	Medical Technology - Devices	www.unimed.ch
Uniquer Sarl	Vaud	R&D Services and Technology Platforms - CRO (Contract Research Organization); Bioinformatics / genomics & Proteomics	www.uniquer.ch
United BioSource (Suisse) SA	Geneva	R&D Services and Technology Platforms - CRO (Contract Research Organization)	www.unitedbiosource.com
UniverCité	Vaud	Academic Institutions	www.univercite.ch
University of Bern	Bern	Academic Institutions	www.unibe.ch
University of Fribourg	Fribourg	Academic Institutions	www.unifr.ch
University of Geneva	Geneva	Academic Institutions	www.unige.ch
University of Lausanne	Vaud	Academic Institutions	www.unil.ch
University of Neuchâtel	Neuchâtel	Academic Institutions	www.unine.ch
V.I.P.S medical Sarl	Neuchâtel	Therapeutics and Diagnostics	www.vipsglobal.com
Valdar SA	Vaud	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.valdar.ch
Valmed SA	Valais	Medical Technology - Devices	www.valmed.ch
Valpharmex SA	Valais	Supplier & Engineering	-
Valplantes	Valais	Phyto	www.valplantes.ch
Valsynthese SA	Valais	Fine Chemicals	www.valsynthese.ch
Valteo SA	Vaud	Medical Technology - Devices	www.valteo.ch
Valtronic Technologies SA	Vaud	R&D Services and Technology Platforms - CMO	www.valtronictechnologies.com
Valuecept Sarl	Geneva	Cosmetics	www.valuecept.com
Vaxeal Holding SA	Vaud	Therapeutics and Diagnostics - Proteins Peptides; Vaccines	www.vaxeal-group.com
Venner Medical (Suisse) SA	Vaud	Medical Technology - Devices	www.vennermedical.com
Venturelab	Vaud	Professional Services & Consulting	www.venturelab.ch
ViDi Systems SA	Fribourg	IT Services / Information provider	www.vidi-systems.com
Vifor Pharma SA	Geneva	Therapeutics and Diagnostics - Chemical Drug	www.viforpharma.com
Vifor SA	Fribourg	R&D Services and Technology Platforms - CMO	www.viforpharma.com
Vigisense SA	Geneva	Medical Technology - Devices	www.vigisense.com
Vinci Capital	Vaud	Venture Capital Fund	www.vincicapital.ch
Viral Inactivated Plasma Systems SA	Neuchâtel	Professional Services & Consulting - Business Development Services	www.vipsmedical.com
Viroblock SA	Geneva	Therapeutics and Diagnostics - Proteins / Peptides	www.viroblock.com
Viso Medical SA	Neuchâtel	Supplier & Engineering	
Visualbiotech Sarl	Vaud	R&D Services and Technology Platforms - Bioinformatics / Genomics & Proteomics	www.visualbiotech.ch
Vivactis (Suisse) SA	Vaud	Professional Services & Consulting - Communication services	www.vivactis.ch
Vivos Dental SA	Fribourg	Medical Technology - Dental Devices	www.vivosdental.com
Voisin Consulting Sarl	Vaud	Professional Services & Consulting - Information Provider	www.voisinconsulting.com
Vuilleumier Technology SA	Bern	Medical Technology - Devices	www.vui-tec.ch
VWR International AG	Vaud	Supplier & Engineering - Consumables & Reagents	www.vwr.com
Vygon Suisse Sarl	Bern	Medical Technology - Devices	www.vygon.ch
Wibemo SA	Jura	Supplier & Engineering	www.wibemo.ch

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Willemin-Macodel SA	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.willemin-macodel.com
Wire Engineering Sarl	Fribourg	Supplier & Engineering - Electronics; Mechanical Engineering/Micro Engineering	www.wire-engineering.com
Witech Bassecourt SA	Jura	Supplier & Engineering - Mechanical Engineering / Micro Engineering	www.witech-sa.ch
World Medical Device Organization	Vaud	Medical Device Professional	www.wmdo.org
Xactform SA	Neuchâtel	Medical Technology - Devices	www.xactform.com
XenTech AG	Bern	Medical Technology - Devices	www.xentech.ch
Xigen SA	Vaud	Therapeutics and Diagnostics - Proteins / Peptides; Chemical Drug	www.xigenpharma.com
XiTact SA	Vaud	Medical Technology - Devices	www.mentice.com
XLBiosim SA	Vaud	Supplier & Engineering - Electronics	www.xlbiosim.com
Y-Parc SA	Vaud	Science & Technology Park / Incubator and seed fund	www.y-parc.ch
Ypsomed AG	Bern	Medical Technology - Devices	www.ypsomed.com
Yttermed SA	Vaud	Medical Technology	www.yttermed.ch
Zanin Swiss Cosmetics	Valais	Cosmetics	www.zanin-cosmetics.ch
Zestagen SA	Vaud	Therapeutics and Diagnostics - Proteins / Peptides	www.zestagen.com
Ziemer Ophthalmic Systems AG	Bern	Medical Technology - Devices	www.ziemergroup.ch
Zimmer Schweiz GmbH	Bern	Medical Technology - Implants; Biomaterials	www.zimmer.com
Zimmer Surgical	Geneva	Medical Technology	www.zimmer.com
ZTC Technology SA	Neuchâtel	Professional Services & Consulting - Information Provider	www.ztc-techno.com
Zwirner Nanotec AG	Fribourg	Supplier & Engineering	www.zwirner-nanotec.ch

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