biosaxony

Biotechnology and Life Sciences

Health I Food I Environment I Energy I Industry

BIOTECHNOLOGY IN **SAXONY**

Contents

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Biotechnology and Life Sciences

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BIOTECHNOLOGY IN SAXONY

EDITORIAL OF STANISLAW TILLICH PRIME MINISTER OF THE FREE STATE OF SAXONY

The development of biotechnology in Saxony is a story of success. Why? Since the state government of Saxony began its biotechnology offensive, more than 50 new biotech companies have been founded and more than 2,000 employees currently work in Saxon companies in this sector. Only ten years ago, we saw a quite different situation. At that time, the biotechnology sector with less than 400 workplaces in the Free State of Saxony had no economic power. Now we have succeeded in catching up with those other German bioregions who started much earlier - thanks to the state government of Saxony's biotechnology offensive. In this way, more than 200 million euros have been invested in expanding the sector. Biotechnology has become established as an additional important pillar of Saxony as a high technology location. Today, Saxony ranks amongst the top German bioregions and the Free State even occupies 2nd place amongst the new German federal states. This is accompanied by its excellent reputation as one of the leading biotechnology locations in Germany and also by the attractiveness of its location in an international context.

Science and economy under the same roof: This successful concept has spurred on the development of this high-tech sector in Saxony. With the construction and furnishing of the two biotech incubators, BioInnovationsZentrumDresden and BIO CITY LEIPZIG, an excellent infrastructure has been created. Spin-offs, new settlements and interdisciplinary project work characterise this impressively. Twelve new professorships have been created in The Biotechnology Center (BIOTEC) of the TU Dresden and the Centre for Biotechnology and Biomedicine of the Leipzig University with their junior research groups. In the meantime, it has been possible to generate additional funds amounting to more than three times the funds invested by the Free State for the biotechnology location, Saxony. Last but not least, companies already established in the Free State have been able to expand continuously during the same period.

I am convinced that this success story will continue. The necessary conditions for this have been created. In addition, further efforts must be made to promote practical research and development in biotechnology. It is of great importance to transfer the results gained into the companies as well as to support the SME within the scope of the funding opportunities available. This also requires the support of the cluster activities of the all-Saxony biotechnology and Life Sciences network, biosaxony. In this way we can succeed in establishing sustainable new cooperations and projects at national and international level as a usable success for Saxony.

I would like to invite you to join our strong biotech community and to participate in shaping the future here in the heart of Europe. To this effect, the Free State of Saxony will provide you with excellent conditions and optimum development opportunities and biosaxony e.V. will provide active, competent and targeted support.

Stanislaw Tillich
Prime Minister of the Free State of Saxony

EDITORIAL BOARD OF MANAGEMENT OF THE BIOSAXONY ASSOCIATION

We are delighted to present the first image report on Saxony's biotechnology & life sciences cluster under the label of the biosaxony association.

Biotechnology is a core discipline, a key technology and an enabling technology all at once – and hence a driving force and catalyst for future economic growth. This applies in particular to all those sectors of the economy which are closely related to biotech and which are of considerable social and economic importance for Saxony, such as healthcare and medicine, the food industry, the environment, energy and also important industrial applications. Saxony has unique abilities in areas such as regenerative therapies, bioengineering and materials science. The excellent know-how from biotechnological basic and advanced research, its translation into improved and innovative processes, products and applications are the cornerstones of sustainably strengthening Saxony's competitive position and development.

Ten years after the Saxon State Government launched its incisive biotechnology campaign, in 2009 it transferred the activities of the former Saxon Coordination Agency for Biotechnology to a separate organization by setting up the registered association biosaxony e.V.

biosaxony is supported by all the main companies, research centers and academic institutions working in biotech and life sciences in Saxony. The members of biosaxony contribute their strengths, specializations and a wide range of expertise. By working under the auspices of biosaxony and thanks to the activities of currently seven thematic working groups, valuable inspiration, joint projects and collaboration are emerging which bolster the further development of the bioregion.

To enable strategic growth in the years until 2020 and beyond, biosax2030 – the independent Commission on the Future of Biotechnology and Life Sciences set up in February 2012 – is currently drawing up goals, programs and measures to safeguard and sustainably expand the value chain of our vital high-tech sector.

The constantly positive development of the biotech sector in Saxony is due to a combination of many factors. They include in particular a very good infrastructure, excellent educational establishments, key skilled workers, outstanding academic and research institutions, efficient technology transfer, a growth-oriented private sector not averse to taking risks, effective funding programs and support measures by regional and local government and last but not least a generally high quality of life.

This report outlines the status, dynamics and potential of Saxony as a biotech stronghold. In addition, it sets out Saxony's crucial advantages for expanding businesses and start-ups as well as R&D cooperation. In Saxony interesting, exciting success stories are to befound which a few years ago would have been unimaginable, yet now merely represent the beginning of sustainable economic development, in which biotechnology will eventually become Saxony's foremost future technology.

„biosaxony – moving to the top“

Roland Göhde
Chairman
biosaxony e.V.

Dr. Wilhelm Zörgiebel
Vice-Chairman
biosaxony e.V.

BIOTECHNOLOGY **IN SAXONY**

VISIONS

The Saxon Biotechnology Campaign in the year 2000 paved the way for the region's current outstanding position in scientific research, especially in the fields of regenerative therapies and molecular bioengineering. It led to more than fifty biotech firms being founded, which have since successfully grown alongside the established companies.

Given the global challenges now facing us in 2012, with hindsight, launching the Biotechnology Campaign was the right strategic step. These days, biotech is one of the fundamental enabling sciences and the key technology for sustainable economic activity meeting mankind's main needs. However, nature's patents can only unfold their economic benefit in applications, products, processes and services in conjunction with other disciplines and industries. Market-based technology transfer, links with traditional industries and other important technologies, and the knowledge-intensive services they spawn are challenging potential opportunities which can be translated into future economic growth in Saxony.

Example of a promising vision and its success factors

Saxony has a strong heritage of technology and engineering. Thanks to its high density of research institutes and their close links with traditional and high-tech engineering expertise, a wealth of R&D expertise and adaptability has been amassed. Furthermore, by combining its strengths, Saxony will be able to develop exclusive advantages on the basis of existing core competencies, with the amalgamation of biotechnology, engineering and medicine creating the basis for a hyper-competence. One example is high-tech medical engineering, in which fundamental research, the design of applications and products, and human needs are uniquely intertwined.

If companies in Saxony developed for instance a new facet of personalized medicine by blending knowledge from regenerative therapies, molecular bioengineering and high-tech medical engineering, this could be the beginning of a new product development pipeline leading to energy-saving, renewable, mobile and personalized applications and products. Thanks to the unique proximity and advanced state of related modern technology platforms such as in semiconductors and communications technology as well as expertise in biophysics, nanotechnology, biomaterials,

biomimetics, non-destructive testing and energy research, the chances of achieving radical innovation in Saxony would be very high.

For example, diagnosis circuits which could be printed on the skin, drug reservoirs and nanorobots used in combination with smartphones would improve the success of preventive medicine while personalized medication would inexpensively boost the effectiveness of therapies many times over and prolong human life. These visions are now within Saxony's grasp.

Important factors for the future successful implementation of this example include the market orientation of product development, including applications and services ('time to cash'), the steering competence of innovation throughout the process chain, competitive internal processes in businesses, and cooperation with powerful sales partners all over the world.

Investment is above all required in application incubators so that the feasibility of product developments can be quickly verified. Start-up centers with biotechnology and engineering expertise are to be expanded into cooperative full incubators so that small businesses can hire the research, development and production functions they lack.

By harnessing this vital, forward-looking vision of high-tech medical engineering together with the demands and possibilities of personalized medicine, it would be possible for Saxony to rapidly generate new, thriving economic growth and to produce economic returns by 2020.

Moreover, this is just one example. By adopting a similar approach in other areas, the aim is to creatively tap the potential for value creation in healthcare, the environment, energy, food and industry by 2030.

H. Weinreich

Herbert Weinreich
CEO, biosaxony Management GmbH

biosaxony

Colin Ardley, Genius-Loci-Past, Present and Future, Hellerau, Mai 2010

BUSINESSES

Within just a few years, the rising region of Saxony has developed into one of Europe's most dynamic areas for biotechnology and life sciences. The region's distinct advantage is that science and biology are combined with engineering and material sciences as well as medical science - a unique selling proposition of Saxon biotech, because Saxony is the only place in the world where this approach is taken. This interdisciplinary expertise greatly benefits an enabling industry like biotechnology and is a huge competitive advantage for the private sector in Saxony since it encourages innovation. Nowadays, the biotech landscape in Saxony is made up of more than 80 biotech and pharmaceutical companies, of which about 50 are core biotechs.

com CENTRUM

The **Sächsische Bildungsgesellschaft für Umweltschutz und Chemieberufe Dresden mbH** (Saxon Education Company for Environmental Protection and Chemical Occupations Dresden GmbH - Dresden SBG) is a non-profit educational institution working in the fields of vocational training, further education and professional preparation and professional orientation.

The SBG Dresden offers vocational training in the fields of natural sciences/high technology and technical environmental engineering.
We cooperate with more than 100 companies, several universities and institutes.

COM-LAB^{BIO} - The biology laboratory for TEACHING and LEARNING

The COM-LAB^{BIO} is the new student-and teacher-learning lab in Dresden in the field of biology. It offers the opportunity for practical exploration of the natural sciences: experiment, touch, try and understand.
The COM-LAB^{BIO} at the SBG is offered to students from middle schools and high schools as well as for gifted and talented as well as for teachers. Participants acquire scientific and technical skills to work as a team, to implement planning tasks and can be effectively prepared both for working life experience as well as practical science The equipment of the laboratory provides the technical basis for the topics: microbiology, cell culture technology and molecular biology.

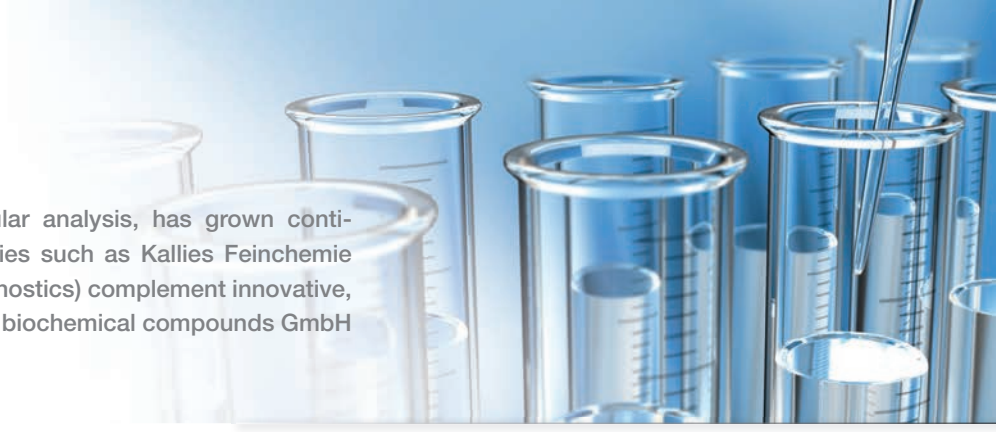
Teacher Training - For teachers of biology teaching subject and interested professional teachers in other areas.

Why should you do a teacher training in our lab?
We have extensive and long experience in the field of teacher training. The topics are tailored to the current curriculum. With an attractive range of courses and practical work in advanced laboratories, you can deepen your knowledge. The focus is on practical work in the laboratory. You can implement the knowledge acquired in class, materials for the classroom are available.

What to expect in our laboratory: genetic engineering & molecular biology, DNA isolation from plants, animals and bacteria, electrophoresis, polymerase chain reaction (PCR), blotting, hybridization, transformation, ELISA test, cell growth in the bioreactor, biomass analysis, thin layer chromatography, enzymatic studies, microscopy, investigation of environmental organisms (skin, air, water, soil), colony morphology, bacterial morphology, staining and microscopy, histology working with renewable resources.

With a financial support of biosaxony e. V. the offer for the participants could be expanded. The funds were used for microscopes, a cell counter and a gel documentation device.

For further information please contact us:
Sächsische Bildungsgesellschaft für Umweltschutz und Chemieberufe Dresden mbH - Gutenbergstraße 6 01307 Dresden -
Tel.: 0351 4445-60 - Fax: 0351 4445-612 - www.sbgdd.de - info@sbgdd.de



DIAGNOSTICS

The field of diagnostics, especially molecular analysis, has grown continuously in recent years. Traditional companies such as Kallies Feinchemie AG (which develops rapid tests for urine diagnostics) complement innovative, relatively young firms such as ABX advanced biochemical compounds GmbH and Labor Diagnostik GmbH Leipzig.

Bio type® Diagnostic GmbH

Founding Principle / Business Concept

Biotype Diagnostic works continuously to develop and deliver unique molecular diagnostic solutions that set new performance and quality standards for test systems in clinical research and diagnostics. The substantial breadth of expertise in the company enables involvement throughout the life cycle of our *in vitro* diagnostic (IVD) products from the initial idea to final manufacturing, product placement and sale.

The Path to Success

Initially, we supported clients in forensics by providing genetic fingerprinting products. Projects in medical diagnostics started gaining significance in 2006, and by 2009 Biotype had become OEM partner to Qiagen, the major provider of sample and assay technology. Today we provide customers with fast, reliable testing methods for professional medical diagnostics.

Product / Technology

Based on sophisticated multiplex PCR solutions and microarray applications employing highly informative molecular markers, our Mentype® multiparameter diagnostics provide healthcare professionals with information vital for complex clinical problems in the areas of haematology/oncology and dermatology.

To complement our innovative products in DNA analysis, the Sampletype i-sep® spin column systems provide DNA lysates of the highest quality for life science and medical applications in a rationalized manner.

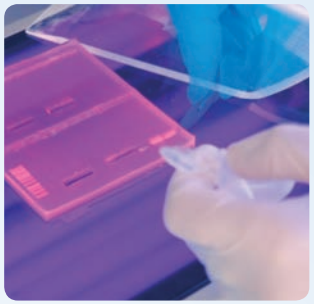
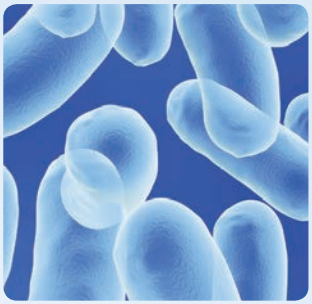
Cooperation Interests

In close collaboration with academic and clinical partners, Biotype Diagnostic translates scientific know-how into marketable applications focusing on molecular biomarkers of clinical interest and their application in innovative test systems.

Plans for the Future

Other IVD tests based on seminal technologies are in development. Seeking novel genetic markers underlines Biotype's forward-looking business approach in order to develop companion diagnostics providing specific individual therapy.

BIOTYPE DIAGNOSTIC GMBH	
CEO:	Dr. Wilhelm Zörgiebel
Established:	04/1999
Certificates:	EN ISO 9001: 2000 2005
	MAAS-BGW
Employees:	30
Contact:	www.biotype.de


Biodiversity

Protein Engineering

Strain Development

Protein Production

The Leipzig-based biotech company **c-LEcta** is your partner of choice for the implementation of new sustainable biosolutions in industrial applications.

c-LEcta enzymes and strains

www.c-LEcta.com

INDUSTRIAL BIOTECHNOLOGY

Industrial biotechnology is a growing field with high potential. For example, the company c-LEcta GmbH produces enzymes and strains for a wide range of technological applications and new processes.

c-LEcta enzymes and strains

Founding Principle / Business Concept

Our aim was to position c-LEcta as a leading technology partner for international industry in the area of white biotechnology. This aim has since been achieved.

The Path to Success

Being a university spinoff, initially our strengths were mainly in research. However, in order to be successful in the market place, we had to broaden our expertise to all other relevant issues from early R&D and product production to registration and sales.

Product / Technology

We are developing and implementing new biological solutions for industrial applications in close cooperation with industry. We have already commercialized a variety of projects and launched several enzyme products we have developed.

Concept for Success

The basis of all our work is our proprietary technology platform revolving around the discovery, optimization and utilization of customized enzymes and microbial strains. One of our strengths is to efficiently transform innovative ideas into scaled-up and approved products.

Cooperation Interests

An ideal cooperation partner should combine innovation with excellent know-how of market needs and current trends and have a strong sales and marketing position in the relevant market segment.

Plans for the Future

We will continue our rapid growth based on our product-focused business model. We will broaden and efficiently develop our product pipeline with nuclei in the food, feed and pharma industries.

C-LECTA GMBH	
Founder:	Thomas Greiner-Stöffele
	Marc Struhalla
Established:	2004
Employees:	50
Current projects:	about 20
Contact:	www.c-LEcta.com

UROTISS/APOGEPHA + PRIMABIOMED
TISSUE ENGINEERING/REGENERATIVE MEDICINE

Regenerative medicine and tissue engineering have become a powerful field in Saxony, with almost a quarter of biotechnology companies in the region regarding it as a core area of their activities. Innovative enterprises like euroderm GmbH and UroTiss GmbH use autologous scaffolds to treat wounds and diseases. One well established company focusing on the development of cell therapies to improve cancer treatment is PrimaBioMed GmbH, which was founded as a subsidiary of Prima BioMed Ltd from Australia.

PRIMA BIOMED
Australian Cancer Treatment Company

Founding Principle / Business Concept

After seeking a suitable location in a number of countries, it was decided to found the company as a subsidiary of Prima BioMed Ltd in Leipzig with the aim of developing our own therapy for Europe with local partners and coordinating a decisive, large-scale clinical trial.

The Path to Success

Two of the biggest challenges were implementing the regulatory strategy and recruiting suitable staff.

PRIMA BIOMED	
Founder:	Subsidiary
Established:	2010
Employees:	11 in Germany
Current projects:	1
Contact:	www.primabiomed.com.au

Product / Technology

Prima BioMed's key focus is the development of personalized bio-therapeutics. Its main product is CVac immunotherapy, which is currently undergoing clinical trials as a maintenance treatment of ovarian carcinomas.

Concept for Success

Apart from good finance, international cooperation within Prima BioMed has been crucial as it enables a globally coordinated development approach on the main markets. Good cooperation partners such as the Leipzig Fraunhofer Institute are also very important.

Cooperation Interests

Prima BioMed works with various partners, including in manufacturing and the organization of the clinical trial. The experience in this respect has been mostly positive. The best partnerships are characterized by a high degree of mutual trust, open interaction and proactive communication.

Plans for the Future

In the medium term, our main plans are the clinical trial of the main product and supplementing the development pipeline. In the long term, it would also be conceivable for us to market our own therapies as long as we acquire suitable data.

UroTiss
Tissue Engineering of Urinary Organs

Founding Principle / Business Concept

Our vision was to help patients in need of urologic tissue transplants. In this matter, the results of the patented work of the researcher and physician Dr. med. Gouya Ram-Liebig in the area of cell- and tissue culture were adapted into clinical application. As a result, the high improvement of the quality of life of patients was expected.

The Path to Success

The path of the road to success changes, but the goal still remains. And our goal was to bring a high-quality product to the market, whatever challenges will come. In the first stage, investors had to be convinced by our ideas. After reaching this stage successfully, the transfer of research results into a product had to be performed and the effectiveness of the resulting product had to be proven in animal trials. There were additional challenges in establishing a production authorization under GMP conditions for our product and also in convincing the worldwide Key-Opinion-Leaders in the area of urology to be the first, using our product in humans.

Product / Technology

The company‘s first product MukoCell® is positioned in the growing field of tissue-engineering while using the patients‘ own cells for the treatment of urethral stricture, used by leading specialized urologic centers in Europe.

Cooperation Interests

We see a high potential in cooperation with partners for manufacturing, market introduction and distribution of our product in other countries.

Concept for Success

The company has an innovative scientific characteristic. Furthermore, UroTiss shows speed and flexibility in terms of implementing new ideas and strategies. We receive a strong support by our partner Apogepha Arzneimittel GmbH.

Plans for the Future

As a leading company in the field of urologic tissue engineering, UroTiss aims to develop further innovative products for the reconstruction of ureter and urinary bladder.

UROTISS GMBH	
Founder:	Dr. Gouya Ram-Liebig, CSO
	Soeren Liebig, CEO
Established:	2005 in Dresden, Germany
Employees:	8 (4 PhDs)
Contact:	www.urotiss.com

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- support for founders and growth companies
- space for ideas

BioInnovationsZentrumDresden

Contact: Dr. Bertram Dressel . TechnologieZentrumDresden GmbH
Tatzberg 47 . 01307 Dresden, Germany . Phone +49 351 8718665 . Fax +49 351 8718734
www.biodresden.com

SERVICE PROVIDER

More than a third of all biotechnological companies in Saxony describe themselves as service providers for science and industry. They have a wide range of activities from assembling blood-cell products (Vita 34 AG) and planning and conducting phase I–III clinical trials (ABX-CRO advanced pharmaceutical services Forschungsgesellschaft mbH) to providing innovative software solutions and statistical consultation for process optimization (quo data Gesellschaft für Qualitätsmanagement und Statistik mbH, Qualitype AG).

VITA 34
IHR SPEZIALIST FÜR NABELSCHNURBLUT

Founding Principle / Business Concept

We believe that stem cell therapies for the regeneration of cells and tissue will play a major role in modern medicine. We intend to contribute to this development in our daily work and our research and to provide a basis for the therapy of hitherto incurable diseases.

The Path to Success

The first challenge was to establish a GMP-compliant laboratory against the background of a developing, changing legal framework. The second was to explain stem cells to the general public and the scientific community.

Product / Technology

We offer the GMP-compliant preparation, testing and storage of cord blood stem cells. Vita 34 cord blood units are approved for compassionate use in haematological and oncological applications.

Concept for Success

Comprehensive research and long-term experience combined with high standards of safety and quality.

Cooperation Interests

We are seeking partners for clinical studies in stem cell based regenerative therapies and entrepreneurs willing to establish cord blood banking in their national markets in cooperation with Vita 34.

Plans for the Future

We plan to launch new cell products, to expand our service to other European countries, and to bring our technological solutions for stem cell collection and storage to market.

VITA 34 AG	
Founder:	Dr. med. Eberhard Lampeter
Established:	1997
Employees:	117
Current projects:	3
Contact:	www.vita34.de

MADE IN SAXONY

PARTEC

Flow Cytometry | Cell Analysis | Molecular Diagnostics

GENERAL

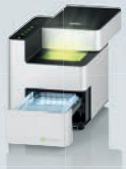
Flow Cytometry

CyFlow® Space

CyFlow® Cube 8 | CyFlow® Cube 6

CyFlow® SL

Molecular Diagnostics



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MEDICAL TECHNOLOGY

There are plenty of small and medium-sized companies such as CUP Laboratorien Dr. Freitag GmbH and Cortex Biophysik GmbH which interact closely with the core fields of biotechnology. This sector is becoming increasingly important in Saxony's life sciences industry. One outstanding example is Partec GmbH. By combining the latest scientific and biotechnological findings into clever, cost-effective solutions based on easy-to-use analysis procedures and instruments, Partec can provide excellent yet inexpensive automated cell analysis tools with precision that is higher than ever before.

PARTEC

Founding Principle / Business Concept

Addressing the urgent need for specially adapted, robust, compact, easy-to-use and cost-efficient diagnostic solutions for the fight against HIV/AIDS, TB and Malaria in developing countries. Still in 2002, only 280.000 out of more than 30 million HIV-infected persons worldwide have been under controlled antiretroviral treatment. In the meanwhile, the innovative and highly cost-efficient solutions introduced by Partec are supporting HIV/AIDS patient programmes in 100 countries at more than 1600 hospitals, clinics and NGO projects with annually 3 million patient tests performed.

The Path to Success

After successful in-house validations and scientific studies and clinical validations in Europe, Africa, Asia and the US, Partec had to win trust and confidence when introducing a new technology which effectively reduced the diagnostic cost for HIV/AIDS patients by a factor of 20 compared to the conventional methods.

Concept for Success

In the case of Partec, keys for success have been among others:

- continuously available 100% freedom to decide, realized through absence of risk capital, investors and outside shareholders,
- establishment and maintenance of a very high production depth,
- building own local structures, subsidiaries and branch offices, especially for close and intensive after sales service plus working with specially trained distributors,
- establishing close cooperations with experts in the target regions.

Cooperation Interests

Partec is always interested to identify possible cooperation partners active in the fields of cellular and molecular diagnostics.

Product / Technology

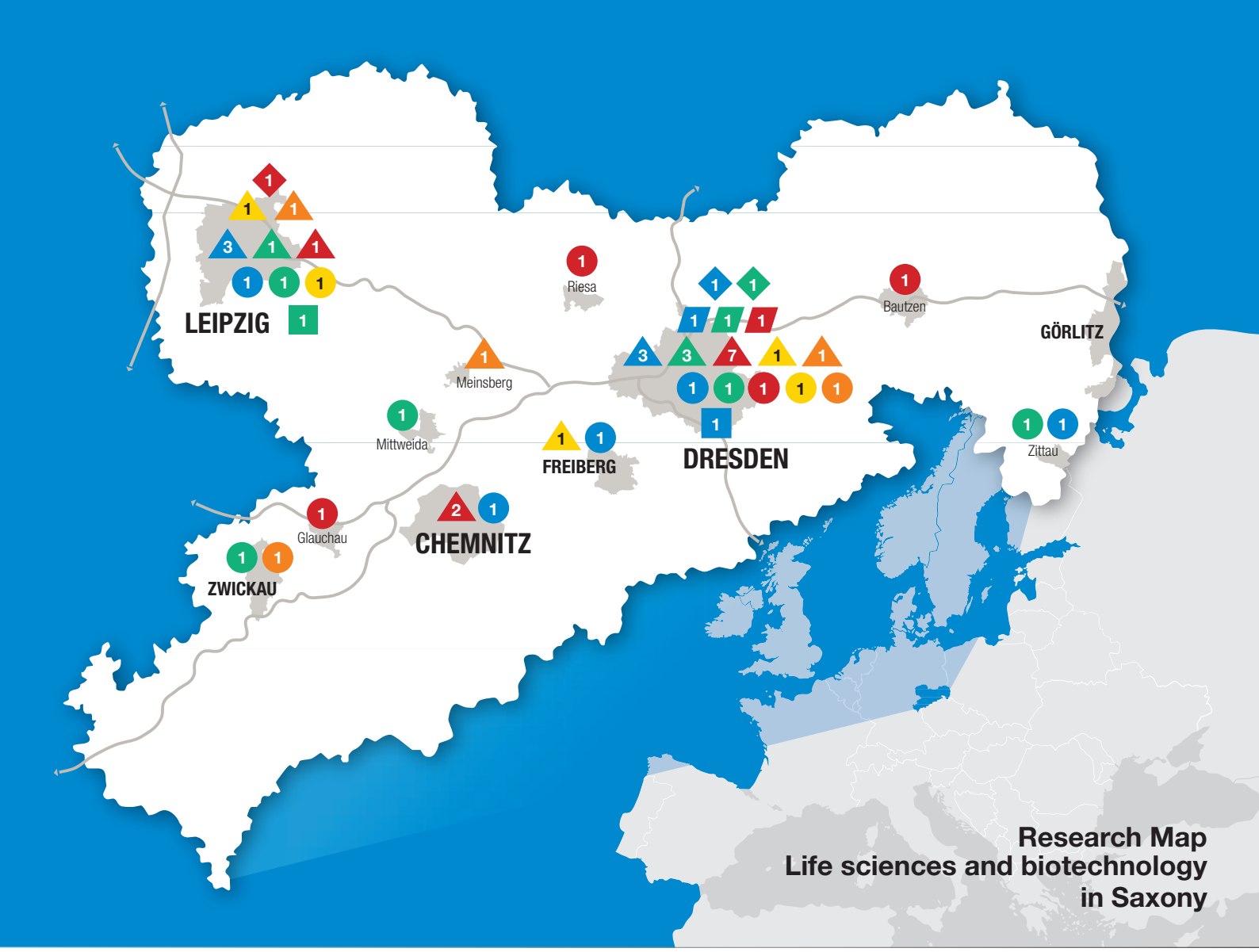
Partec offers a broad range of complete solutions in cellular and molecular diagnostics, consisting of instrumentation, reagents, consumables, software, local training and after sales service. The technological platforms developed and manufactured at Partec include flow cytometry, PCR, gel electrophoresis, fluorescence and transmitted light microscopy.

Plans for the Future

Due to the wide experience from activities in the HIV/AIDS, TB and Malaria field, Partec could identify other strong needs for diagnostic solutions in developing and emerging countries. A special focus is the development of new point-of-care diagnostics.

PARTEC GMBH	
Founder:	Roland Göhde
	Prof. Dr. Wolfgang Göhde
Established:	2000
Employees:	180 worldwide / 95 in Saxony
Current projects:	10
Contact:	www.partec.com

The membership of the biosaxony association comprises the whole diversity of life sciences in Saxony. In addition to the various companies and scientific establishments listed here, 16 private stakeholders are currently engaged in the association. Since the formation of biosaxony in 2009 the number of members has more then tripled and continous growth can be observed.



HIGHER EDUCATION

- Universities (5)
- Universities of Applied Sciences (5)
- Universities of Cooperative Education (4)
- Graduate Schools (2)
- Private Universities (2)

NON-ACADEMIC RESEARCH INSTITUTIONS

- Max Planck Institutes (6)
- Leibniz Institutes (4)
- Fraunhofer Institutes (10)
- Helmholtz Centers (3)
- Others (3)

GERMAN CENTERS FOR HEALTH RESEARCH

- German Consortium for Translational Cancer Research
- German Center for Neurodegenerative Diseases
- German Center for Diabetes Research

CENTERS OF EXCELLENCE

- Center for Regenerative Therapies Dresden (CRTD)
- Translational Centre for Regenerative Medicine (TRM)

CENTERS FOR INNOVATION COMPETENCE

- B CUBE – Molecular Bioengineering
- OncoRay – National Center for Radiation in Oncology
- ICCAS – Innovation Centre Computer Assisted Surgery

biosaxony

Protecting · Human · Kind

The Dresden plant is an integral part of the international GSK Vaccines network which is responsible for the group's growing range of vaccines.

Vaccines have a great influence on the health of people throughout the world.

Vaccines save human life.

Vaccines prevent the spread of disease.

Vaccines prevent acute diseases and chronic complications.

Vaccines reduce the severity of the course of a disease.

Vaccines help people to maintain their working capacity.

Vaccines save the costs of medicines and hospitalisation.

GlaxoSmithKline in Dresden

Our mission

» We dedicate ourselves to people's health and thus continue in the footsteps of our company founder, Karl August Lingner. » As modern network partner in a global corporation we provide people with highly effective, well-tolerated and affordable influenza vaccines. » We master the complex and challenging vaccine manufacturing processes and work as one partnering team. » On this basis we develop our future – in the heart of the city of Dresden.

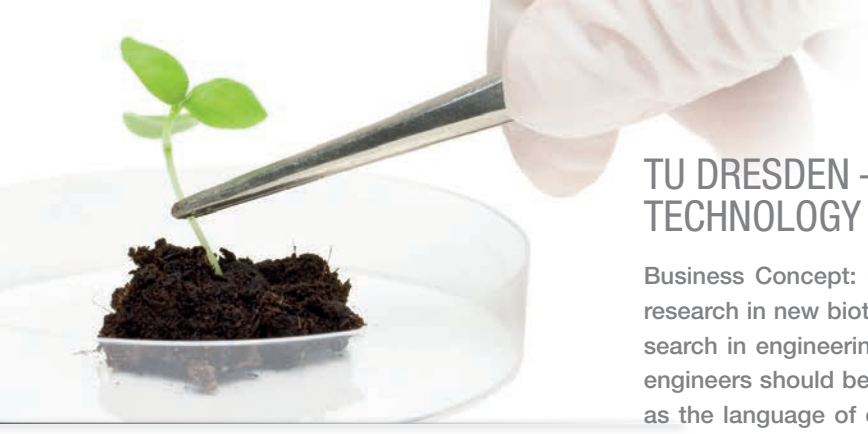
gsk GlaxoSmithKline Vaccines

CENTERS OF R&D EXCELLENCE

Currently **more than 30** university and non-university **research centers** are active in the life sciences and related areas in Saxony, making it the second-most important bioregion in eastern Germany after Berlin/Brandenburg. The institutes mostly complement each other and are superbly networked. Two of the main areas they work on are **regenerative medicine** and **molecular bioengineering,** where development is driven by the **CRTD** Center for Regenerative Therapies in Dresden and the Translational Centre for Regenerative Medicine **TRM** Leipzig. Other key institutions in regenerative medicine and molecular bioengineering are the **MPI-CBG** Max Planck Institute of Molecular Cell Biology and Genetics in Dresden and the Fraunhofer Institute for Cell Therapy and Immunology **IZI** in Leipzig.

Saxony's pole position in biotechnology and the life sciences is chiefly buoyed by its high density of non-university research centers (see Fig. 21, p. 21, research map). For example, the region is home to 6 Max Planck Institutes, 4 Helmholtz Institutes and 4 Leibniz Institutes in the field of life sciences. Meanwhile, Dresden contains more branches of the Fraunhofer Society than any other city in Germany, making Saxony one of the **foremost regions** in the society. In addition, three interdisciplinary centers of innovation competence – **B Cube, OncoRay** and **ICCAS** – are based in Saxony, which is a major advantage for the early, rapid networking of different areas of technology in order to tackle complex issues and ensure effective transfer. Optimizing transfer is also high on the agenda at the **German healthcare research centers**, which are actively fighting **widespread diseases** such as infectious diseases, cardiovascular diseases and cancer. DZNE and DZD – the German Centers for Neurodegenerative Diseases and Diabetes Rsearch – were set up in 2009, followed by the **DKZ** German Center for Translational Cancer Research in 2010. Dresden focuses on three of the six possible centers in German healthcare research.

Alongside red biotechnology, which largely concentrates on healthcare and medicine, Saxony's biotechnology campaign also supports white (industrial) and green biotech. One priority area remains the expansion of **environmentally relevant industrial biotechnology**. Government research institutes in Saxony include the **DBFZ** German Biomass Research Center in Leipzig as well as major research centers like the Helmholtz Centre for Environmental Research – **UFZ** in Leipzig and Halle, the **HZDR** Rossendorf Research Center, and **IE Leipzig** – the Leipzig Institute for Energy.



TU DRESDEN – INSTITUTE OF FOOD TECHNOLOGY AND BIOPROCESS ENGINEERING

Business Concept: Bioprocess engineering bridges the gap between basic research in new biotechnology and industrial applications. Education and research in engineering in life sciences is the resulting main goal. Bioprocess engineers should be able to use the languages of new biotechnology as well as the language of chemical and process engineering. They should also be able to work in and lead interdisciplinary projects.

The Path to Success

Most scientists working in molecular biotechnology and biotechnomics do not believe that process engineering, modelling and upscaling are a real science and therefore vital for success in bioeconomics. The biggest challenge has been to convince them.

Research priorities

Biomonitoring, scale-up on the basis of modelling at the metabolic and population level, white (industrial) biotechnology, plant cell biotechnology, energy biotechnology.

Concept for Success

Patience und the deep belief that biology – like physics – is a quantitative science. I am convinced that we are now able to handle and process biological systems in a very rational manner, in a way which is strictly based on mathematical modelling.

Cooperation Interests

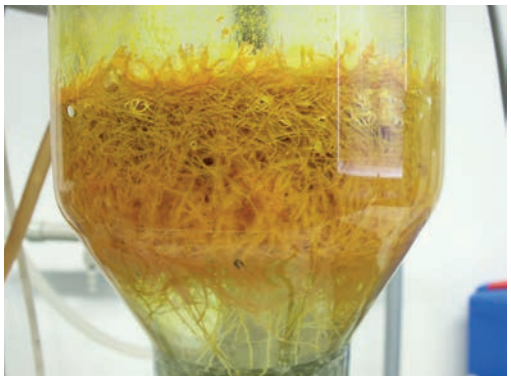
Both sides of the bridge – dedicated biologists who aren't afraid of mathematics and of course businesses that plan for the next 15 years rather than 15 months.

Plans for the Future

The best students go to the best universities and research institutes. That's excellent. I plan for my research projects to be so challenging that my colleagues' best students come to Dresden.

TECHNISCHE UNIVERSITÄT DRESDEN

TU DRESDEN	
Chairholder:	Prof. Thomas Bley
Established:	1996
Employees:	25
Current projects:	15
Contact:	www.tu-dresden.de/die_tu_dresden/fakultaeten/fakultaet_maschinenwesen/ilb



Hairy roots of Harpagophytum in a bubble column bioreactor

CENTER FOR REGENERATIVE THERAPIES DRESDEN – CRTD

Business Concept: The aim of the Center for Regenerative Therapies Dresden (CRTD) is to conduct robust basic research in fundamental aspects of regeneration and stem cell biology, paving the way for new types of cell replacement therapies and strategies for disease prevention.

The Path to Success

The CRTD has had to tackle several structural challenges, such as recruiting enough highly qualified researchers to form the CRTD core groups, the integration of new groups and the erection of a new research building. Moreover, scientific challenges had to be dealt with, such as identifying crucial mechanisms controlling stem cell recruitment, activation, proliferation, homing and differentiation in model organisms and manipulating these processes.

Research priorities

The CRTD focuses on the four research areas of haematology, diabetes, neurodegeneration/retinal degeneration and bone regeneration.

Concept for Success

One strength of the CRTD concept is its multidisciplinary approach to several areas of disease where opportunities to transfer knowledge and activities from one area to the other markedly increase the value of individual achievements.

Cooperation Interests

We are endeavouring to develop new cooperation agreements with domestic and foreign research centres in the fields of haematology/immunology, diabetes, neurodegeneration and retinal degeneration, bone and cartilage defects and technology development.

Plans for the Future

Currently in our second DFG (German Research Foundation) funding period, we have made remarkable progress towards our goal of enhancing new types of regenerative therapies. Our aim is to foster additional collaboration and to transfer the findings from basic research to clinical applications.

CRTD
Center for Regenerative Therapies Dresden

CENTER FOR REGENERATIVE THERAPIES DRESDEN - CRTD	
Director:	Prof. Dr. Michael Brand
Established:	2006
Employees:	about 260 in the core institute
	about 800 in member labs
Current projects:	83 third party funded projects
Contact:	www.crt-dresden.de

Kallies Feinchemie AG

Our superior focus is the customer-oriented provision of products, goods and services to fulfill highest quality- and application requirements. We produce *in vitro* diagnostics, wound powder and chemicals as a manufacturer or OEM and offer services like freeze-drying, aseptic filling as well as packing.

The *in vitro* diagnostics range from microbiological media, staining solutions and diagnostics to coagulation tests, rapid urine diagnostic tests, test papers and wound powder. The chemicals comprise different SiO_2-nanosols under the brand name Sebosil® for the protection and consolidation of various materials.

Technology and facilities

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- **filling units for semi-automated aseptic filling and packing of microbiological media in tubes, DIP-Slides or plates**
- **S2 microbiology labor for quality control**

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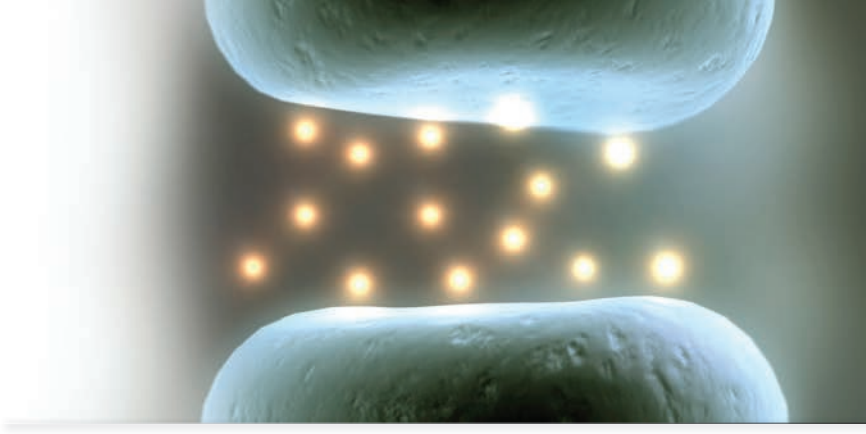
www.feinchemie.de



MAX PLANCK INSTITUTE
HOW DO CELLS FORM TISSUES?

The Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG) is one of 80 institutes of the Max Planck Society, an independent, non-profit organization in Germany. Scientists from over 40 nations study various topics at the interface of cell biology and developmental biology. This work includes research into illnesses such as cancer and Alzheimer's disease.

Exactly how cells form tissues has always been the driving question behind MPI-CBG. The original approach of observing the development of an organism as a cell biology problem emerged and a strong component of theory and modelling was added. Nowadays, computational biology is essential in order to extract even more information from data. Gene Myers, a world expert in using computational approaches to analyse microscope images, will join the team of directors at MPI-CBG, affirming both the strength of the life sciences campus in Dresden and the high quality of life in the city.

The structure of the institute – known as the Dresden model – is kept to a minimum of hierarchy.

Continuity is provided by the directors, while the turnover of most other scientific staff provides the flexibility to constantly bring new expertise and ideas to the institute.

MPI-CBG has forged partnerships with technology providers in many of its major areas of research since it believes that the greatest insights are gained and new discoveries made when technological innovation enables research problems to be examined in new ways.

CBG
Max Planck Institute
of Molecular Cell Biology
and Genetics

MAX PLANCK INSTITUTE OF MOLECULAR CELL BIOLOGY AND GENETICS

Managing Director:	Anthony Hyman
Established:	1998
Staff:	400
Research:	22 research groups
	20 core facilities and services
Contact:	www.mpi-cbg.de

TRANSLATIONAL CENTRE FOR REGENERATIVE MEDICINE, TRM LEIPZIG

Business Concept: The main idea behind TRM Leipzig is to accelerate the translation of new types of diagnostic methods and therapies of regenerative medicine into clinical practice.

The Path to Success

Founded in 2006 as Germany's first translational centre, TRM Leipzig has since become a key centre of biomedical research. Following its successful international evaluation in 2010, its funding by the Federal Ministry of Education and Research (BMBF) and the Free State of Saxony has been extended by another four years (2011–15).

Concept for Success

Besides direct support, young researchers at TRM Leipzig are monitored by experienced mentors and receive ongoing support from a translational management team throughout the project cycle.

Translational Centre for Regenerative Medicine
TRM Leipzig

TRANSLATIONAL CENTRE FOR REGENERATIVE MEDICINE, TRM LEIPZIG	
Director:	Prof. Dr. Frank Emmrich
Established:	2006
Employees:	ca. 110
Current projects:	26
Contact:	www.trm.uni-leipzig.de

Research priorities

The research groups at TRM Leipzig focus on key technologies of regenerative medicine represented by its four research areas:

- Tissue Engineering and Materials Science (TEMAT)
- Cell Therapies for Repair and Replacement (CELLT)
- Regulatory Molecules and Delivery Systems (REMOD)
- Imaging, Modelling and Monitoring of Regeneration (IMONIT)

Cooperation Interests

TRM Leipzig enters into partnerships with domestic and foreign biotech companies with the aim of developing advanced therapy medicinal products (ATMPs). Medium-sized enterprises receive intensive advice on research and approval issues from TRM Leipzig.

Plans for the Future

In autumn 2012, TRM Leipzig's new laboratory complex equipped with state-of-the-art technologies and infrastructure will open. Construction is being funded with grants from the European Union and the government of Saxony totalling € 13 million.

FRAUNHOFER INSTITUTE FOR CELL THERAPY AND IMMUNOLOGY IZI

The mission of the Fraunhofer Institute for Cell Therapy and Immunology (Fraunhofer IZI) is to develop innovative technologies in biomedicine and to provide them to industry partners. The institute supports the transfer of biomedical research to clinic and market and facilitates the development of successful products. With this in mind, Fraunhofer IZI investigates and develops solutions to specific problems at the interfaces between medicine, life sciences and engineering.

The Path to Success

Being a member of Europe's largest society for applied research and one of Germany's top employers of scientists and engineers, Fraunhofer IZI has attracted highly qualified and motivated staff and built up an excellent research infrastructure as well as an extensive network of academic and industrial partners worldwide. However, the success of Fraunhofer IZI would not have been possible without the extraordinarily good support it has always received from the government of Saxony and from the City of Leipzig.

Research priorities

The institute develops, optimizes and validates innovative technologies, methods and products within the Drugs, Cell Therapy, Diagnostics and Biobanks business units. It focuses on regenerative medicine, R&D in cell therapy (including GLP/GMP), stem cells, immunological products (vaccines, antibodies), ligand discovery, biomarker discovery and validation as well as drug R&D for a broad range of diseases including oncology, ischemic and inflammatory diseases.

Cooperation Interests

Fraunhofer IZI offers its clients and partners from the pharmaceutical, biotechnological and medical technology industries, diagnostic laboratories, clinical units and research facilities complete solutions and innovative technologies spanning the entire range from early discovery to preclinical and clinical development and the development of market-ready products and processes.

Concept for Success

The institute combines excellence in applied research with a strong customer focus and maximum flexibility. Furthermore, it has established a professional system of GLP- and GMP-compliant quality management.

Plans for the Future

In 2012 the first extension building will open. The new building will include specific infrastructure and laboratories for various preclinical in vivo studies and sophisticated imaging facilities. Furthermore, it will further expand its GMP facilities, allowing it to conduct even more GMP manufacturing projects for advanced therapy medicinal products in close collaboration with its industry partners. A second large extension is still in the planning phase and will be completed within the next few years.

Fraunhofer IZI

FRAUNHOFER IZI	
Director:	Prof. Frank Emmrich
Established:	2005
Employees:	195
Current projects:	about 70
Contact:	www.izi.fraunhofer.de

- ✓ tailor-made concepts for your specific demands on laboratory and office spaces
- ✓ expansion areas for your own building in close vicinity
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- ✓ strong networks with regional and supraregional partners
- ✓ research cooperations
- ✓ project „venture office“ for a structured contact to international investors

www.bio-city-leipzig.de

- ✓ fully integrated into the cluster strategy of the City of Leipzig
- ✓ outstanding commitment of the City for the further development of an internationally visible and sustainable cluster for health care technologies, biomedicine and biotechnology
- ✓ high-tech settlements and entrepreneurs are strongly supported
- ✓ a Center of Excellence - the Centre for Biotechnology and Biomedicine (BBZ) of the University of Leipzig at the site:
  - ➢ Bioanalytics
  - ➢ Cell Techniques and Applied Stem Cell Biology
  - ➢ Molecular Biological-Biochemical Processing Technology
  - ➢ Molecular Cell Therapy
  - ➢ Molecular Pathogenesis
  - ➢ Structural Analysis of Biopolymers

The future is relocating here!

BIO CITY LEIPZIG

Biotechnologisch-Biomedizinisches Zentrum

INCUBATORS

The incubators in various parts of Saxony provide optimum conditions for the start-up of new businesses. The two main ones are BioInnovationsZentrum-Dresden and BIO CITY LEIPZIG.

What makes them both unique is that business and research are combined under one roof. What's more, the close proximity of universities, research institutes, university hospitals and the private sector in both cities ensures both the infrastructure and the financial requirements for the successful implementation of R&D projects.

Interdisciplinary conditions facilitate lively dialogue, the transparent flow of information, and successful technology transfer. Realizing that this makes for an environment of excellence, the stakeholders decided to expand the incubators. For example, the new building of the DFG Research Center for Regenerative Therapy in Dresden (CRTD) was opened in December 2011 as another milestone paving the way for excellence in research. Parallel to this, extension work was begun at BIO CITY LEIPZIG for the BioCube, which will be opened to biotech companies in 2012, offering them new premises for cutting-edge products and technology.

	BIOZ DRESDEN	BIO CITY LEIPZIG
Opening	2004	2003
Total area	15,000 sqm	20,000 sqm
GMP production area	11,500 sqm	450 sqm
Occupancy rate – industrial	98,5 %	92 %
Number of companies	21	24
Rooms/laboratories	S1-S3, cleanrooms up to class 100, individually extendable	following P1 and P2 standards, can be configured individually
Services	Specialist and general: equipment pool, supply of industrial gases and other consumables, glass pool, rinsing room, laboratory services, facility management and office services	Tailored solutions for laboratory and office space, free consulting, reception service, support for business development
Internet	www.biodresden.de	www.bio-city-leipzig.de

TECHNOLOGY FUNDING AND FINANCING

Funding the biotechnology and life sciences industry is a matter of prime importance in Saxony. In addition to the subsidy and funding programs run by the EU and the German government, a support model geared to small and medium-sized biotechnology firms has been developed in Saxony. As a result, several Saxon institutions provide funding programs and financial resources for start-ups, young and established companies.

The **SAB Saxon Development Bank** implements the Saxon government's technology funding instruments and provides very attractive funding programs for interdisciplinary cooperation and technology transfer. One key instrument for very high investment volumes is the GRW investment subsidy aimed at boosting the regional economy. Funding is also available for R&D projects and participation in national and international trade shows.

Another scheme launched by the regional government to provide early-stage support is the **TGFS** venture capital fund. TGFS invests amounts of between € 200,000 and € 4 million for three to six years in start-ups and young, growing enterprises in Saxony.

Mittelständische Beteiligungsgesellschaft Sachsen mbH (MBG) is a privately held investment company. It provides financial support to mainly medium-sized companies in order to maintain stable economic development. MBG offers a wide range of participation types geared to the various phases in a company's development.

Bürgschaftsbank Sachsen GmbH (BBS) provides financial support for promising and innovative projects by small and medium-sized companies in Saxony in the form of indemnity guarantees (bank guarantees). BBS provides guarantees for up to 80% of the amount borrowed up to € 1 million.

The main funding institutions are listed in the following table.

INSTITUTION	TARGET GROUPS	WHAT/ PARTICIPATION	WEB
Bürgschaftsbank Sachsen GmbH (BBS)	Start-ups, existing businesses investing in Saxony	Indemnity guarantees	www.bbs-sachsen.de
Mittelständische Beteiligungsgesellschaft Sachsen mbH (MBG)	Start-ups, young, growing and established businesses, entrepreneurs	Silent and direct participation to co-finance business growth	www.mbg-sachsen.de
Technologiegründerfonds Sachsen (TGFS) Venture capital fund	Start-ups and young businesses based in Saxony	Growth funding of Saxon companies, consultancy in strategic business development	www.tgfs.de
Sächsische Aufbaubank (SAB) Saxon Development Bank	Start-ups, young, growing and established businesses based in Saxony	Grants and loans for housing and urban development, economy and technology transfer	www.sab.sachsen.de
biosaxony	Start-ups, young, growing and established businesses, investors	Life science network, consultancy for cooperation	www.biosaxony.com
Wirtschaftsförderung Sachsen GmbH, Saxony Economic Development Corporation	Start-ups, young, growing and established businesses, investors	Financial consultancy, networks, cooperative partnerships	www.wfs.saxony.de www.invest-in-saxony.com

The right partner to contact regarding all questions of investment and cooperation in Saxony is the **WFS Saxony Economic Development Corporation**. WFS endeavors to strengthen the regional economy on behalf of the Saxon government. It provides companies and investors interested or based in Saxony with information and assistance regarding domestic and foreign markets, cooperation opportunities and financial support.

The Life Science Cluster for Saxony is supported and promoted by **biosaxony**. biosaxony advises businesses and research institutes seeking all kinds of cooperation and technology transfer projects, and assists clients regarding funding and financial support. The main institutions are listed in the abovementioned table.

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… for debilitating CNS diseases

… for the patient and

… for the pharmaceutical industry

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Meissner Strasse 191
01445 Radebeul
Germany

Contact:
Tom Kronbach CEO
tom.kronbach@biocrea.com
+49 351 4043-3201

biocrea

HIGHER EDUCATION IN SAXONY – AIMING FOR THE UTMOST STANDARDS

According to a study carried out by the Cologne Institute for Economic Research, Saxony has the best higher education system of any region in Germany.

The modern, versatile structure offers the over 100,000 students a choice of more than 300 degree courses – including of course biotechnology and the life sciences. This ensures that the pool of well trained specialists and keen youngsters in this sector will be safeguarded in Saxony.

Academic training in biotechnology and related subjects is available at the five Saxon university cities of Chemnitz, Dresden, Freiberg, Leipzig and Zittau/Görlitz. In order to accelerate the technology transfer of research findings and to effectively exploit synergies between business and research, there are six biotechnology-related chairs at each of the two technology centers - BioInnovationsZentrumDresden and BIO CITY LEIPZIG.

Mind you, the universities of applied sciences in Saxony are also flexibly geared to the needs of the biotech industry. In particular, the interdisciplinary courses in the life sciences teach the practical expertise required. For example, Zittau/Görlitz University of Applied Sciences offers a bachelor's degree in molecular biotechnology and a master's in biotechnology and applied ecology, while the bachelor in biotechnology/bioinformatics taught at Mittweida University of Applied Sciences is especially popular.

Doctoral training at levels of excellence

The **Max Planck Research School for Molecular Cell Biology and Bioengineering (IMPRS-MCBB)** is a joint program with Dresden University of Technology enabling junior scientists to take doctoral training under outstanding conditions. This interdisciplinary training and research program addresses molecular cell biology, bioengineering, developmental biology, genetics, biophysics, neurobiology and bioinformatics. Around 150 postgraduates from over 30 countries are currently attending IMPRS-MCBB.

At the **Dresden International Graduate School for Biomedicine and Bioengineering (DIGS-BB)**, the world's best young scientists conduct doctoral research in cell biology, biomedicine, biophysics and bioengineering. Up to 300 students benefit from this innovative concept at any one time.

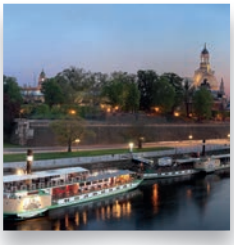
The **Leipzig School of Natural Sciences – Building with Molecules and Nano-objects (BuildMoNa)** offers 90–100 young scientists interdisciplinary graduate training based on excellence in research. One area focuses on the development of new, intelligent materials consisting of molecules and nanoparticles whose innovative design enables them to be put to new applications.

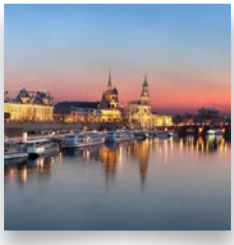
DIGS-BB and BuildMoNa are two of the graduate schools in Saxony funded by the DFG German Research Foundation under the German government's Excellence Initiative.

1

QUALITY OF LIFE

After work, too, Saxony is an ideal place to enjoy life to the full. With everything from stunning landscapes and unspoiled countryside to the high culture and vibrancy of big city life, however you prefer to spend your free time, Saxony has something for everyone.





2

Leipzig City 1
Canaletto-view, Dresden 2

Dresden and Leipzig

Enjoy urban life in a major city with a thriving arts scene and great shopping as well as magnificent parks and gardens in the city center. Ideal recreation areas close to the biotech centers include Leipzig New Lakeland and the heathlands of Dresdner Heide. The way of life in Saxony is characterized by warmth, hospitality and enjoyment as well as varied, challenging leisure activities. The arts sector comprising over 400 museums, 15 theatres, 6 orchestras, comedy clubs and concert halls is as classy as it is diverse. World-famous examples include St. Thomas Boys Choir of Leipzig and in Dresden the Semper Opera House, the Choir of the Church of the Holy Cross and the Palucca School. Cultural highlights such as the two film festivals (short films in Dresden, documentaries and animations in Leipzig) make for lively cultural exchange – as does a tour of the bars in fashionable areas like Neustadt in Dresden and Connewitz in Leipzig.

Mind you, it also pays to explore the areas outside Saxony's two major cities. For example Görlitz (which together with Zgorzelec, its Polish other half, was the forerunner for a united Europe), the idyllic, mediaeval town of Bautzen and Riesa, famous for its top-flight sports events, offer a wide variety of cultural amenities. Meanwhile Freiberg, home to the oldest mining university in the world, and the thousand-year-old city of Meissen testify to Saxony's historical importance.

1

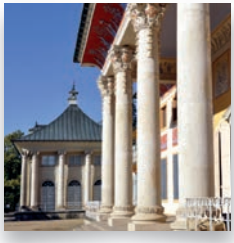
Palaces, castles and extraordinary rock formations

The Middle Ages, the Renaissance and the Baroque are still to be seen in architectural masterpieces throughout Saxony. More than 1,000 sumptuous Baroque palaces, castles, manor houses and imposing mediaeval fortresses attract sightseers keen to explore their fascinating interiors and their romantic grounds outside, while on the picturesque slopes of the Elbe where top-class wines are produced, visitors enjoy not only superb cuisine but also gorgeous views. The landscape in Saxony is typified by river valleys, deep forests and the famous sandstone hills alongside the Elbe. For centuries, the fantastic rock formations in this area also known as Saxon Switzerland have been a magical attraction for visitors from around the world. This romantic paradise for hikers and climbers spreading over 700 square kilometres is a remnant of the sea that used to be here during the Cretaceous period about 100 million years ago. The Elbe Cycle Route, which starts in Dessau and stretches right across Saxony, passing through Riesa, Meissen and Dresden, is also a big draw for cyclists while winter sports enthusiasts adore the areas of downhill and cross-country skiing in the Erzgebirge (Ore Mountains).

What's more, enjoying Saxony's unique blend of fascinating historical heritage, diverse culture and impressive natural attractions needn't necessarily cost you anything! Furthermore, rents and living costs in Saxony are low – and the proverbial conviviality of the Saxons is thrown in for free!

2

3



4

5

Saxon Switzerland 1
Conviviality 2
Schloss Wackerbarth 3
Dresden Pillnitz 4
Elbe Cycle Route 5

biosaxony

SAXONY!

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Saxony Economic Development Corporation

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www.invest-in-saxony.com

BIOSAXONY – **SAXONY´S BIOTECH ALLIANCE**

WHO WE ARE

The registered association biosaxony e.V. and the company biosaxony Management GmbH make up Saxony's biotech alliance.

biosaxony e.V. is the association representing the interests of the biotechnology/life sciences cluster throughout Saxony. Its members represent various relevant companies, scientific institutes and stakeholders in the region. The association gauges the needs and problems of its members, focuses its strengths to address specific interests, and communicates them to competent government departments in Saxony and elsewhere. It is primarily responsible for attracting new members, assisting and networking them, communication and the coordination of interaction between members and other partners within and outside the network, and the association's everyday activities.

biosaxony Management GmbH is the communication and coordination platform needed for effective cluster management. It is responsible for the rapid, effective sharing of expertise and knowledge from science and industry, enabling new, creative ideas to be efficiently transferred from research to the private sector. Particular attention is paid to the needs and growth prospects of small and medium-sized biotech firms.

In addition to reinforcing the network, the fundamental goal of the biosaxony partnership is to boost the performance of Saxony's high-techs. With these aims in mind, it currently maintains two offices in Dresden and Leipzig to aid its local activities. In the not-too-distant future, additional offices are to be opened at other biotech strongholds in Saxony.

biosaxony

WHAT WE DO

BIOSAXONY E.V. – MOVING TO THE TOP

Since the foundation of biosaxony e.V. as a registered association in December 2009, biotechnology and related areas of engineering ranging from the material sciences to medical equipment in Saxony have been represented by its members. This network comprising members and external partners is managed by the biosaxony association. The chairman of the five-strong board made up of scientists and industrialists is Roland Göhde, who is the CEO of Partec GmbH, an internationally active company based in the town of Görlitz.

By operating in the entire region of Saxony, the biosaxony association continuously forges new, effective network links and also acts as the spokesman and coordinator of the biotech industry vis-à-vis policymakers in Saxony. The sustained growth of the biotech sector is nurtured by the early involvement of stakeholders as well as coordinated strategy development and concerted action.

The main activities of the biosaxony association include:

- Regional and global showcasing of Saxony's biotech industry
- Attracting, aiding and networking members
- Brokerage of consulting and other expertise-based services
- Regular hosting of workshops and meetings to promote communication within biosaxony and with external partners
- Communication between government, research and industry
- Support for spin-offs, corporate investment and relocations
- Organization of trade show participation and joint stands for network members and partners
- Support for the newly formed biosax2030 (the Saxon commission analysing the future of biotechnology and life sciences) to hone Saxony's growth campaign for new biotech businesses and SMEs

BIOSAXONY MANAGEMENT GMBH SYNERGIES FOR LIFE – A MODERN APPROACH TO CLUSTER MANAGEMENT

Biotechnology and the life sciences are a promising yet still very young field of research. As a result, discovery, development and value creation are frequently not yet represented by effective organizational structures. Commercial activities are largely in the hands of start-ups, small and medium enterprises (SMEs) and entrepreneurs. However, young biotech businesses quickly run up against their limits because they lack an overview of suitable markets and customers, the sector as a whole, competitors, co-workers, inexpensive suppliers, investors and above all complementary partners.

This is where the company biosaxony Management GmbH comes in. Its mission is to promote synergy-based cooperation for biotech companies in Saxony. The aims of its cluster management are to help its members work together on joint projects and coordinate their activities in fields of mutual interest. While biosaxony e.V. concentrates on day-to-day- association business, biosaxony Management GmbH chiefly focuses on project business within cluster management. In addition to synergies for life, the key principles of its cooperation are cluster management beyond borders, growth through high-tech technology transfer, and success by cooperative value creation.

The core competencies leveraged by biosaxony Management GmbH on behalf of its members and clients include:

- Nurturing contacts between science, industry and government ministries
- Developing and implementing strategic concepts
- Scouting for key trends, technology trends and demand structures
- Collecting and updating core data of the bioregion Saxony
- Benchmarking with other bioregions
- Coaching, monitoring and managing market-based transfer projects
- Raising funding to meet demand
- Workshops and symposia with science and industry
- Cluster events (e.g. http://biotech-meets-public.de)
- External representation of Saxony's biotech cluster (e.g. at trade fairs)
- Developing and organizing new trade shows
- Initiating, organizing and managing working groups

biosaxony

RADEBEUL – An Investment Location for Your Project

The Major District Town of Radebeul is situated in the Rual District of Meissen and borders on the Saxony Capital of Dresden. Radebeul offers the best premises for innovative and science-oriented business.

The Radebeul business location is characterized by powerful companies in the main ranches of chemistry and pharmaceutical industry. Business, such as Arevipharma, Biocrea, MEDA Pharma, Aspen Pharma and Riboxx are magnets to attract further companies to set up there.

A communal plot located in the centre of Radebeul has an area of 20,000 m² and borders directly on innovative pharmaceutical research business. The property needs to be developed in itself, thereby developing the property to the needs of the business or businesses to be set up there.

Wasapark Radebeul


Pharmapark Radebeul-Mitte

RADEBEUL

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BIOTECH **2012+**

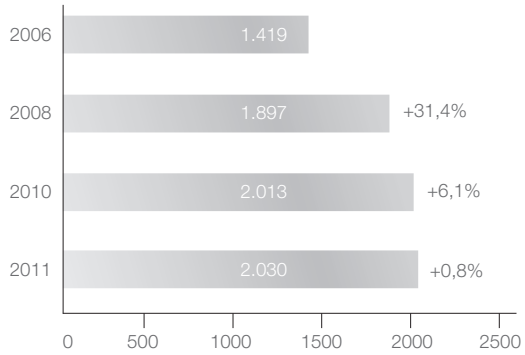
Key Data Biotechnology in Saxony

biosaxony e.V. has compiled the main economic indicators detailing the biotechnology industry in Saxony in 2011. The survey examined 47 core biotech companies – businesses whose manufacturing or research interests focus on at least at one of the areas of red, white/grey or green biotechnology.

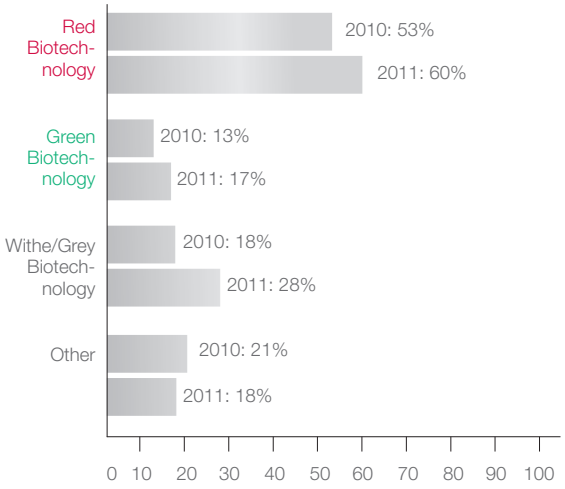
The **main biotech market segment** in Saxony is red biotechnology, accounting for 60pc of the respondents. Even so, there has been remarkable growth in green and white/grey biotech. For example, the share of companies operating in white/grey biotechnology has risen from 18pc to 28pc. This underlines that in addition to traditional areas of biotech, the private sector in Saxony is increasingly tapping the innovative potential of the entire biotechnology sector.

Of the ten **fields of work** surveyed in 2011, eight have developed positively. The biggest single area remains the biopharmaceutical segment (53pc). Diagnostics rose by another 3pc compared to 2010. Meanwhile, tissue engineering/biomaterials has become increasingly attractive to Saxon firms with nearly a quarter (23pc) working in this field – an increase of 5pc over the previous year. The medical equipment segment was surveyed for the first time in 2011, and was found to account for 17pc of core biotech companies.

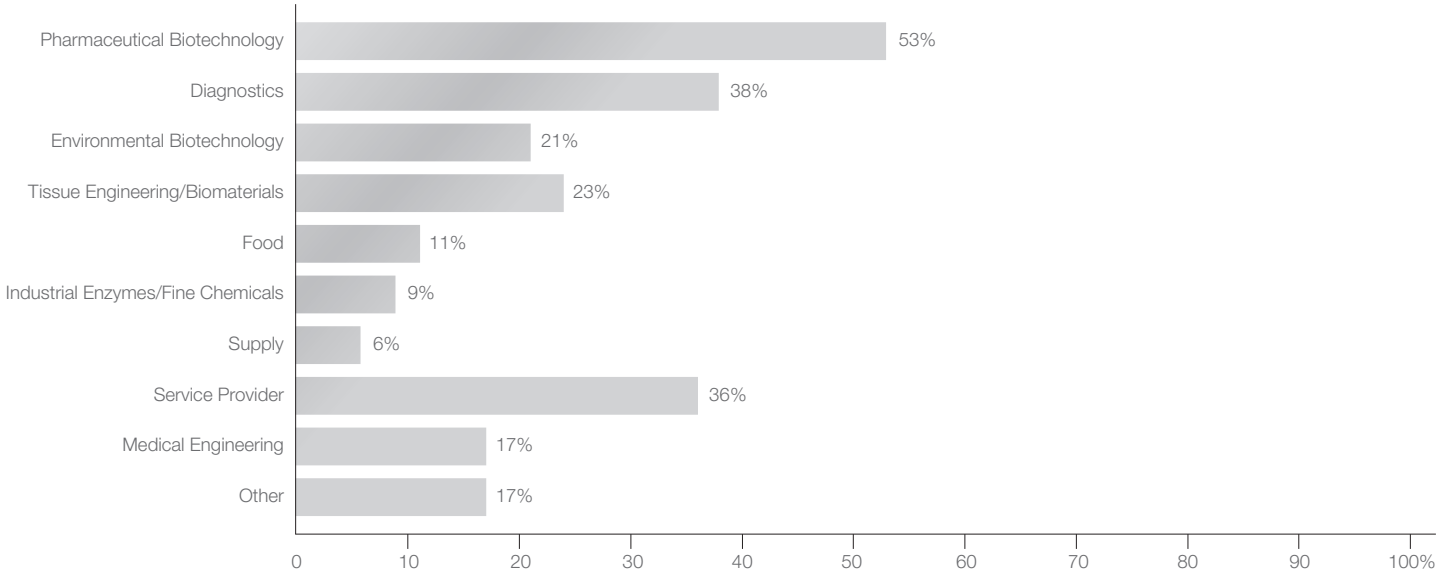
Development level of workstaff 2006–2011:



Classification according to market segment of the core biotechs 2010 & 2011:



Classification according to fields of business of the core biotechs:

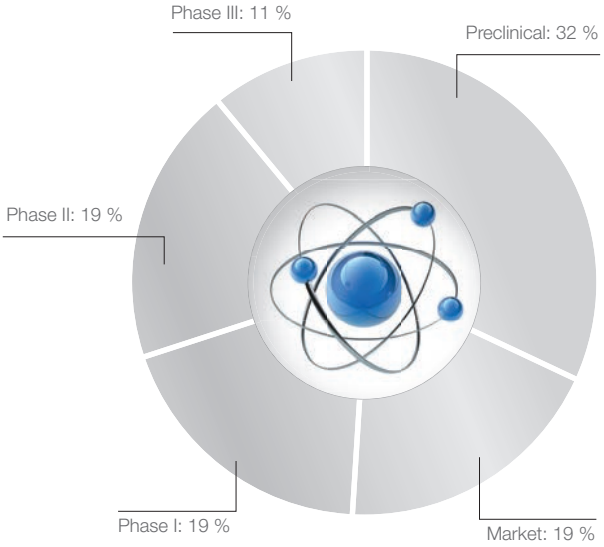


The **development of products** that are currently undergoing clinical trials has risen significantly in recent years. In fact nearly one in five products has now reached market maturity.

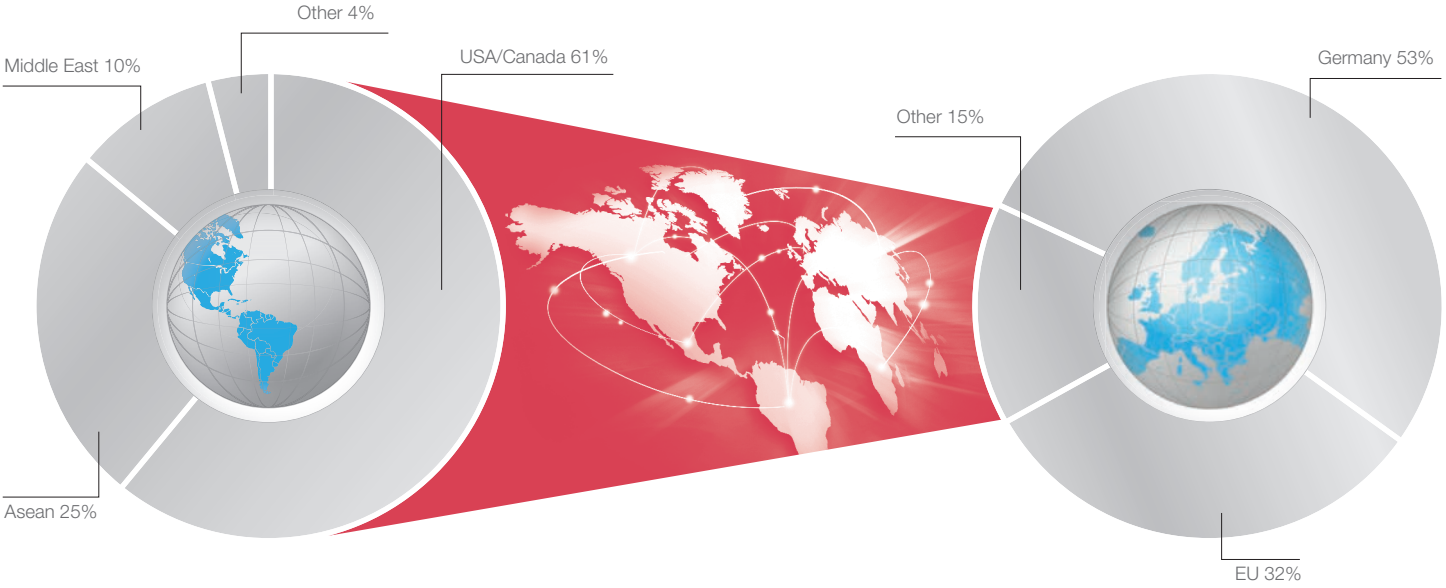
The number of **employees** in 2011 was up by 1pc, a smaller increase compared to the previous year. The upward tendency could be continued eleventh time in a row since the initiation of the data collection.

Eighty-seven percent of all core biotech firms are networked domestically or internationally, partners from Germany accounting for over half the **cooperation agreements**. Nearly a third of the respondents reported cooperation with European partners. Overseas, businesses from the USA and Canada remain the main partners. Cooperation agreements with these two countries rose by 15 percentage points to 61pc of all foreign partnerships.

Development level of products under clinical testing:



Cooperation of the core biotechs outside of Europe:



Cooperation of the core biotechs according to regions:

UPCOMING DEVELOPMENTS

Things are on the move in Saxony. The region's dynamics and continuous upward trend are apparent from not only its promising economic development but also the many new projects and themes being tackled in biotechnology and life sciences in Saxony.

biosax2030

Saxony's future commission biosax2030 was launched in 2012 in order to hone the region's long-term start-up and SME growth campaign in conjunction with a new high-tech transfer initiative. For this purpose, representatives of research and industry are evaluating what investment activities are needed to forge the additional structures required to nurture and support Saxony as a stronghold of biotech and its stakeholders – and hence generate sustainable economic success.

Incubator extensions

The two incubators BIO CITY LEIPZIG and BioInnovationsZentrumDresden are being extended. The BioCube right next door to BIO CITY LEIPZIG is set for completion at the end of 2012. Successful companies such as c-LEcta GmbH and Vita 34 AG have already secured new laboratories and office space there. Meanwhile, at the end of 2011 the ultra-modern building of the DFG Research Center for Regenerative Therapies Dresden (CRTD) was opened, completing the BioInnovationsZentrumDresden complex in the Johannstadt district of Dresden.

Funding schemes

The conditions for transferring findings from science to industry are steadily improving. For instance, improved guidelines came into force in Saxony in 2012 providing generous financial assistance to SMEs (small and medium-sized enterprises) taking on scientists and engineers previously working at research centers.

Studies

In 2012, the development of biotechnology in Saxony since the year 2000 was summarized in a study conducted on behalf of the Saxon State Ministry of Science and Art. The study is complete with recommendations for science and industry regarding the further development of the biotech sector. It was headed by Dr. Gerd Uhlmann, who spent many years working for the ministry and knows Saxony's biotech industry inside out. Another study currently being carried out by biosaxony Management GmbH is interviewing technology transfer stakeholders in an effort to find out more about technology transfer in biotech in Saxony, including the general situation, the action taken by stakeholders, the methods applied and the success factors. The findings will enable the resources of universities, research institutes, the private sector and the regional government to be used more effectively.

All these projects and initiatives point in the same direction: towards a thriving future. After all, Saxony is determined to keep building on its outstanding position in the expansion and commercialization of biotechnology and life sciences.

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Biotechnology and Life Sciences

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