



## **Life Sciences Report 2015**

Biotech-Pharma-Medtech in Berlin-Brandenburg

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## **Editorial**

Berlin-Brandenburg is the most dynamic metropolitan region in Europe. Nowhere else in the world is the unification of East and West and the resulting creation of a new united and free Europe as palpable as it is here on every street corner.

But simply being a metropolis is not enough to guarantee a successful future. The region also wants to translate its dynamic growth into qualitative growth in science and industry. This is, of course, especially true for the healthcare industry, in which we rank highest in Europe in many aspects.

The new "Master Plan for the Berlin-Brandenburg Healthcare Region" has set the course for the development of the industry through 2018. Fundamental research, innovation, spin-offs and applications will continue to be the basis for the successful implementation of the cluster's strategy in the future.

In the past, we have documented the region's development in separate reports for biotechnology and medical technology. However, this does not correspond to the dynamic development of the industry, as innovation often occurs between the existing sub-sectors.

Today, we are presenting the first Life Sciences Report of the Berlin-Brandenburg region. It describes the developments in the life sciences as well as the pharmaceutical, biotechnology and medical technology industries, which have once again grown by an impressive 5% since last year. It also highlights exciting new developments and numerous cooperation opportunities with hospitals, companies, institutions of higher education and networks.

Those who will be the most successful in the comprehensive healthcare industry will be those who manage to find the best partners to translate new knowledge into innovations. I hereby cordially invite you to learn more about our issues and our startups, as well as established players and newcomers. Use the HealthCapital cluster to develop products, services and solutions that significantly increase the effectiveness and efficiency of prevention, diagnoses, treatments and rehabilitation.

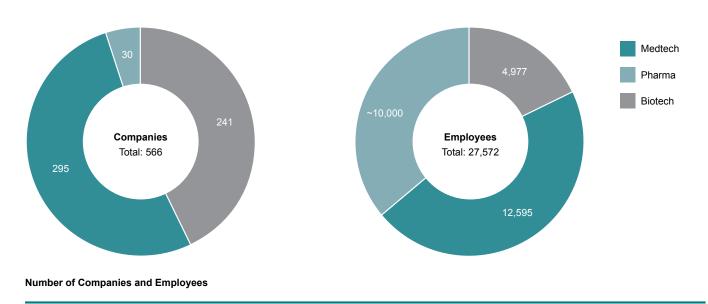
Reach out and contact us.



Stefan Oelrich
Cluster Spokesman
Cluster Healthcare Industries Berlin-Brandenburg
General Manager Germany-Switzerland-Austria Sanofi-Aventis Deutschland GmbH

## **Companies and Jobs – Facts and Figures**

The life sciences sector in Berlin-Brandenburg has been growing for years and this trend is continuing. At the beginning of 2015, 566 companies employed more than 27,000 employees. Average employment growth is more than 5% per year.



Source: Internal Survey HealthCapital, May 2015

- In the last five years, the number of jobs in the regional life sciences sector has increased by 22% and the number of companies by 12%.
- 295 medtech companies have a total of 12,595 employees, and 241 biotech companies a total of 4,977 employees.
- Growth over the past five years is primarily due to established companies creating new jobs.
- The founding of about 95 companies and the industrial location of 35 companies has created additional growth with prospects for the future.

The corporate landscape is mainly dominated by smaller companies. Of the 300 companies, most of the companies have fewer than ten employees. These companies, however, also only provide 8% of all jobs. More than 70% of all employees work in the 73 companies with more than 50 employees.

## **Products and Deals**

The continuous growth in the Berlin-Brandenburg region is mainly due to the companies' capacity for innovation. Innovations create and secure high-quality jobs. They are extremely significant for the future of the Berlin-Brandenburg economic region. This is illustrated by the following highlights from selected biotech and medtech companies, representative of the life sciences sector in Berlin-Brandenburg.

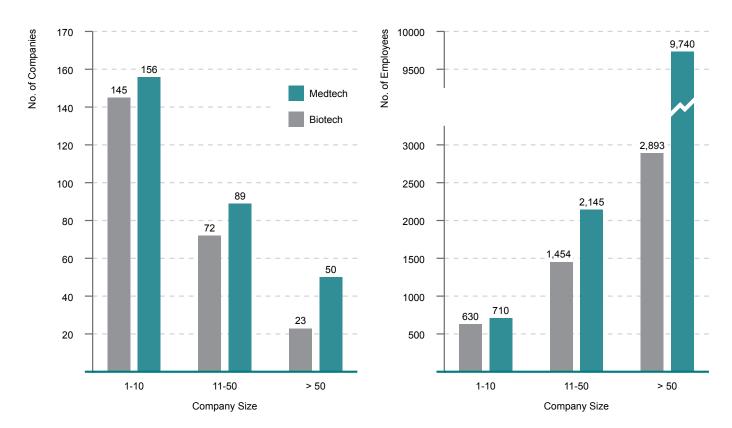
**MOLOGEN**'s main product, immunomodulator MGN1703, is currently being tested in three clinical trials in various indications. All three studies are currently in the patient recruitment phase. The IMPALA pivotal study, which is investigating MGN1703 for the treatment of colorectal cancer, is expected to recruit about 540 patients and to be carried out in more than 120 study centers in eight European countries. The plan is to complete patient enrollment in the second half of 2016.

The phase II IMPULSE study with MGN1703 in the indication small cell lung cancer intends to enroll 100 patients across four European countries. The recruitment phase is expected to be completed still this year.

SCIENION, a leading global provider of ultra-low volume precision liquid handling systems, launched a new instrument, named sciTEM, enabling high-throughput and innovative SEM/TEM. Based on SCIENION's core competencies and years of experience in ultra-low volume liquid dispensing, assay miniaturization, and microarray manufacturing, the sciTEM was specifically developed to deposit multiple different samples onto a single SEM/TEM support. This results in a tremendous increase in the number of samples that can be analyzed per unit time. Beyond reducing the wear on the microscope's vacuum components, it truly enables high-throughput TEM. This new usage mode will undoubtedly lead to experiments that could not be realized to date, due to limited access to TEM time and ensuing high costs.

*Glycotope*, one of the leading companies in glycobiology, announced the enrollment and treatment of the first patients in its phase IIb clinical trial of CetuGEX™. CetuGEX™ is a novel anti-epidermal growth factor receptor (EGFR) monoclonal antibody (mAb) with optimized and fully human glycosylation for greatly enhanced anti-tumor activity, reduced side effects and a broadening of patient and indication range.

*Epigenomics*, the German-American cancer molecular diagnostics company, and BioChain, an early cancer diagnostic company with operations in both the USA and China as well as Epigenomics' exclusive strategic commercialization partner in China, announced that testing based on the proprietary Septin9 biomarker was included in the Chinese Guideline on Screening, Endoscopic Diagnosis and Treatment of Early Colorectal Cancer (CRC).



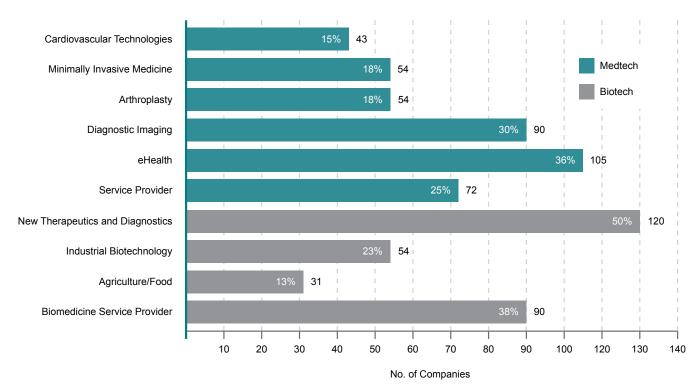
**Number of Employees According to Company Size** 

Berlin Heart develops, produces and markets innovative devices for mechanically supporting the heart. Their products INCOR®, EXCOR® Adult and EXCOR® Pediatric span the entire range of medical indications for patients of all ages – from newborn babies to adults. With dependable and globally successful products, Berlin Heart GmbH is one of the industry's market leaders. The EXCOR® Pediatric ventricular assist device received marketing authorization in Japan. The system is already authorized in 45 countries, including Europe, the USA, Canada and Brazil. Over 1,600 patients have been treated with the system in 159 heart centers worldwide.

**World of Medicine**, **WOM**, successfully completed a clinical validation to ensure that the requirements of a medical device in practical use are met and the device may therefore be produced for sale. The video management system, the multi-indication pump and the insufflator are characterized by a particularly high degree of usability. More than 50 doctors and surgical assistants participating in the validation concur unanimously.

**GETEMED** presented its newest product, the Tele-ECG Event Recorder PhysioMem® PM 100 to the world. With this small and handy device, patients with irregularly occurring heart rhythm disturbances can record short ECG segments at any place and anytime, which are then automatically sent to the attending physician. The product properties of the PM 100, such as its one-button technology, integrated wireless transmission and inductive battery charging, put it on a level with the most innovative devices of its kind.

**BIOTRONIK**, the world's leading manufacturer of MR conditional cardiac devices, has announced CE approval for full-body MRI scanning for its two most recent generations of ProMRI® cardiac resynchronization therapy defibrillator (CRT-D) systems. Since 2013, BIOTRONIK has had CRT-Ds approved for MRI scanning with an exclusion zone. Now that authorization has been expanded to give these patients access to full-body MRI scanning at 1.5 tesla strength.



**Market Segments of Companies** 

## **Deals and Investments**

The successful development of innovations not only creates jobs, it is also successful in attracting capital. Here, innovations and investments are mutually dependent. The investments of recent months are a further indication of the attractiveness of the local life sciences companies for increasingly international investors.

This year, *OctreoPharm Sciences* closed a purchase agreement with French pharmaceutical company IPSEN for all shares of OPS. The deal has an overall value of about 50 million euros, including clinical development and commercial milestones.

**Zimmer** has completed the acquisition of Biomet in a cash and equity transaction currently valued at approximately 14 billion dollars. In connection with the merge, Zimmer has changed its corporate name to Zimmer Biomet Holdings, Inc. Zimmer Biomet will be a leading innovator in the 45-billion dollar musculoskeletal healthcare market, committed to creating innovative solutions for the evolving global healthcare industry.

**OMEICOS Therapeutics**, a biopharmaceutical company developing first-in-class small molecule therapeutics for the prevention and treatment of cardiovascular diseases, especially atrial fibrillation (AF), has raised 6.2 million euros in a Series A financing round. Participating in the round were Vesalius Biocapital II S.A. SICAR, acting as lead, an SMS Group Company, VC Fonds Technologie Berlin GmbH, Hightech Gründerfonds II GmbH & Co. KG (HTGF), and KfW Group.

**Humedics**, a specialist for real-time and mobile measurement of the individual liver function at the bedside of the patient, announced the closing of a Series C financing round totaling more than 6.3 million euros. Humedics' business model, products and company development have attracted new international investors that will join the current private and public investors.

The successful capital increase of *Mologen* raised gross issue proceeds of 28.3 million euros for the company. MOLOGEN issued approximately 5.7 million new shares overall, which were purchased by existing shareholders and also placed with new institutional investors. The company projects that this will be enough to finance the continuation of current research and study programs up to at least the end of 2016.

The startup company *Vaxxilon*, which was founded based on the work of Prof. Peter Seeberger's group at the Max Planck Institute of Colloids and Interfaces in Potsdam-Golm with its research into fully synthetic carbohydrate-based vaccines, will receive a funding commitment from main investor Actelion of up to 30 million euros for the coming years.

Altogether, in 2015, more than 150 million euros have been invested in the regional life sciences sector, which puts the companies in a position to pursue their ambitious goals to develop innovative products. In addition to these private investments, the companies also receive funding from a variety of sources amounting to about 140 million euros. Subsidies are of the utmost importance, in particular for smaller companies and their developments which can be, at least in part, highly risky.

IBB Beteiligungsgesellschaft mbH (IBB Bet) is involved as a financing partner in many of the current deals. IBB Bet has been one of the most active venture capital investors in Germany and has surpassed the billion mark, all sectors combined. Since 1997, the year in which IBB Bet was founded, 168 Berlin startups have received about 1 billion euros in venture capital (VC) overall. 141 million euros of that came directly from IBB Bet, an additional 865 million euros were provided by business angels, strategic partners and international investors. IBB Beteiligungsgesellschaft is the venture capital subsidiary of Investment Bank Berlin (IBB). It manages VC Fonds Technologie Berlin and VC Fonds Kreativwirtschaft Berlin.

## **Drug Discovery and Development**

Berlin is one of the cradles of the pharmaceuticals industry. Renowned companies that are still active today were established here in the 19th century. In modern biomedicine, developing innovative drugs is the discipline that presents the greatest challenge. The development risk and capital requirements are enormous; but on the other hand, the commercial outlook is more attractive than it is in most other areas of the life sciences.

In the Berlin-Brandenburg region, a number of companies are meeting this challenge. In addition to developing innovative cancer treatments and new immunotherapy concepts using proprietary technology platforms, companies in the region are increasingly using digital technologies: the key to personalized medicine.

With outstanding university and non-university institutions and certified university medicine alongside academic research, as well as pharmaceuticals companies and a well developed biotechnology small and medium-sized enterprises (SME) scene at the side of commercial research and service, the Berlin-Brandenburg region has an outstanding position in the drug development area.

## **Pharmaceutical Industry**

The capital region is one of Germany's most important, most attractive centers of medicine and the Healthcare Industries. The pharmaceuticals industry is a major driver of growth for local industry. The sector already employs around 10,000 people in the capital region. This means that the pharmaceuticals companies account for one in every ten jobs in regional industry. Every eleventh pharmaceuticals industry employee in Germany works in Berlin.

Several globally active corporations are located in the region: Bayer Pharma AG, Berlin-Chemie AG, Pfizer Deutschland GmbH, Sanofi-Aventis Deutschland GmbH, Riemser Pharma and Takeda. Over 20 medium-sized pharmaceuticals companies, including some world market leaders, are also located in the region. In 2014, vaccine experts Sanofi-Pasteur MSD opened a subsidiary in Berlin. The company manages its German business from the capital.

The sector especially benefits from the regions excellent scientific environment, the clinical research landscape, proximity to the healthcare system decision makers and the high availability of well-educated skilled specialists. More and more global players and SME are locating here or moving their headquarters to Berlin or the capital region so they can take advantage of these location benefits. The pharmaceuticals industry maintains a strong, innovative network with the region's more than 200 biotechnology companies. The experts confirm that, thanks to its innovative power, this sector in general has a bright outlook for growth – and in this, the Berlin-Brandenburg region occupies an outstanding position.



DR. KADE and Berlin – Those two have gone very well together since our founding in 1886 in Kreuzberg! We have continuously grown since then and are now a family-owned medium-sized company with around 450 employees with headquarters in Berlin-Marienfelde. It is there that we recently reinvested in the modernization of our pharmaceutical production which will allow us to manufacture high-quality Made in Berlin products in the future. Our products, such as Posterisan akut, Faktu lind and KadeFungin, have made us the market leader in Germany and improve the quality of life for many people. Throughout our long history, we have remained faithful to Berlin through difficult times and have experienced the city's revival since the fall of the Berlin Wall. Today, we feel that Berlin is a place that offers many positive factors and is particularly attractive for young professionals. We were already here before Berlin became trendy and we want to continue our success within Berlin in the future.

Annett Schubert
CEO, DR. KADE Pharmazeutische Fabrik GmbH



## **Biotech Drug Development**

A total of 18 biotech companies dedicated to the development of new drugs are located in the Berlin-Brandenburg region. The entire product pipeline contains more than 54 products in pre-clinical development and phase I to phase III. Many companies develop their products based on proprietary platform technology in order to secure a vital competitive advantage.

Take Mologen for example. Based on its dSLIM® and MIDGE® platform technologies and the allogeneic tumor cell bank, it has established a product pipeline of eight product candidates for DNA cancer treatments for several indications, DNA vaccine candidates for infectious diseases, and a cell-based gene treatment for cancer.

Based on its unique Spiegelmer platform, NOXXON has developed a new class of drug candidates called "Spiegelmers." The company's pipeline currently holds 10 candidates, five of which are already in phase II. Here, the focus is on the areas of oncology and diabetes.

Glycotope has a total of nine drug candidates for a variety of cancer treatments in the pipeline. Two of them are in phase II and three are in phase III. Its pipeline is based on the proprietary platforms  $GlycoExpress^{TM}$  and  $GlycoBody^{TM}$ , which generate antibodies with highly specific binding to tumor cells.

These selected examples show that the product pipeline in Berlin-Brandenburg is varied and well positioned. It is remarkable that counter to the general trend, startups as Omeicos Therapeutics are devoting themselves to the sophisticated discipline of drug development. This is proof of the region's scientific potential and the favorable general conditions it provides to research-oriented companies.

## **Service Provider**

A wide range of service providers in the area of drug discovery and development is located in the Berlin-Brandenburg region. The approx. 87 companies in the region cover the entire spectrum, from specific research tools for pre-clinical studies and technology platforms for drug discovery and screening new drugs to optimizing lead compounds, active ingredient transport technologies and drug formulation.

For example ASCA has been an established contract research partner for the pharmaceuticals industry in the field of medicinal chemistry for almost 15 years. With its highly qualified, experienced chemists and technical staff, ASCA is known for developing original, feasible solutions to the problems of organic synthetic chemistry and implementing them on a laboratory scale.

In the area of customized immunoassay and antibody development, BioGenes has a reputation for being a full-service provider with a strong commitment to quality and service for the global market. The company's scientists possess unrivaled expertise in ELISA development, validation and production for biotechnology, pharmaceuticals, medical devices, and clinical diagnostic applications.

LGC in Luckenwalde is specialized in the synthesis of pharmaceutical impurities and metabolites. It has become the market leader for reference substances in this area. The regulatory agencies have determined that the pharmaceutical impurities that LGC synthesizes are essential reference standards for drug development, registration with the authorities, and for quality control during production.

FMP conducts interdisciplinary research in molecular pharmacology with the long-term goal of extending the – currently narrow – basis for drug-based therapies. The center's multidisciplinary character enables FMP researchers to identify, characterize, and manipulate novel, often difficult, biological targets. They work on all levels of analysis, ranging from proteomic, genetic, and structural biology approaches to chemical biology, including medium- to high-throughput screening paired with bioinformatics and molecular modeling. This strategic concept of interdisciplinary multilevel research in molecular pharmacology puts FMP in a practically unique position on the national and international levels.

The atmosphere at our site Campus Berlin-Buch simplifies cooperation. This is reflected in various cooperations, networks, and shared facilities, primarily with the MDC but also with campus-based companies. For example, the ideal complement of a FMP/ECRC joint project would be a company specialized in individualized tumor models offering contract research for the preclinical development of novel cancer drugs.

**Prof. Volker Haucke**Head of Leibniz-Institut für Molekulare Pharmakologie (FMP)



CellTrend is a certified company that performs cell-based assays focusing on oncology and immunology. It develops and produces antibody-based detection systems (ELISA) and chemosensitivity assays for optimizing chemotherapy for tumor patients.

JPT is a certified provider of innovative peptide products and services, and a partner for research projects focusing on developing novel immune therapeutics & diagnostics, profiling various enzyme classes and proteomics. JPT has developed a portfolio of proprietary technologies and a series of unique products that serve a global customer base.

## **Academic Research**

The development of new biomedical treatments is the main focus of today's global biotechnology research. The capital region reflects this in its enormous pool of resources for everything from researching new active ingredients and treatments in basic research to translational development. More than 24 universities with life sciences programs, a unique non-university research landscape with renowned institutions - including Max Planck and Fraunhofer-Gesellschaft institutes, the Helmholtz Association and the Leibnitz Association as well as Europe's largest university clinic, Charité – Universitätsmedizin Berlin – make the German capital region one of the world's leading life sciences locations. The focal areas of biotechnology research are drug development, molecular diagnostics and bioanalytics, regenerative medicine, proteome and genome research and some areas of white biotechnology.

The Max Delbrück Center for Molecular Medicine (MDC) alone currently has 1,600 employees and visiting scientists. In recent years, MDC has developed into an internationally recognized research institution. It is the only research center from Germany among the world's top 20 institutes for molecular biology and genetics. In close proximity to MDC, the Leibniz-Institut für Molekulare Pharmakologie (FMP) is located on Campus Berlin-Buch.

With over 270 employees, FMP conducts basic research in molecular pharmacology with the goal of identifying new bioactive molecules and characterizing their interaction with their biological targets in cells or organisms.

Charité – Universitätsmedizin Berlin is one of the largest university clinics in Europe. Here, doctors and scientists research, heal and teach at the highest international level. Over 4,500 scientists are involved in countless projects, task forces and partnerships with top-level biomedical research in the Charité – Universitätsmedizin medical faculty. They focus on the translational synergy between experimental, molecular-biology-related basic research with patient-oriented, clinical applications. Together with MDC, Charité – Universitätsmedizin Berlin pools its strengths in the Berlin Institute of Health (BIH). The guiding principle is translational research combined with systems medicine's interdisciplinary approach to bridge the gap between basic research and clinical application.



Biotech within Research-Based Pharmaceutical Companies



vfa bio represents the biotech interests within the German Association of Research-Based Pharmaceutical Companies (vfa). vfa campaigns for the interests of 45 worldwide leading pharmaceutical companies in the fields of health, research and economy.

vfa bio seeks to exploit the therapeutic and economic potential of biotechnology to make Germany the leading biotech location in Europe.

Medical biotechnology is our topic. Consequently, we primarily deal with

- Medical progress provided by biopharmaceuticals benefit for patients, physicians and society as a whole
- Access to biopharmaceuticals for patients
- Business location Germany and regulatory and economic framework for research, development and production of biopharmaceuticals
- Biosimilars
- Orphan medicinal products (medicines for rare diseases)
- Advanced therapies such as gene and cell therapy and tissue engineering products

## **Regenerative Medicine**

The term regenerative medicine describes the development and use of innovative medical therapies that involve the application of bio-materials, cells and hybrid organs. This rapidly growing interdisciplinary field of research brings together approaches from clinical medicine, molecular and cell biology, chemistry and biochemistry, pharmacy as well as bioinformatics, engineering and materials sciences, medical technology and nanotechnology. Its goal is to restore tissue function or to support the regeneration of diseased or damaged organs. Regeneration technologies include the following: tissue engineering, cell therapy, gene therapy as well as the promotion of the body's own regenerative powers (induced auto-regeneration).

## Clinical and economic impact of regenerative medicine

Increased life expectancy has resulted in an increased demand for therapies for age-related diseases. There has also been a significant rise in a number of common wide-spread diseases such as joint and back pain, osteoporosis, diabetes and obesity. There are still no cures for the majority of these diseases, only means to ease their symptoms. Regenerative medicine offers hope for finding a permanent cure for many of these diseases. This in turn gives rise to an enormous worldwide commercial potential. The commercialization of regenerative medicine has however only just begun. Currently there is considerable market activity in the area of immune cell therapies against cancer.

## Regenerative Medicine in Berlin-Brandenburg

In recent years, Berlin-Brandenburg has developed into one of the most important centers for regenerative medicine in Germany. Research and development in the German capital region focus on the stimulation of endogenous regeneration with cells or factors, as well as the interaction of biomaterials and cells.

## **Key technologies**

Key technologies in the region are:

- · immune cell therapies
- transplants for the musculoskeletal system
- · miniaturized organ cultures
- cardiac support systems and bio-hybrid heart valves
- vascular prostheses
- · dental implants
- · specialized cell cultivation systems

Around 20 university and non-university research institutions and 30 companies from the region work in this dynamic growth sector located at the interface between biotechnology and medical technology. The findings from these efforts provide promising approaches and products that have also garnered international attention.

## **Basic research**

The region is distinguished by the international caliber of its research-based and clinical expertise. It offers all the basic research areas and clinical disciplines needed for developing regenerative therapies. Alongside the outstanding basic biomedical research being conducted here, including that being carried out at the Max Delbrück Center for Molecular Medicine in Berlin (MDC) and at the Max Planck Institute for Molecular Genetics in Berlin (MPI MG), the German capital region is also home to distinguished bio-materials research and development projects, including those at the Fraunhofer Institute for Applied Polymer Research in Potsdam-Golm (FhG IAP) and at the Helmholtz-Zentrum Geesthacht in Teltow (HZG).

The BCRT is an interdisciplinary research center with the goal of enhancing endogenous regeneration by cells, biomaterials and factors which are used to develop and implement innovative therapies and products. The primary focus of the BCRT is on diseases of the immune system, the musculoskeletal system and the cardiovascular system for which currently only unsatisfactory treatment options are available. First fruits of success are the development of new treatments for muscle injuries and for heart disease as well as virus-specific T-cell products for long-term protection against serious infections which particularly affect patients with a weakened immune system. Thanks to its outstanding scientists and its excellent laboratory and GMP facilities, the BCRT has been able to directly translate scientific discoveries into innovative therapies, test these in first clinical studies on site, and continuously improve them by means of iterative adjustments. With its translational structures and scientific successes the BCRT has set standards, at regional as well as international level. BCRT finds perfect conditions in the capital region for networking with important actors along the value chain and for transferring innovations from basic research into clinics and industry.

**Prof. Dr. Hans-Dieter Volk**Director, Berlin-Brandenburg Center for Regenerative Therapies (BCRT)



## **Applied research and translation**

In the field of applied research and the translation of basic research findings into clinical applications, the Berlin-Brandenburg Center for Regenerative Medicine (BCRT, Charité) stands out as an internationally recognized model of success in the field of translation. BCRT researchers examine the body's own healing processes and use the results to develop new treatments and diagnostics. At BCRT, clinicians, researchers and engineers work hand in hand to develop the medical treatments of the future and to provide patient-compatible medicine that detects disorders at an early stage in order to make optimum use of the patient's individual healing potential. BCRT develops therapeutic concepts for disorders of the immune system, the musculoskeletal system and the cardiovascular system, for which there are currently only unsatisfactory treatment options, and also carries out numerous phase 1 studies. The BCRT recently acquired a mass cytometer (the so-called CyTOF®) for single-cell proteome analysis. This technology, which will be further developed in the future, is available for use by both internal and external researchers as well as contractors. The Berlin Institute for Health (BIH) combines the strengths of the Charité and MDC and focusses, among other things, on cancer treatment with immune cells and stem cell research. Moreover, the BIH has established a platform for generating and characterizing induced pluripotent stem cells (iPS) and invests in technologies such as genome editing.

## **Clinical studies**

Beyond that, the region also possesses an outstanding infrastructure for conducting clinical studies with institutions such as the Charité, one of the largest university hospitals in Europe, as well as the Vivantes-Klinikum and the Deutsches Herzzentrum (German Cardiac Center) in Berlin.

## Small and medium sized companies

Along with the excellent scientific facilities and clinics it offers, the region also is distinguished by the many small and medium-sized companies working in the field of regenerative medicine, like co.don, Mologen, Cell Medica, AutoTissue, TissUse, and botiss medical. Mologen AG, a spin-off of the Freie Universität Berlin, offers kidney cancer patients cell-based gene treatments in which exogenous, genetically-modified cancer cells are administered in order to stimulate the immune system to combat endogenous cancer cells. AutoTissue GmbH produces cardiovascular implants based on its own patented decellularization and sterilization technologies. TissUse GmbH, a spin-off of the Technische Universität Berlin, is developing a chip with multiple miniaturized human organ structures that can be used for tissue culture analysis of pharmaceuticals, cosmetics and chemicals.

co.don AG is among the world's leading specialists in cell cultures for joint-preserving treatment of cartilage defects and in therapies for defective intervertebral disks. We set up the company in 1994 at the business location in Teltow. Along with its modern infrastructure, this location also offers both a qualified workforce – attributable to the large number of universities in Berlin und Brandenburg – as well as competent and committed partners for our research projects.

We receive support from the state of Brandenburg through a variety of initiative programs, including funding in 2010 for co.don AG in the amount of 2.5 million euros by the investment bank of Brandenburg (ILB, Investitionsbank des Landes Brandenburg) in conjunction with a funding program from the Brandenburg Ministry of Economic Affairs. The funds were used for preparing long-term clinical studies. The goal of these studies is to obtain EU-wide approval for our cartilage medical products following authorization on domestic production. Initial clinical findings have already been published.

We are also delighted about the investment funding, which will be used to extensively modernize our research labs so that they stay on par with the current international standards.

Vilma Methner COO and CSO, co.don AG



## The Regenerative Medicine Initiative Berlin-Brandenburg (RMIB)

The Regenerative Medicine Initiative Berlin-Brandenburg (RMIB) serves as a regional communication platform to support networking between businesses, research institutions and organizations working in regenerative medicine and related fields. Among other things, it offers workshops and other events for exchanging information on specialized topics and aids in establishing partnerships between science, industry and clinics in research and development. The local players involved are also well connected internationally. The RegMed Coalition (RMC), an alliance between BCRT and other internationally recognized translation centers and industrial partners formed in 2012, is currently undergoing further development. In addition, intensive contacts with international research institutions and companies, e.g. in Korea, have been ongoing for several years now. These contacts likewise will be further refined and intensified over the coming years, including at the annual international conference held in the German capital region, the RegMed Forum, which this year is focusing on the topic of "Diagnostics in Regenerative Medicine."

The examples listed here represent only a selection of the regional activities going on in the field of regenerative medicine. The unique scientific and clinical landscape, specially skilled companies, the proximity of German governmental institutions and the coordinated integration of the various players located in the German capital region are important building blocks for the successful development of ideas and products in regenerative medicine. Even though regenerative therapies may have a long road to travel until they can be put to practical medical use – the first steps have already been taken!





# You need commitment, focus and passion to find new ways to fight the diseases of this world: innovation is at the heart of it.

Innovation for better health. Our commitment is to bring to patients around the world quality medicines for use in diagnosing, combating and preventing disease. Every day we work against time, researching new pathways, new molecules, new technologies – complementing our own capabilities with expertise of innovative partners from science and industry.

The success of this work is evidenced in new medicines for areas with significant unmet medical need such as oncology, cardiovascular and blood diseases, as well as gynecology and ophthalmology. Our aim is a better quality of life for all.



## In vitro-Diagnostics

Since the mid-1990s, Berlin-Brandenburg has developed into one of the most important, attractive locations for the medical and Healthcare Industries in Germany. Its major strengths are a unique research landscape and a close network of the players along the entire value-added chain.

Besides the areas of regenerative medicine, glycobiology and drug development, Berlin-Brandenburg has also an extraordinary expertise in the areas of IvD and bioanalytics. Twenty academic & non-academic research institutions are engaged in the identification of new biomarkers and new platform technologies for diagnostic tools. Of the over 200 biotechnology companies in the region, some 100 small- and medium-sized enterprises are involved in the development of innovative diagnostic products and applications as producers or subcontractors.

## Impact and Role of In vitro-Diagnostics

Scientific understanding of the nature of health is constantly improving. One reason for this improvement are In vitro-Diagnostics (IvD), which are playing a major role in increasing this knowledge base. IvD are tests conducted on human blood, urine, stool, or tissue samples without directly interacting with the human body. Their purpose is not to have a direct therapeutic effect, but to provide valuable information to make or confirm a medical diagnosis of diseases. Thus, tests are used for diagnosis, monitoring, population screenings and disease prevention. Nowadays they are estimated to influence approximately 70% of all treatment decisions. Apart from the huge contribution to patients' quality of life, IvD also provide many economic benefits to national healthcare systems. Efficient IvD breed shorter hospital stays in stationary treatment and a more rational use of therapies. They have the potential to minimize the burden and costs of disease, and are therefore cost-effective.

IvD is one of the most successful sectors of the German economy. According to the latest statistics from the German Diagnostics Industry Association (VDGH), the German diagnostics market came to 2,21 bn in 2015, being the largest in Europe.

## **Value Chain**

The development of innovative diagnostics covers the four areas of basic research, technology development, clinical validation of biomarkers in clinical trials, and industrial development and applications. Here, the capital region is well positioned to accomplish these tasks, providing the full value chain from scientific basic research to production and marketing. The many research facilities, hospitals as well as biomedical and pharmaceutical companies in the region provide advantages for all members of the value chain.

Within the region the Center for Molecular Diagnostics and Bioanalysis (ZMDB) acts as technology transfer platform and combines the key steps basic research, technology development, clinical research, and industrial application for the development of innovative diagnostics. The center is member of the European Diagnostic Cluster Alliance (EDCA). EDCA promotes competitiveness of European industry in the area of medical diagnosis and cooperation between diagnostic clusters in order to help build European collaborative projects. ZMDB works in close cooperation with regional corporate networks like DiagnostikNet-BB, founded 2007. DiagnostikNet-BB bundles the competencies of diagnostics companies, users from clinics and laboratories as well as scientific research institutes from the Berlin-Brandenburg region and accelerates the turnaround of ideas to become marketable innovation.



## **Basic Research**

Development of IvD starts with consolidated knowledge of biomarkers as indicators for biological and pathogenic processes. An important biomedical research institute for the identification of biomarkers in the region is the Max-Delbrück Center for Molecular Medicine (MDC), which translates discoveries from basic research into application to improve the prevention, diagnosis, and treatment of human diseases. The MDC holds patents on biomarkers – e.g. for cardiac diseases, cancer metastasis and acute kidney injury. In combination with the major disease oriented programs of the MDC, the Berlin Institute for Medical Systems Biology (BIMSB) was established in 2008. Here,

for example, one aim of the BIMSB is to apply metabolomics and proteomics techniques for absolute quantification of proteins and metabolites using stable isotopes. In addition to MDC, the Institute of Laboratory Medicine, Clinical Chemistry and Pathobiochemistry is active in the field of pathobiochemical mechanisms for diagnostic, prognostic and therapeutic purposes. The research is focused on the identification and development of glycanbased biomarkers in tumor diagnostics and in chronic inflammatory diseases.

R&D for in vitro-diagnostics is highly advanced in the BB area, well-equipped universities and research groups develop high end technologies, clinical researchers at Charité, MDC, BIH and other academic hospitals and university groups are looking for biomarkers, startups and other innovative companies link these activities to develop new products for personalized medicine. Bioinformatics and technical developments like array technologies and microfluidics are also at hand and give easy access to any kind of modern analysis.

In this setting Fraunhofer IZI-BB, formerly IBMT-Potsdam, plays a crucial role for the development of novel products by providing technology as well as machinery for the first steps out of the laboratory: While good ideas and feasibility studies are supported in academic environment, many innovative stimuli end before they are explored, because there is no idea how to produce. This gap is bridged by Fraunhofers PILOT plant for rapid development of production scale technology for diagnostics. Quite recently DiagnostikNet-BB together with Fraunhofer started an initiative for combining diagnostics with mHealth-technologies.

Prof. Dr. Frank Bier

Head of Department of Biosystem Integration & Automation, Fraunhofer Institute for Cell Therapy and Immunology IZI



## **Technology Development**

As the need for medical diagnostics is rising one innovation chases the other. In that regard Berlin-Brandenburg enjoys a strong position, developing solutions for next generation In vitro-Diagnostics like sensor-actor molecules and autonomous biosensors, as well as genome, proteome and glycan-based multiplex analytics. The majority of IvD are performed in highly automated and advanced hospital laboratories, but in recent years, many more have been developed for point-of-care testing (POCT). Point-of-care tests are desirable because they can answer questions very quickly. Their currently greatest challenge is the miniaturization of analytical devices. Here, the Fraunhofer Institute for Cell Therapy and Immunology IZI in Potsdam-Golm develops an In vitro-Diagnostics (IvD) platform, which consists of a cartridge the size of a credit card (Lab on-a-chip) and a base station. Blood or other biological liquids can be applied directly on the cartridge and subsequently analyzed automatically within 10-15 minutes. Beside scientific institutions, companies from the region like Scienion, Epigenomics, BST Bio Sensor Technology and Medipan stand for innovative technology development. For example, BST's core competence is the development and production of multiway biosensors for pmol/l to mmol/l concentrations. Epigenomics develops and commercialize innovative molecular diagnostic tests for the early detection of colorectal and lung cancer, based on proprietary DNA methylation technology.

### **Clinical Trials**

Berlin-Brandenburg is also an excellent location for implementing clinical validation studies. With the Charité - Universitätsmedizin Berlin, one of the Europe's largest university hospitals with more than 35000 beds and a width of outstanding basic research, the region offers a broad access to a patient collective of urban and rural populations of about 180 ethnicities for the implementation of clinical trials to validate biomarkers. 2011, with the consolidation of laboratory medicine of Vivantes and Charité as well as resources for clinic routine diagnostics in Labor Berlin GmbH, the largest clinical laboratory in Europe Labor Berlin - Charité Vivantes GmbH was created. Combining nine different specialist divisions like Oncology, Virology and Immunology, the Labor Berlin - Charité Vivantes Services GmbH offers complete solutions for every type of laboratory diagnostics for the diagnostics industry, CROs, and companies in the life sciences sector and research institutions.

These current examples are only an indication of the IvD activity in Berlin-Brandenburg. The unique landscape covering basic research, technology development, clinical trials and the closeness to political decision-makers offers for all actors good infrastructure and potentials for the development of innovative IvD in the heart of Europe.

SCIENION is a life science company well positioned in the markets of ultra-low volume liquid handling systems and microarray technologies, addressing the increasing needs for miniaturization and multiplex analyses. Since our start in 2001, SCIENION's proprietary technologies for multiplexed Diagnostics and ultra-low volume liquid handling technologies were awarded twice with the "Innovationspreis Berlin Brandenburg". The technologies developed, namely sciDROP PICO and sciMULTIPLEX form the basis for an integrated product portfolio that facilitates and improves multiplex analysis while decreasing costs – from very early research to manufacturing of millions of diagnostic tests. All technologies have been developed in Berlin, often in tight interactions with Berlin's excellent knowledge base at Universities, Max Planck Institutes and Fraunhofer Institutes. By consequently following this integrated network approach, and combining technologies developed by SCIENION and other members in the Berlin Networks, complete solutions have been created for the worldwide customer base. Together, we deliver highly competitive diagnostic products and services for applications in human as well as food and feed diagnostics, which are all MADE AND VALIDATED IN BERLIN®.



## We're getting older. And that's good news.

It's the little moments that mean so much to us. We want to be able to cherish those moments for many tomorrows to come. Pfizer is working around the world to this end. For more than 160 years, we have been researching and developing innovative drugs to help people improve their health and quality of life at all ages.

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## **Glycoscience**

Glycoscience (derived from Greek glykòs for sweet) is the science and technology of sugars or biochemical carbohydrates. Simple carbohydrates, like glucose, fructose or lactose, are part of our daily nutrition and metabolism. Complex carbohydrates, or glycans, are the most abundant biologically active molecules on Earth. Their role in a cell, tissue and organism is ubiquitous. As a part of plants, woods or insects cell walls in the form of lignin, chitin and cellulose they provide structure and duress of the cell. Energy storage molecules like starch or glycogen keep us alive. Since glycans also present constitutive parts of monoclonal antibodies, receptors, ion channels and antigens, they are heavily involved in cell-cell communication and, thus, significantly influence development, growth, cancer, neurodegenerative disorders, infectious and immunological diseases. After tackling the challenge of deciphering the genome and analyzing the proteome, the researchers turned their focus towards the glycome – the entire complement of sugars of a biological entity: organism, tissue or cell. Glycomics, an analog to genomics and proteomics, refers to the technology for high throughput screening of glycans. According to the latest European White Paper on glycobiology, the glycomics R&D market includes enzymes, monoclonal antibodies, instruments, kits and reagents, and is expected to rise to \$930 billion by 2019. Glycosciences harbor huge cross-innovation possibilities within a range of disciplines, like medicine, biotechnology, bioeconomy and biomaterials. Further development and spin-off potential is tremendous – join us for your bit of sweet sugar bites in Berlin-Brandenburg!

## Berlin-Brandenburg is a magnet for glycobiotechnology companies

Glycoscience research in Berlin Brandenburg spans for more than a decade. First attempts to build upon the fragmented expertise and create a value chain for glycosciences in the region can be traced back to the beginning of the 2000s. Today, with combined excellence of the Max-Planck-Institute for Colloids and Interfaces (MPIKG), Fraunhofer Gesellschaft für Zellbiologie und Immunologie (FhG IZI) Abteilung Potsdam-Golm, Charite Universitätsmedizin and a great variety of SMEs like SCIENION AG, Glycotope, AnalytiCon Discovery or MicroDiscovery, bearing the expertise in glycan isolation, glycan synthesis, gly-

can-engineering, glycan-microarrays production, analysis and high-throughput screenings, the region established itself as one of the leading centers for glycosciences in Europe with a unique value added chain in glycobiology. As a result of the synergy of regional players, a new glycobiology network featuring world renowned scientists and entrepreneurs was initiated: glyconet Berlin Brandenburg (glyconetBB). Focused on health applications of glycomics, like drug development and new diagnostics, the research in the region follows the shift in health sciences towards the prevention and early diagnosis, still providing for the cure if the disease strike.



In February 2001, Glycotope was spun-off from the Max Delbrück Center with the vision to provide a technology that enables the production of glycooptimized fully human biopharmaceuticals. Starting with eight employees, to-day the Company's headcount is more than 200 people throughout the two sites in Berlin and Heidelberg. Since the foundation as a glycooptimization technology company, we have become a developer of new therapeutics and diagnostics based on our proprietary technology - GlycoExpress™. This cutting-edge technology facilitates fully human glycosylation of a broad range of therapeutic molecules, including antibodies and non-antibody proteins. In clinical studies with patients who failed standard therapies, GlycoExpress derived molecules have shown strong response rates and clinical benefits. Worldwide, we are one of a few companies that cover the whole value chain: from glycooptimization of potential drug candidates to preclinical testing, analysis and GMP manufacturing. We could show in various development programs, that cost-efficient production with previously unmet quality has been achieved. Furthermore, our first diagnostic kits targeting tumor T-cell antigens hit the EU and North American markets in late 2014. From early days we have experienced immense support from the city of Berlin; we are happy to have established our headquarters in this exciting metropolis.

**Dr. Steffen Goletz** CEO/CSO and Owner, Glycotope GmbH

## Glycosciences decrypt life defining biological processes

Glycoscience gradually gained international reputation as one of the most promising R&D topics of the future. Research advances, especially in the last decade, pointed toward their essential role in all life defining processes, from embryogenesis to cancer and immune response. Abundance and importance of these molecules appears overwhelming. Glycans bound to proteins in the form of glycoproteins and influence their activity and longevity - many of these glycoproteins present monoclonal antibodies - immunologically active molecules used in therapy and diagnostics. Herceptin, a monoclonal antibody (mAb) targeting breast cancer, belongs with its yearly turnover of \$6.5 billion to the block buster drugs. CetuGEX™, a novel glycosilated mAb for the treatment of several epidermal cancers, developed by the company Glycotope, is consistently showing very promising results and is currently in the Phase IIb trial. Glycotope, a Max Delbrück Center for Molecular Medicine (MDC Berlin-Buch) spin-off, set up and validated the Glyco-Express™ (GEX™) technology, enabling the company to mimic the human glycosylation in vitro and, thus, create a platform for continuous development of glycooptimized and fully human glycosylated antibodies. The technology, used to produce several promising drug candidates in the late phase clinical trials brought in more than €100 million in investments in the recent years and had it claimed as one of the highly anticipated exits in the global biotech sector.

## Glycan-biomarkers find use in personal medicine, diagnosis and therapy

Development of new diagnostics is one of the most developed branches of the regional biotechnology. Glycobiomarkers, biomarkers stratifying patients based on the glycan epitopes, bear a huge potential in future diagnostics and personalized medicine. Scienion AG specialized in microarray manufacturing enables quick implementation of the newly discovered epitopes and is continuously involved in the joint research projects and tech transfer processes in the region, skillfully bridging the gap between science and industry. Proximity to the Institute of Laboratory Medicine, Clinical Chemistry and Pathobiochemistry of the Diagnostic Laboratory and Preventive Medicine (Charité Center 5), responsible for the diagnosis of patients at both, one of the biggest European university clinics Charité Universitätsmedizin Berlin and one of the biggest German private clinics Vivantes, enables strong ties with final consumers doctors and patients. Point-of-care diagnostics present simple medical blood tests which can be performed, ideally, by the patient himself. MicroDiscovery works on the development of an innovative system for smartphone based lateral flow analysis, mo: Test, based on the glycan biomarkers. ProBioGen AG, a specialist for the development and manufacturing of complex therapeutic glyco-proteins and viral vaccines, on the occasion of its 20th anniversary invested another €20 Mil in its production site in Berlin, expecting to double its workforce in the next years.

As head of the Department "Cell-free Bioproduction" at the Fraunhofer IZI, Potsdam-Golm, I strongly value the proximity of industry and the political support we are encountering in the region. Berlin Brandenburg strategic investment in its biotech sector enables an excellent cooperation between the science and industry, a swift technology transfer and a huge innovation potential. In my laboratory we explore the possibilities of cell-free protein synthesis as a versatile tool for functional genomics, protein labelling, cell-free synthesis of membrane proteins and glycoproteins, as well as chip-based protein synthesis and translational regulation. I am currently actively engaged in establishing the region as a center of excellence in glycoscience. The attractive location of the Biotech Park Potsdam-Golm, just next to one of the most vibrant cities in Europe, ensures the flow of young and talented junior scientists that will carry the education in the region far beyond its borders.

Dr. Stefan Kubick
Head of the Department "Cell-free Bioproduction" at the Fraunhofer IZI – Potsdam Golm



## Glycan-based products abound in pharmaceutical, cosmetics and food industry

Natural products and their healing powers are sustainable resources for pharmaceutical, cosmetics and food industry. AnalytiCon Discovery GmbH based in Potsdam possesses an unrivalled collection of purified Natural Products (MEGx) and its semi-synthetic derivatives (NATx), many of them glycan binding. This library coupled with a chemical expertise and international medical network, winded up a recent strategic partnership with the biotechnology company BRAIN AG. The synergy between the natural products chemistry and biotech is unique in the market and presents a spring board for fully integrated drug development process.



## Glycobiotechnology is an enabling technology for various disciplines

Glycans are the most abundant biomolecules on Earth. In plants, they are used as energy storage molecules that rose to prominence in the area of bioenergy and bioeconomy. Their structural features are exploited in the creation and derivation of new biomaterials, for implantation or drug delivery. Its unprecedented potential for discovery of new diagnostic markers, antigens for vaccine production, glycoprotein mAB therapeutics or tissue specific drug targeting is staggering. Development of platforms for high-throughput glycan screenings that enabled the rise of glycomics - the newest -omics discipline that, after genomics and proteomics attracted a number of elite researchers, paved the way for the possible economic exploitation of glycobiology. This cross-sectoral discipline found its application in biology, biotechnology, material sciences, food, cosmetic industry and bioeconomy. Entrepreneur and VC funds bet on the glycans, as the new, highly specialized, diagnostic and therapeutic molecules. The regional politics followed the joint Master Plan for the Berlin-Brandenburg Healthcare Region incorporates future support for the development of glycobiology as an enabling technology for the biotech sector. The region harbors world-renowned scientists and entrepreneurs in glycoscience – we wish them all a very good luck for their future endeavors and invite you to join this exclusive club!



Modern research, development and manufacturing of innovative medicines in Berlin-Adlershof – this is what BERLIN-CHEMIE stands for. Research and production are based not only on our experience of over one hundred years but also on our successful search for new therapeutic pathways and possibilities. The success we have gained around the world and the growth of BERLIN-CHEMIE are an endorsement of our high standards.



## For more information:

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## **Industrial Biotechnology**

Imagine an environmentally friendly, bio-based economy where agricultural waste can be turned into a new product that will produce waste to be turned into the new product again. This social, economic and ecologic dream might be closer than we think, with the help of industrial biotechnology – that uses optimized enzymes and sustainable natural materials for industrial production of vitamins, antibiotics, additives, biopolymers, paper, leather or energy. Known also as the "white" biotech, due to its ability to produce consumer products in an ecologically and costly favorable process (on lower temperatures and without the use of catalysts or solvents), the potential of this bio-based approach in assisting various production circuits in chemical, cosmetics and food industry, as well as in the development of new biomaterials for medical and consumer applications is enormous. Bio-based economy is integrated in the national research strategy BioÖkonomie 2030. Berlin-Brandenburg region harbors 45 white biotech companies strengthened with about 100 SME and 50 research institutes with an interdisciplinary focus on the relevant key subjects. The political support in the region expressed in the Master Plan HealthCapital, draws the attention to the regional stronghold in the development of probiotics/prebiotics, additives for human and animal nutrition and further development of pilot plants for the use of lignocellulose from residual materials for product development. Deepening the cooperation between the research institutes and SMEs is particularly favored – contact us at any time – we are supporting your search for the suitable cooperation partner and your research endeavor!

## Berlin-Brandenburg is a center of industrial biotechnology

Evers since the Neolithic cultures in 6000BC fermented wine and Babylonians used microbial yeasts to brew beer, the industrial biotechnology became a part of our daily lives. The discovery of penicillin in 1928 influenced the construction of the first large-scale fermentation facilities, paving the way to the rise of modern industrial biotechnology. Today, the combined market for biofuels, enzymes, antibiotics, food and cosmetic additives, amino acids and polylactid acid (PLA) is estimated at the staggering €228 billion in 2010 (www.commercialbiotechnology.com, 2011), with an expected 20% growth. In the Berlin Brandenburg region one encounters research institutions with expertise in the bioprocess engineering and sustainable raw materials use (ATB Potsdam, Fraunhofer IAP), biotech companies exploring the realm of process optimization, depollution and enzymatic catalysis (Chiracon, Glycon), and chemical industry for the production of fine chemicals and pharmaceutical precursors (BASF, Velind Chemie, Chiracon). Furthermore, the region houses internationally established companies active in the production of cosmetic and food ingredients based on natural sources, like Organobalance GmbH and AnalytiCon Discovery GmbH. Bioeconomy Council, an independent advisory board to the German Government is located in Berlin and sets the course of bio-based economy

on the basis of the newest scientific and economic data. Its intensive contact with all the stakeholders, opponents and promoters alike, makes it a go to address for the newest hot topics and positions in the field. The Global Bioeconomy Summit, to be held on the 25th-26th November 2015, will gather about 500 opinion makers and global leaders in policy, research, industry and civil society in Berlin to discuss bioeconomy policies on a global scale.



The Berlin-Brandenburg region offers enormous support for the R&D activities in bio-based economy. As head of the pilot plant for the bioconversion of agricultural feedstock and residues at the ATB Potsdam, I am in charge of numerous national and international research projects for advancement of the biotechnological production of bulk chemicals (e.g. lactic acid), from several renewable resources, like lignocellulosic, green biomass, byproducts and agri/food residues. I highly cherish the value chain we have established in the region and the close cooperation with the industry. Particular expertise of the region lies in the bioplastic production — we cover the whole production chain: from establishing new technologies enabling higher energy gain in lignocellulose extraction (maxbiogas GmbH), across efficient and continuous lactic acid production (ATB Potsdam) to its subsequent processing into bioplastics (Competence Centre for Bioplastic Processing, Schwarzheide, Fraunhofer IAP and BASF). Development strategies on federal and regional level enable close collaboration with developing countries and emerging markets. We are continuously exploring new intellectual and industrial challenges. Feel free to contact us at any time!

Dr.-Ing. Joachim Venus
Program Coordinator, Department Bioengineering
Leibniz Institute for Agricultural Engineering Potsdam-Bornim



## The focus of the region is on biopolymers and bioplastics

The stronghold of the regional expertise lies in the production of bio-based and biodegradable plastics. Bio-based plastic is produced out of biomass, agricultural residues and non-edible crops, and already used in the packaging industry, life sciences (implants, prosthetics), architecture, design or construction. One of the pitfalls of using sustainable raw materials like agricultural residues (straw, stem, debris or wood) is an energetically unfavorable process for the digestion of resistant and energy poor lignin, a major component of the cell wall, partly in the form of lignocellulose. Lignin is neither easily degradable nor soluble. In an anaerobic process, like the biogas production, this presents a main limiting factor. Maxbiogas GmbH, located in Marienwerder recently patented a technology marketed as lignin extraction plant (LX-Plant) that is able to digest lignocellulose without pressure and with the heat generated within the biogas generation process, thus, enabling the undisturbed process flow under energetically more favorable conditions with improved outcome. Furthermore, LX-plant provides an external solution for the lignin extraction and complete use of digestate in any bioprocessor, like the one built in a pilot plant facility for the conversion of renewables into the lactic acid, located in the ATB Potsdam. Lactic acid is the precursor of polylactid acid (PLA) used for the subsequent processing into the bioplastic foil, bags or tableware. In a three year research program BREAD4PLA funded by the European Commission's program LIFE+, Dr. Joachim Venus and his colleagues used bakery waste for lactic acid production and further polymerization into a 100% biodegradable PLA film for packaging of bakery products. In follow up studies, several sidestreams from the food industry

(e.g. coffee residues, thick juice or whey) have been tested as a raw material for the production of lactic acid. A parallel ATB Potsdam study, BIOGAS-BIOCOENOSIS ran by Dr. Michael Klocke tackled the microbial composition of different bioprocessors pinning down specific microorganisms that can be used as biomarkers for the process flow. The project was financed by the German Federal Ministry of Food and Agriculture (BMEL) with the support of Fachagentur Nachwachsende Rohstoffe e.V.(FNR), an association dedicated to renewable resources. The "Competence Centre for Bioplastic Processing", a joint venture of BASF, Schwerzheide and Fraunhofer IAP is a downstream facility for processing of biopolymers into plastic foil or films, as well as two-layered bottles by using the extrusion blow molding (EBM) technology and conventional processing machines. A technology transfer workshop targeted at the plastic industry and supported by the Competence Network for the Processing of Biopolymers (Kompetenznetzwerk zur Verarbeitung von Biopolymeren / KNVB) joint research project funded by the BMEL through the project sponsor FNR was held in June 2015. Uhde Inventa-Fischer, an international chemical company belonging to the Thyssen Krupp Industrial Solutions AG is setting a strong focus on the production of biopolymers, such as PLA and polybutylene succinate (PBS) as a part of its development strategy. Biopolymer R&D branch is located in Berlin enabling close cooperation with academics and research institutions.



## Berlin-Brandenburg provides innovation and supply in natural resources

Animox GmbH located in the Science and Technology Park Adlershof is a highly innovative company using its proprietary technology to extract peptide and amino acids additives (ANiPept™) out of residual animal and vegetable material. In September 2014 it took upon itself the coordination of nine SME and two research institutions in the joint project TeFuProt (Techno-Funktionelle Proteine), a national innovation alliance financed by the BMBF as a part of its innovation strategy in industrial biotechnology.

AnalytiCon Discovery GmbH in Potsdam-Hermannswerder, possesses an unrivalled library of more than 25.000 natural products and their semi-synthetic derivatives of resolved structure. Their expertise in natural product chemistry brought them in the last year a unique strategic partnership with BRAIN AG, a leading biotech company. The combined strength should reinforce the development pipeline in health and food sector.

## Cross-sectoral perspective is mapping the change

Industrial Biotechnology brings together a sophisticated range of disciplines – biochemistry, microbiology, genomics, proteomics, glycomics, bioinformatics and process engineering. It bears a huge potential to influence how we live and what we consume in the future. As an enabling technology on the intersection of chemistry and life sciences, industrial biotechnology received an enormous political support in the recent years. The window of opportunity is here, the location is Berlin-Brandenburg.

Bacteria are filthy, aggressive, and cause terrible diseases – this, at least, is what many people think. The fact that, on the contrary, a huge number of bacteria exist which we can rely on both for health benefits and as alternative resources for industrial processes is only slowly but surely winning recognition. Since its foundation in 2001, Organobalance GmbH has been researching and developing these alternatives, based on its own collection of some 8,000 yeast and bacterial strains. Among the company's clients are SMEs as well as global players in the food, cosmetics, feed, agriculture, and pharmaceuticals industries. Notably, we benefit from the proximity of these companies, the scientific community's proximity, e.g. the Technical University of Berlin, and the proximity of political decision-makers. Because bioeconomics and biotechnology depend on political support. We are working to strengthen the scientific, economic, and political support of these forward-looking issues in Berlin-Brandenburg to help improve conditions for investments and innovations.

**Prof. Dr. Christine Lang** CEO, Organobalance GmbH





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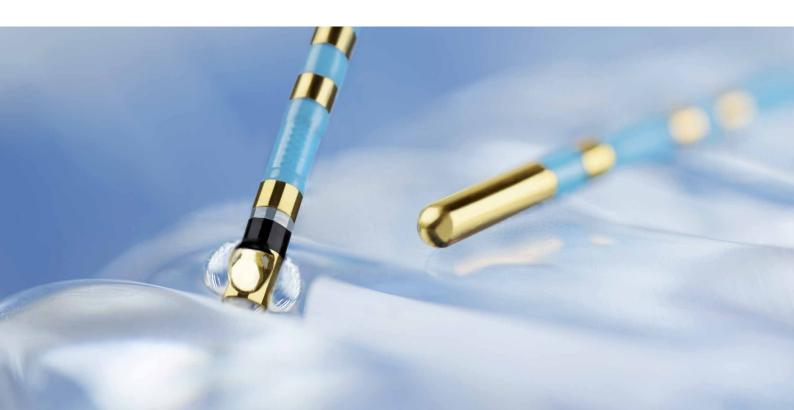
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## **Cardiovascular Medical Technology**

Medical technology from Berlin-Brandenburg is a central component of the regional health economy, and is part of the technology fields of the future. This is primarily due to the advancing technical progress which is driven on in ever-accelerating cycles. Moreover there is a growing network of companies, medical facilities and institutes in the region in which the patient oriented research and development, as well as clinical application, are closely related. This innovative milieu and the good networking of the various parties among themselves offer outstanding conditions. Supported by a focused innovation policy, a strong performing cluster with ultra-modern workplaces has developed which stands out internationally, and is already taking a leading position in the European-wide standard.

In particular the area of cardiovascular medical technology is strongly pronounced due to the concentration of leading institutions in Berlin and Brandenburg. Internationally recognized clinics such as the German Heart Institute in Berlin, renowned specialist clinic for heart, lung and vascular illnesses, the Charité, one of the largest university clinics in Europe, and the Vivantes clinics as well as the Heart Center Brandenburg in Bernau, one of the leading facilities in Germany and the Carl-Thiem Hospital in Cottbus, with the largest number of beds in Brandenburg, create an excellent clinical environment. Along with the clinical application of the cutting-edge technologies in the region, outstanding scientific impulses are set here for new and further development of cardiovascular therapy possibilities. In addition there are further well-known medical institutions such as the Max Delbrück Center in which, among other things, biomedical basic research is pursued in the field of cardiac insufficiency. The scientific environment is rounded off by the academic institutions such as the Technical University Berlin, from which not only highly qualified young professionals emerge for research and industry, but also application-oriented cooperation lays the basis for future products. Many developments such as the pacemaker for example, and implantable defibrillators from the Biotronik company, one of the world's leading manufacturers of cardio- and endovascular medical technology with its headquarters in Berlin, as well as the first Drug Eluting Balloon from the B. Braun company and InnoRa were entirely or in part developed in Berlin-Brandenburg. These medical devices help one of our most important organs, the heart, to support and save lives. Thereby the heart is a very special muscle: It beats around three billion times in the course of a human life, and in the process pumps about 250 million liters of blood through the body - an unbelievable service which no motor can furnish.



Ruppiner Kliniken, amidst Fontanestadt Neuruppin, offers a unique platform for industrial-clinical cooperations. In this little town 21% are directly employed in the health care industry, and the region is deeply dedicated to health technology. A large variety of products (sensor technology, medical IT) has been pushed up to market entry.

Settlements of startups are welcome, and their offices will be side by side with those of the appropriate special department. The consistent further and continuous development of an idea or a prototype towards a product ready for the market happens at the campus of the 800+ beds hospital and its 22 clinical specialities.

Today, in this department there are startups working door-by-door with the physicians as well as big players of the global market of medical technology. The aim is to build a maximum innovation-friendly environment of multidisciplinary associates. Products have been CE-certified and entered the market which will change healthcare and - maybe - the terms of social care in general.

2014, in Neuruppin the first and only medical faculty of the federal state of Brandenburg was founded, and right now the first generation of students has started, and one focus is health services research: medical technology in terms of patients' care. It is this spirit of start and team play across sectors that make the Medizinische Klinik A at Ruppiner Kliniken, Neuruppin, so special.

Prof. Dr. Kurt J.G. Schmailzl





## Cardiovascular diseases – Facts and Figures

Cardiovascular diseases (CVD) are among the most common human illnesses today and represent the most frequent cause of death, ahead of cancers, in the developed industrial countries. In Germany 40% of all causes of death are currently attributed to CVD. In light of demographic change, as well as the continuing industrialization in emerging and developing countries, and along with that increasing risk factors such as obesity, diabetes and hypercholesterolemia, in the coming years we can expect a dramatic increase in the number of cases as well as exploding costs. One of the most common CVD is cardiac insufficiency. Worldwide more than 23.0 million people are affected by chronic or acute cardiac insufficiency today, whereby approx. 1.0 million new cases are registered per year. Both in the case of continually decreasing cardiac output as well as in case of a very rapidly occurring failure of cardiac function, e.g. resulting from acute myocardial infarction, the natural heart is no longer able to pump the required amount of blood to sustain bodily functions.

Treatment of acute as well as chronic cardiac insufficiency has made great progress in the last two decades, both with regard to the medicinal, interventional, as well as in the area of surgical therapy options. Around 1.0 million patients worldwide are in the terminal stage of cardiac insufficiency. For these patients the heart transplantation represents the last possible form of therapy. Worldwide however, approx. 3,000 donor hearts are available with a falling tendency. Accordingly mechanical heart and circulatory support systems, so-called VADs (Ventricular Assist Devices) or artificial hearts, bridge the waiting period for a transplantation, or are increasingly used for years as a long-term alternative to heart transplantation, in rare cases recovery of the heart can be observed. With the use of a VAD system the cardiac function is partially or almost completely assumed by a mechanical blood pump connected parallel to the heart. In the process, using cannulation on the ventricles, blood is taken from the heart and is led through the pump to further cannulae back into circulation again. The pumps are situated either outside the body, which enables support of small patients or both ventricles, or is completely implanted for left ventrical support. A cable connects the pump here with an external driving unit and power supply which the patient carries along in a bag. For extracorporeal support the blood pumps are driven electro-pneumatically by an external device.



## The Solutions from Berlin-Brandenburg

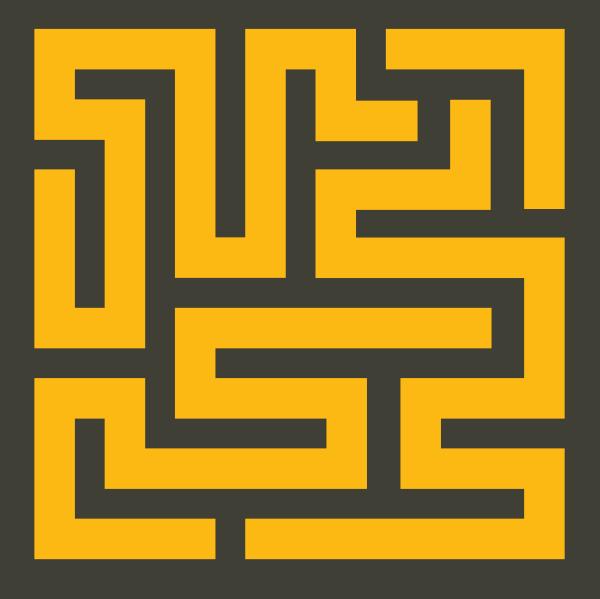
For over 15 years Berlin Heart GmbH has been occupied with these highly innovative and highly complex medical devices. As a family led, mid-sized company it is specialized in the development, production and global distribution of VAD systems for therapy of chronic cardiac insufficiency. As the only company worldwide, Berlin Heart meets the entire spectrum of medical indications with its products and addresses the needs of patients of all ages from newborns to adults in the area of VAD therapy. The System EXCOR® Pediatric is the only VAD in the world approved in all of the relevant markets which was specially developed for children and is part of the standard therapy in more than

100 specialist clinics. Thus Berlin Heart is the world market leader in a very significant niche of the medical device market.

In the exploration and development of new generations of VAD systems, which feature a high degree of miniaturization as well as intelligent patient support, Berlin Heart can rely on an extraordinary technology portfolio as well as a broad international research and development network. The long-time academic and clinical partners from Berlin-Brandenburg are a special part of this network.

BIOTRONIK has been a hub of innovation since two scientists invented the first German pacemaker in 1963. Today, BIOTRONIK is the EU's leading provider of medical devices to diagnose and treat arrhythmias and other cardiovascular conditions. With over 5,600 employees active in more than 100 countries, it is also one of the top providers in the world in its field. From our headquarters and production facilities in Berlin, we are a leading contributor to Berlin-Brandenburg's strong network of research, science, and industry expertise in the healthcare field, and that network benefits us in return. BIOTRONIK headquarters is also an intercultural hub, with over 40 nationalities found among its 2,400 Berlin employees. With our challenging and innovative enterprise, we attract a highly-qualified multinational workforce. As a testament to this, nearly 50% of our Berlin employees have university degrees in fields like engineering, informatics, physics, and mathematics, while one in every five employees work in Research & Development. Today, being part of Berlin-Brandenburg is a key factor in our global competitiveness.





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## **Minimally Invasive Medicine**

The medical technology industry has become a strong pillar of the health economy in the Berlin-Brandenburg region. Around 300 medical technology companies in the region benefit, above all, from the unique research and clinical environment, and close networking between stakeholders from the areas of research, clinical and industry. The high concentration of research institutions, universities, technology parks and the more than 130 clinics are essential factors for the innovation and success of this industry.

Especially, the following medical technology fields have gained great importance in the region:

- · Diagnostic imaging
- E-health technologies/medical informatics
- Endoprosthetics
- Cardiovascular medical technology
- · Minimally Invasive Medicine

In the field of Minimally Invasive Medicine (MIM), the region can boast of global businesses.

The Berlin-based medical technology company W.O.M. WORLD OF MEDICINE GmbH (WOM) is a pioneer of Minimally Invasive Medicine. WOM has been developing and producing innovative products for surgical procedures that are as gentle on patients as possible for more than 40 years. With over 350 employees worldwide, the WOM group of companies has its own production sites in Upper Franconia, Bavaria, and serves American and Asian customers through sales offices in the United States and Hong Kong.

## **Innovations in Berlin-Brandenburg**

In a segment of MIM, namely Minimally Invasive Surgery (MIS), the trend towards ever more minimalistic and gentler techniques prevail. This means access points into the body required for surgical procedures is constantly minimized and reduced.

With the AirSeal® technology co-developed by WOM, MIS has been revolutionized. The AirSeal® produces a CO<sub>2</sub> airlock in the trocar, providing unhindered access to all instruments. The circulating gas generates a gas barrier that makes it possible to leave the trocar completely open without causing loss of pressure in the abdomen. The pneumoperitoneum remains stable in all critical surgical situations, which brings great benefits especially when using robotic MIS. Another big advantage is created through the integrated, automatic smoke evacuation.

But not only WOM appreciates the Berlin environment for the development of its innovations in the area of MIM.



Limmer Laser is currently developing a special diode laser based on the compact table device DIOLAS Photon, which allows the precise removal of tumor tissue within the kidney, ureter and bladder. Through a specially shaped light guide, the surgeon can treat targeted tangential tissue, while surrounding sensitive structures are preserved.

This method is being developed in collaboration with the University Hospital of Magdeburg and the Charité Berlin. It allows, for example, for the preservation of a patient's kidney while previous therapies often ended in removal of the organ and the patient was forced into regular dialysis.

For the company, Limmer Laser, the ongoing development of technologies such as minimally invasive open surgery is a central pillar of its business activities.

The Berlin company, XION, is also constantly working on innovative system solutions for Minimally Invasive Medicine. Since 1991, XION develops and produces devices, optics and instruments for ENT, arthroscopy, laparoscopy and hysteroscopy. Fifteen years ago, the endoscopic diagnosis and treatment of voice systems were added. Video stroboscopy units, flexible video endoscopes, and special instruments created new diagnostic possibilities and greatly facilitated phonosurgery procedures. This sophisticated overall concept made XION the market leader in this particular area of application.

Close cooperation with leading Berlin hospitals allows XION to develop practical and user-friendly system solutions. Special attention continues to be paid to a perfect combination of user-friendliness and high-image quality. The trendsetting concept of the MATRIX Spectar is exemplary for this. Based on this camera platform, future 2D and 3D endoscopy systems will feature the highest image resolution possible. Extremely thin, flexible HD video endoscopes will be part of these systems as well. The DiVAS software enables comprehensive patient documentation as well as the storage and analysis of all images, video, audio and measured data. All XION products are manufactured at its headquarters in Berlin and sold worldwide through an international branch and dealer network.

Since 2013, the endoscopy specialist and systems supplier, KARL STORZ, has strengthened its presence in Berlin substantially with the opening of a branch in the capital at the former Kaiserin-Augusta-Hospital in Berlin-Mitte. This central location in Europe and close proximity to the customer and to scientific factors, are the main advantages

As the high-tech specialist within the Olympus Group, Olympus Surgical Technologies Europe is the development and production center for endoscopy, bipolar high-frequency surgery, system integration and instrument reconditioning. With a total of 1600 employees at locations in Hamburg, Teltow, Přerov (Czech Republic) and Cardiff (Wales), we stand for outstanding achievements in diagnostics and therapy and offer a complete range of the most advanced endoscopic applications, from single products to procedure-oriented system solutions.

Our site in Teltow serves as the global development and production center for high-frequency surgery (generators). This innovative procedure employs high-frequency currents to efficiently cut and reseal tissue – at minimum strain to the patient. With a focus on efficiency and expertise, our more than 100 highly qualified professionals work in an international corporate environment that has retained the agility of a startup.

This continually expanding facility is located in Berlin-Brandenburg's unique research and clinical environment. The close network that exists between stakeholders from the worlds of research, medicine and manufacturing currently provides Olympus with an outstanding infrastructure for transforming the latest scientific findings into the medical technology of tomorrow.

André Roggan



that connect KARL STORZ with this location. Through this exchange, KARL STORZ succeeds continuously in developing innovations for the field of Minimally Invasive Surgery. The visualization technology IMAGE1 SPIES™, which significantly improves the endoscopic camera image by increasing contrast, homogeneous illumination, and hue shift, is among the latest innovations. KARL STORZ is also the leader in fully-integrated operating rooms with more than 4,000 installations. Thus, the further development of software-based medical technology systems for the integrated operating room such as KARL STORZ OR1™ is an important pillar of the Berlin branch. KARL STORZ proximity to the market is not only used for product development, but also medical education. The Berlin KARL STORZ Visitor Center has more than 5,000 visitors annually and participation in over 250 medical events.

Olympus Surgical Technologies Europe is the high-tech specialist within the Olympus Group and as such, the development and production center for endoscopy, bipolar high-frequency surgery, system integration and instrument reprocessing. With a total of 1,600 employees at the locations in Hamburg, Teltow, Přerov (Czech Republic) and Cardiff (Wales), the subsidiary of Olympus Europa SE & Co. KG represents excellence in diagnosis and therapy, offering the entire spectrum of modern endoscopic applications from products up to procedural-based system solutions.

The location in Teltow, within the Olympus Group, is the global development and production center for high-frequency surgery (HF surgery) and here, in particular, for generators and ablation. The bipolar HF technology is one of the key competencies and business fields in Teltow. Thanks to this innovative procedure, high-frequency current cuts and seals tissue efficiently and safely – with minimal stress for patients.

With the innovative THUNDERBEAT system, Olympus sets a new standard in modern tissue management. The system integrates, for the first time, the simultaneous release of bipolar HF and ultrasonic energy in a single instrument, and thus combines the advantages of the two forms of energy: reliable tissue sealing with bipolar HF energy, and fast and precise tissue dissection by ultrasonic energy. This innovative system combines speed with high patient safety.

Minimally Invasive Medicine is a global growth market. Open surgeries or large cut surgeries continue to be performed less frequently and are replaced by MIM procedures since the less invasive access techniques translate into significantly less stress for patients. The companies in Berlin-Brandenburg are now very well positioned for this. The unique scientific and clinical landscape in Berlin-Brandenburg is the driving force for businesses in the region to continue developing innovative products today and in the future.

Minimally Invasive Medicine, especially surgery, is a modern method for treating patients and an indispensable part of medical care. It significantly reduces the burden on patients and the length of their hospital stay, including the associated financial aspects. It holds great potential for the future, especially in combination with robotics for surgical technology.

The close cooperation between hospitals and companies practiced in the region allows companies to develop innovative and internationally competitive products based on the needs of the user.

The Charité, which is the largest university hospital in Europe, the Vivantes Network for Health with 9 locations in Berlin, as well as numerous scientific institutions and, last but not least, more than 10 companies in the region which are active in this area, make the region an excellent location for Minimally Invasive Medicine. Consequently, this is also a priority of the Healthcare Industry Master Plan in the area of medical technology in Berlin-Brandenburg.

**Prof. Dr. med. Ulrich Adam** Director, Vivantes Humboldt-Klinikum





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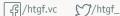
High-Tech Gründerfonds Management GmbH

Schlegelstraße 2 | 53113 Bonn

Telefon: +49 (0)228-823001-00 | Telefax: +49 (0)228-823000-50

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## **Arthroplasty**

Hip and knee arthroplasty are among the most successful operations of modern surgery with excellent long-term results and a high proportion of satisfied patients. The current challenge, however, is the increasing number of implants being received worldwide. This trend is due to several factors. Firstly, population development predictions show an increasing proportion of people aged over 60; the number of primary implants has therefore increased proportionally. In addition, patient demands have changed considerably in recent decades. The conservative treatment measures recommended in textbooks, such as weight loss, limiting the load on the affected joint and using a walker, have become increasingly less accepted in highly developed industrial countries. This has led to a change in the purpose of total hip or knee replacement. It is no longer primarily a matter of being able to walk around every day without pain, but rather to resume an active sport and continue lifestyle activities. Along with that comes the demand on manufacturers and doctors to ensure that the artificial joint implant is durable despite the higher demands placed on the prosthesis.

It is presumed that this trend will continue and that even greater demands will be made on the artificial joint and its moving parts, the bearings, in the future. Against the backdrop of these developments, the long-term results of past implant and bearing generations cannot be uncritically transferred to the population currently being treated. In the national arthroplasty registers of Sweden (2012), Australia (2014) and England, Wales and Northern Ireland (2014), it is clear that wear mechanisms on the sliding surface and the associated relaxations due to osteolysis in the hip as well as the knee replacement account for most of the complications. That is why the optimization of this "component" of a prosthesis is the focus of active efforts. A variety of paths are being studied. The first option is to optimize polyethylene, which was used almost exclusively in the past. The de-

velopment of the now third generation of highly cross-linked polyethylene not only demonstrates significant optimization of the abrasion resistance, making it more than ten times that of standard polyethylene, but also greatly improved chemical stability against oxidation processes. The addition of vitamin E, as established in the market by Biomet a few years ago, seems to be a crucial step in this optimization. Other options include optimizing the opposite sliding partner, the ball of the hip joint, which is often made of metal. By optimizing the machining processes, as Merete and AAP, for instance, have done, the material properties are closer to those of more expensive ceramic heads in terms of surface smoothness. Current clinical trials show that there is no longer a difference between modern metal and ceramic femoral heads compared to polyethylene heads.

# Clinical aspects

In clinical practice, arthroplasty is also facing major challenges. Arthroplasty operations are psychologically and physically stressful. Patients have increasingly higher expectations of elective arthroplasty. Legal disputes are on the rise as the desired, often idealized, results of an arthroplasty operation are not achieved. At the same time, there has been no increase in health insurance reimbursements to hospitals to offset the rising costs of recent years. In the United States, only 45% of all fellowships can be filled by domestic graduates, which is only one tell-tale sign that specialization in arthroplasty is losing its appeal.

The projected figures for 2030, which show a 180% increase in hip replacement operations and a more than 600% increase in knee replacement operations in the United States, as well as an increase in the number of revision arthroplasty operations, mean that we will have to overcome this challenge with intensive training, the optimization of hospital processes, and a more efficient management of economic resources in the coming years. Economists currently feel that hip arthroplasty is only available to 25% of the people that would need it. This is mainly due to technological and medical conditions along with the considerable cost of the procedure. In the next few years, this will lead to the "industrialization" of arthroplasty, which will be performed in large volumes in large hospitals by highly specialized surgeons.

## **Education and Reimburstment**

The current clinical challenge is training a sufficient number of highly qualified surgeons. Unlike many other countries around the world, especially in the English-speaking world, trainees in Germany do not receive any extra compensation. University hospitals, in particular, are no longer economically competitive under the terms of the DRG system due to this lack of compensation for trainees coupled with often more complex cases in need of treatment. The learning curve costs hit state university hospitals disproportionately hard even though, once the learning curve has been completed, the profits are "privatized" into select cases instead of being used to train other surgeons.

Educational and training programs such as the Deutsche Gesellschaft für Endoprothetik (German Society for Arthroplasty) can help to cope with the challenge of training surgeons. Companies from the region such as Biomet and Merete are among the closest partners of the Deutsche Gesellschaft für Endoprothetik. International companies that use manufacturers in the region, such as Smith & Nephew, which uses OHST in Rathenow, provide educational and training content and provide training for applying the products manufactured there. AAP offers similar opportunities for trauma surgery in Berlin.

From Berlin and Brandenburg into the world. The region offers first class opportunities to transfer product ideas into innovative products for international markets. In particular in orthopedics, the region offers a very well-structured network of research and science, clinic and industry which is unique within Europe. Short routes, clear contacts and the firm intention of all parties to reach new areas makes it possible, to think about alternative approaches that go beyond of their own industry. Translation barriers can be overcome easily. The cooperation of medical technology companies in networks like the Medtecnet ensures that the companies get a fast access to clinics like the Charitè having an interest on innovations. But even possible development partners out of other industrial areas can be found easily. Numerous institutes such as the Julius-Wolff-Institute as a biomechanical laboratory with his OrthoLoad Club, the Institute of Biomaterials in Teltow or the Technical University of Berlin together form an alliance that makes the Berlin-Brandenburg region into an internationally competitive location with numerous advantages.

Stephan Dunke
Member of the Board, OHST Medizintechnik AG



"Entrepreneurial spirit, boldness and curiosity are everywhere in Berlin. That's what makes Berlin the perfect place for creating new ideas and developing new innovations." This is how Professor Hans Georg Näder, President & CEO of Ottobock, describes the city where his grandfather established his medical technology company in 1919. Ottobock recently inaugurated the Open Innovation Space on the site of the former Bötzow brewery. Together with Fab Lab Berlin, which specializes in rapid prototyping, Professor Näder aims to recreate the spirit of Silicon Valley here in this tech-garage in the heart of Berlin. "Through this unique combination of co-working spaces, high-technology and creativity, we aim to launch a new wave of innovation in Berlin", Näder said during the opening ceremony attended by the Governing Mayor of Berlin Michael Müller and numerous guests from politics, business and media. The Open Innovation Space infrastructure will be used by Ottobock's design engineers, along with students and scientists from various academic institutions. The latter will include, among others, the TU Berlin, one of Ottobock's longtime partners, and the Design Research Lab, a research institution at Berlin's University of the Arts. Private individuals, along with startups and other companies and institutions are also invited to make use of the Space's digital manufacturing facilities. This exciting interdisciplinary mix will make the Open Innovation Space a hotbed for new, creative ideas that lead to the development of exciting inventions.

Prof. Hans Georg Näder CEO, Otto Bock HealthCare GmbH



# **Future aspects**

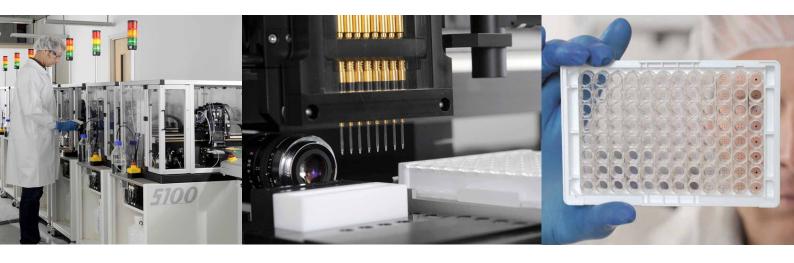
For the future, it is important to avoid undesirable developments and failures, as in recent years, which repeatedly led to arthroplasty being discussed very critically in the lay press. We must recognize that the FDA 510(k) clearance in Europe, the PMA approval in the UK, and the CE mark in Europe are all unable to prevent the certain failure of particular implants. An example of this is the "metal-on-metal crisis", which has significantly influenced the discussion in the field of arthroplasty in recent years. All implants were tested in accordance with applicable regulations, although the biological reaction to the metal particles was not predicted, among other things.

Analyses, such as for the Australian arthroplasty register from 2003 to 2008, which show that none of the newly introduced implants were better than those previously used and that a third of the implants were even worse, prove the continuing enormous need for research in this area. Again, the Berlin-Brandenburg region is well positioned. Cooperation between Charité and the Fraunhofer Institute in a future collaborative research center should be considered exemplary.



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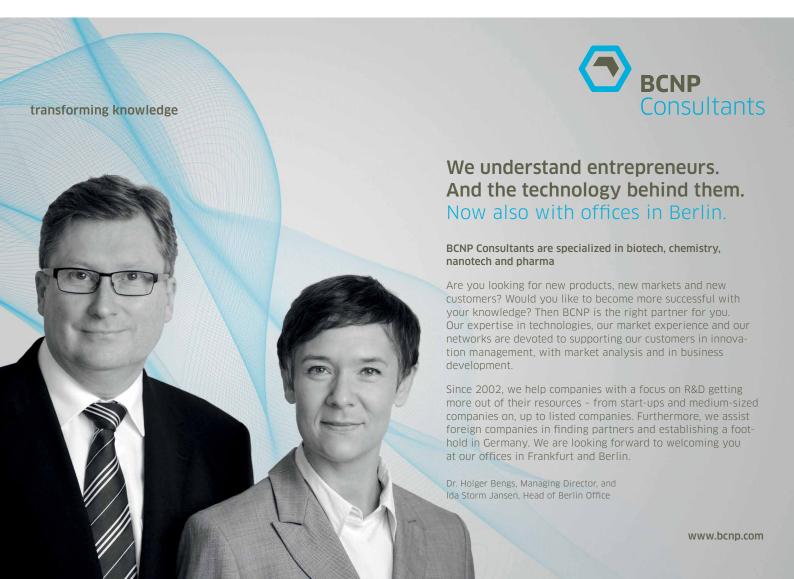
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# **Diagnostic Imaging**

A modern and informative diagnosis is part of superior qualitative and quantitative medical care before the patient is treated. In addition to determining vital signs, diagnostic imaging is an essential diagnostic element, which is conducted by means of computer tomography (CT), magnetic resonance imaging (MRI) and ultrasounds. Using ultrasounds allows tissue and structures inside the body, especially fluid-filled cavities, to be thoroughly assessed. A CT scan shows both soft areas and bone structures, while magnetic resonance tomography is especially well suited for portraying soft tissue and, unlike a CT, does not need X-ray radiation. The use of contrast agents can improve imaging. The shape of blood vessels can be displayed with the help of angiography, in particular any narrowing or closures. For this purpose, an elastic probe is inserted into the blood vessel, generally into the artery in the groin area, via a hollow needle. The probe is then moved into the blood vessel which is advanced to the desired location.

Nuclear medical methods, such as positron emission tomography (PET) and single-photon emission computed tomography (SPECT), are increasingly gaining importance. Their use combined with the previous CT and MRI methods in a single device (MR-PET) that does not require switching the patient from one device to the next is the way of the future. However, this methodology offers the possibility of generating reports on the patients' anatomical situation on the one hand, and also the physiological and pathological processes at the molecular level on the basis of glucose metabolism through radioactive contrast agents on the other. Major diseases like cancer and different forms of dementia can thus be detected very early on improving the prospects of patients. SPECT is the preferred method for diagnosing circulatory disorders, and PET for cerebral metabolic disorders, e.g. when diagnosing Alzheimer's disease or Parkinson's disease.

# **Magnetic Particle Imaging**

Magnetic particle imaging (MPI) is currently being investigated by a small number of research groups around the world as a new method of medical imaging which is initially limited to the spheres of research. This new type of imaging does not require X-rays, as is the case with magnetic resonance imaging. In addition, it offers the advantage that contrast agents based on iron oxide nanoparticles with a high level of sensitivity are immediately visible, contrary to indirect visibility due to accelerated relaxation of water molecules in magnetic resonance imaging. Quantitative imaging is therefore possible and the duration for acquiring the images is also reduced, which is particularly important, for example, for images of the beating heart.



# **Imaging in Cardiology and Neurology**

In addition to the numerous tumor diseases, medical conditions such as cardiovascular diseases and neurological disorders are of particular interest in research and the treatment of patients and are worked on as collaborative projects between science, clinics and industry.

In cardiology, the evolution of CTs and MRIs has advanced how rapidly moving coronary vessels are portrayed. The use of CT devices with two laser sources has enabled larger volumes and a higher temporal resolution to be shown. At the same time, the amount of radiation was reduced.

The most pronounced advantage of cardiac MRIs is that they combine high temporal and spatial resolution morphological and functional information together. A key benefit of MRIs compared to other imaging methods is the ability to characterize tissue, so that, for example, inflammation of the heart muscle can be recognized at an early stage and quantitatively evaluated. Studies on vessels with regard to closures (stenosis) and the nature of the vessel walls are also of major significance.

Non-invasive imaging cardiac diagnostics will continue to gain importance compared to studies on invasive cardiac catheters.

In the field of neurology, MRI, CT and nuclear medical methods are widely used. When treating a stroke, a CT scan is always preferred before a lysis is inserted into a clogged artery. For emission computed tomography SPECT (single photon emission computed tomography) and PET (positron emission tomography), radioactive labeled substances are used to illustrate the functional benefits of the central nervous system. These images show the brain in action and provide information on the metabolism of specific cerebral regions and the blood circulation. These are, as already mentioned, used in diagnosing Alzheimer's, Parkinson's and epilepsy diagnostics. They are also used in surgical planning in the field of neurosurgery.

Philips is one of the world's leading providers of medical technology and services for clinical and home use that are making significant contributions to state-of-the-art patient treatment. Philips is addressing both the challenges facing the healthcare system, such as those produced by demographic change, as well as the shifts in how healthcare is managed as a result of widespread digitization.

Our goal is to continually develop innovations that focus on people. We do this by closely collaborating with leading scientists and researchers as well as with clinical pioneers.

Berlin offers the ideal setting to collaboratively develop innovations with the potential to bring medical treatment a giant step forward. Together with the Charité - Universitätsmedizin Berlin, we recently initiated a research project on magnetic particle imaging (MPI) with key support from both the Berlin Senate as well as the Federal Ministry for Research. MPI will produce unprecedented real-time images of blood flow and pumping of the heart, thereby opening up new significant opportunities in the fields of cardiology and oncology.

In forging the path forward toward the healthcare of tomorrow, we need strong team players – which is precisely what we find in Berlin.

**Eva Braun**General Manager Healthcare DACH, Philips GmbH



# **Diagnostic Imaging - Regional Aspects**

The Berlin-Brandenburg region is among the best in the world for both "traditional" medical imaging as well as more experimental methods. More than 130 hospitals in Berlin and Brandenburg have the full range of equipment for diagnostic imaging in large amounts at their disposal with more than 109 computer tomography scanners, 70 magnetic resonance imaging scanners, 68 coronary angiography locations and 9 positron emission computed tomography scanners. With the Institute of Radiology, the Clinic and University Outpatient Department for Radiology and the Institute of Nuclear Medicine, the Charité, as the largest university hospital in Europe, is also home to the largest radiology center in Europe.

In addition to a center for preclinical small animal imaging, the doctors and researchers also have one of two scanners for magnetic particle imaging in Germany at their disposal for researching new techniques.

A key feature of medical imaging in the region is the close link between scientists who conduct fundamental research in the fields of physics, biochemistry, bioinformatics and medicine, science and industry, which is supported by active cluster management in the healthcare sector. The Experimental and Clinical Research Center, a joint research institution of the Charité – Universitätsmedizin Berlin and the Max Delbrück Center for Molecular Medicine in Berlin-Buch and the "Berlin Ultrahigh Field Facility", which has a 7 Tesla high field MRI scanner and a 9.4 Tesla MRI scanner for small animals, form a bridge between fundamental research and patient care, enabling research findings to be rapidly translated into treatment.

The Physikalisch-Technische Bundesanstalt in Berlin is involved in medical imaging through research and development of coils for magnetic resonance imaging. In addition, this facility possesses key areas of expertise in the fields of biomedical optical imaging as well as measurement and characterization methods of magnetic nanoparticles as a tissue-specific marker.

At the industry level, about 15 companies are specifically dedicated to developing and producing contrast agents and optical imaging methods in Berlin and Brandenburg.

The Berlin Ultrahigh Field Facility (B.U.F.F.) at the Max Delbrück Center for Molecular Medicine within the Helmholtz Association builds on a close collaboration with strategic partners from the Charité, the Leibniz-Institut für Molekulare Pharmakologie (FMP) and the National Metrology Institute of Germany (PTB). B.U.F.F. provides state-of-the-art infrastructure and is equipped with small animal (9.4 T) and whole-body human (7.0 T & 3.0 T) MR scanners to promote basic, translational and clinical science. Research at B.U.F.F. concentrates on the development of novel MR methodology and MR technology with a focus on new ways of mapping and probing anatomy, morphology, microstructure, function, physiology and metabolism together with explorations into the benefits of ultrahigh field (UHF) MR. These efforts are designed to spatially resolve and characterize (patho)physiological and biophysical processes. A primary goal is the rapid transition of innovations related to medical physics and magnetic resonance into diagnostic tools. To meet this goal B.U.F.F. supports major (inter)national initiatives. This involves the Imaging Network Berlin (INB), which provides an outstanding framework for basic research/clinical science collaborations along with a unique environment for interdisciplinary imaging projects including hybrid imaging (for example: MR-PET).

Prof. Dr. Thoralf Niendorf

Head of the Group Experimental Ultrahigh-Field MR, Max Delbrück Center for Molecular Medicine (MDC)





# eHealth and Telemedicine

In Brandenburg, as in many other rural areas of Germany, demographic development is characterized by an increasing proportion of older age groups in the overall population. Moreover, the bulk of the population is progressively shifting toward the Berlin metropolitan area and it has become increasingly difficult to fill many of the primary care practices being vacated due to retirement. A direct consequence of the rise in the absolute number of elderly people has been the hike in the number of cases of age-related disease. These parameters lead to the conclusion that despite the general decrease in the number of residents, a reduction in the need for medical care should not be expected. The Berlin-Brandenburg region, with its variety of geographic and demographic factors (metropolitan Berlin together with Brandenburg's rural areas), provides the ideal conditions for developing and deploying telemedicine. Telemedicine uses audio-visual communication technologies to overcome the problem of distance and thereby ensures an appropriate level of diagnosis, consultation and emergency medical services in rural areas.

# **Home Monitoring**

Particularly in the rural parts of Brandenburg lacking in infrastructure, home monitoring and ambient assisted living projects offer an excellent opportunity to counteract the increasing challenges posed by demographic change and the impending doctor shortage. Home monitoring applications allow the attending physicians to be promptly informed of clinically relevant developments – giving the physician an opportunity to pursue interventions in a timely manner and to adjust treatments as required. This type of individual, needs-based patient treatment makes it possible to save on resources and to deliver them where they are most needed.

Chronically ill patients benefit most from this approach, for instance through applications such as the tele-diabetology project at the Asklepios Klinik Birkenwerder, which uses readings taken with a mobile blood sugar monitoring device to adjust insulin dosages. Approaches like this provide those affected with the prospect of an improved quality of life and reduce the need for frequent visits to the doctor.

# Fontane – North Brandenburg's Healthcare Region of the Future

The Fontane Project is an innovative approach taken by the "North Brandenburg Healthcare Region" aimed at improving the quality of outpatient treatment of cardiovascular diseases. With the help of telemedical applications and the use of biomarker-based diagnostics it is possible to detect changes in health indicators and adjust therapies early on. Using mobile communications to transmit health indicators serves to bridge the spatial distance between patient and doctor.

# **Telemedical Center Brandenburg**

Those suffering from chronic heart failure can take advantage of the opportunity to have daily readings of the relevant parameters for assessing their state of health taken in a home setting. The data collected are sent to the TMZB for analysis. The findings are then transmitted to the treating physician, who can promptly modify treatment, where needed, based on any changes in the patient's condition. This helps avoid unnecessary hospital stays. The system facilitates the existing integrated service contract between AOK and the Brandenburg Municipal Hospital. The technical support of the project is provided by GETEMED Medizin- und Informationstechnik AG.

# **Biotronik Home Monitoring Service Center**

Through the transmission of systemic and diagnostic data updated on a daily basis, patients with pacemaker implants, defibrillators or who are undergoing cardiac resynchronization therapy can now be attended to remotely. Without the need for patient intervention, data is transmitted on a time or event-based schedule via an antenna integrated in the implant. The data collected is forwarded to a data processing center, where it is analyzed, processed and made available online to the treating physician.

GETEMED AG, founded 1984 in Berlin, has been located in Teltow since 1998. The outstanding conditions the Berlin-Brandenburg region offers – good infrastructure; access to highly trained experts; proximity to universities, clinical and scientific institutions; and the support from various economic development bodies – enable us to continually develop and launch highly innovate products and services, and also motivated us to construct our own facility in Teltow. This is where our team of 70 highly-trained specialists develops and manufactures products in the fields of vital signs monitoring, non-invasive ECG diagnostics and telemedicine, which are marketed by distribution and sales partners world-wide.

**Michael Scherf** 

CEO, GETEMED Medizin- und Informationstechnik AG



# **Telemedicine at the Hospital**

eHealth technologies can make a significant contribution toward creating networks within and between inpatient and outpatient treatment and rehabilitation facilities, making it possible to provide appropriate and affordable medical care going forward. Improved workflows at hospitals as well as doctor offices and an increased interest in more extensive documentation can, when combined with expanding networks, facilitate faster data exchange with other players. Hospitals currently employ a number of subsystems, including a variety of lab information, documentation and imaging systems. The potential this represents is huge, assuming these systems are networked with one another. Data management at the interface between the primary care physician and hospital aimed at ensuring drug therapy safety, for instance, can significantly reduce the risk of dangerous drug interactions by recording a list of the patient's prescribed medications on his or her electronic healthcare card. Another example can be found at the Trauma Hospital Berlin (ukb), which has introduced computerized listings of physician-prescribed medications at all stations by means of ID DIACOS® PHARMA. It entirely replaces paper-based prescriptions and documentation. As an integral component of a hospital information system, eMedication collects documents and checks all of the patient's medications. By providing data clarity, transparency and availability, eMedication makes a significant contribution toward ensuring the quality of stationary pharmacotherapy.

Increased networking also represents considerable potential to health insurance providers as well. Bureaucratic overhead, for instance, could be greatly reduced by using electronic means to issue certificates for work disability. The Boston Consulting Group estimates that the savings potential represented by these and other eHealth applications, including ePrescription and cross-institutional electronic medical records, are around seven billion euros annually throughout Germany.

# **Data Protection**

The advancing use of telematics infrastructure and electronic health insurance cards in daily operations will ensure a sufficient level of security in the exchange of electronic data. Along with the encryption of data and use of the electronic insurance card, a health professional identification card will be required to access data. Only by presenting both cards it will be possible to access readable data, which will also be highly encrypted and only transmitted individually. The eHealth Act, on which the telematics infrastructure is based, therefore represents a major step forward in terms of IT security in the healthcare sector.



#### Remuneration

Three years ago, the National Association of Statutory Health Insurance Physicians and the National Association of Statutory Health Insurance Funds were tasked by the Statutory Health Insurance Care Structure Act with determining the extent to which evidence-based medical services could be provided by telemedical means. Thus far, however, the results have not proven satisfactory, which is why the deadlines and sanctions provided by the eHealth Act are being directed in particular at the self-governing organizations responsible for implementation. In addition, initial remuneration models are being defined. Consequently, starting in 2016 physicians can in some cases receive separate compensation for collecting and maintaining basic data and emergency data, for switching to electronic discharge documents or for the use of teleconsultation in assessing diagnoses based on X-rays.



Remote Patient Management (RPM) for chronic diseases is an additional medical care to guideline-based primary care by general practitioners and specialists, especially for structural weak areas. In future RPM will be a form of medical and nursing care. For heart failure patients this concept is mostly advanced. With his researching industrial companies, the region Berlin-Brandenburg is one of the technology leaders in the world.

Within the research and development project "Health Region of the Future Northern Brandenburg – Fontane" (funded by the German Federal Ministry of Education and Research, Federal State Brandenburg und European Regional Development Fund) we developed in close cooperation with industrial companies a telemedical management system of the 4th generation. Due to the integrated priority rules (intelligent middleware) for incoming vital signs of patients, this system allows to manage remotely 1,000 patients during daytime and 1,500 patients during nighttime. Also further measuring instruments and parameters could be integrated into the system.

In the clinical trial TIM-HF II we are working closely together with outpatient and inpatient institutions to improve the medical care for his high-risk patients. The objectives of the trial are to prove the medical benefit regarding reduction of mortality and morbidity and the improvement of quality of life. And as a second objective, to investigate the opportunity of telemedical care to compensate differences in medical care between rural and metropolitan areas. The TIM-HF II trial is a landmark study for RPM in heart failure worldwide.

Prof. Dr. Friedrich Koehler



Head of the Centre for Cardiovascular Telemedicine, Charité - Universitätsmedizin Berlin

Healthcare Industries Cluster Berlin-Brandenburg HealthCapital							
> 20,000	Companies						
≈ 315,000	Employees						
≈ 20 billion	Euros in revenue						
≈ 30	Pharmaceutical companies with						
≈ 10,000	Employees						
≈ 240 5.000	Biotech companies with						
≈ 5,000	Employees						
≈ 300	Medtech companies with						
≈ <b>12,600</b>	Employees						

> 130		Hospitals with
> 35,0	00	Beds
in Euro		sity hospital edizin Berlin
9	Technology plife sciences	parks focusing on
≈ 35		ch facilities and f higher learning ife science
≈ <b>170</b>	Health-relate	d programs of study

# **Startups**

In the past five years, around 95 life sciences companies were founded in the Berlin-Brandenburg region. The variety of activities and initiatives has created a very special startup climate that motivates both founders and investors. The large number of startups is also a result of a critical mass of actors, activities and initiatives in the startup sector, the well-developed infrastructure and very favorable location factors. This includes the seven biotech parks that provide affordable laboratories and technical infrastructure, as well as the many scientific institutions that produce highly skilled professionals.

The large number of incubators and accelerators contributes significantly to the invigorating atmosphere that inspires and motivates founders and investors. As a company driven by innovation, pharmaceutical company Bayer supports startups so they can quickly test their innovative ideas. The CoLaborator offers young companies from the chemical and life sciences sectors suitable and fully equipped laboratory and office space in close proximity to their own research institutes. This is the company's way of promoting research and innovation as well as serving as the primary contact for startups looking for possible partners. Startups that want to rent space in the CoLaborator, remain independent. Currently, Calico GmbH, DexLeChem GmbH, provitro AG, Eternygen GmbH and NMI TT Pharmaservices are headquartered at the Berlin CoLaborator.

The universities are intensively and systematically committed to supporting spin-offs via their own startup teams as well as comprehensive programs and offers. Most startups are spin-offs from the local universities and scientific institutions. The many business plan competitions in which founders receive initial feedback on their business ideas are also an important element. One such example is the Berlin-Brandenburg business plan competition, which is one of the largest in Germany with 140 events, a network of over 200 advisors and more than 500 business plans submitted each year. The digital technology and life sciences sectors are increasingly merging, for example through web-based applications in medical fields. Berlin, with its density of IT and life sciences actors, is particularly suitable for generating new companies.

labfolder was founded in 2013 as a spin-off of the FU Berlin and is located in the middle of Berlin at CHIC, an innovation center, that offers an amazing environment for startups.

labfolder is a software, that manages laboratory data, teams, devices and other items, in order to help researchers to focus on their research. We believe that in a few years, the whole research environment will be digital, and labfolder will provide the standard to connect the entire laboratory.

With our latest financing round we are able for the further development of our software platform and for strengthen our marketing and international sales. The Berlin location offers the ideal conditions for our company. With a large number of scientific institutions and high-tech companies, we benefit from the vibrant ecosystem and the entrepreneurial spirit in this international startup capital, besides being able to attract customers and partners.

Dr. Simon Bungers
Founder & CEO, labfolder GmbH



Calico GmbH's proprietary antibody production platform is providing high-quality customized monoclonal antibodies for biomarker research and diagnostics.

Primarily founded in the San Francisco Bay Area, we decided to open up an additional subsidary located at Bayer Pharma's CoLaborator. The perfect infrastructure and close proximity to clinics, biotechs and pharma provide an ideal scientific environment that allows us to liase with new customers and closely collaborate with other companies. We found Berlin the ideal place for innovation and creating new cancer diagnostics.

**Dr. Michael Drosch**Director of Business Development, Calico GmbH



Here are some examples of recent startups and their concepts:

Berlin Cures is the first joint spin-off from Charité – Universitätsmedizin Berlin and the Max Delbrück Center for Molecular Medicine (MDC). The company's goal is to bring aptamers – short single-stranded oligonucleotides – into clinical application as a new active ingredient candidate against dilated cardiomyopathy induced by autoantibodies and other autoimmune diseases. Dilated cardiomyopathy is a chronic myocardial disease that leads to an enlargement of the heart chambers and resulting loss of function and heart failure. Currently there is no drug that treats the causes of cardiomyopathy.

*cpo* is a state-of-the-art in-vitro service provider aimed at offering high-quality, reasonably priced cell culture models complementing classical in-vivo assays using patient-derived 3D cell cultures. The company views itself as a partner for its customers, employees, scientific community and environment. Its mission is to help the biotech and pharma industries create innovative testings of novel anti-cancer drugs.

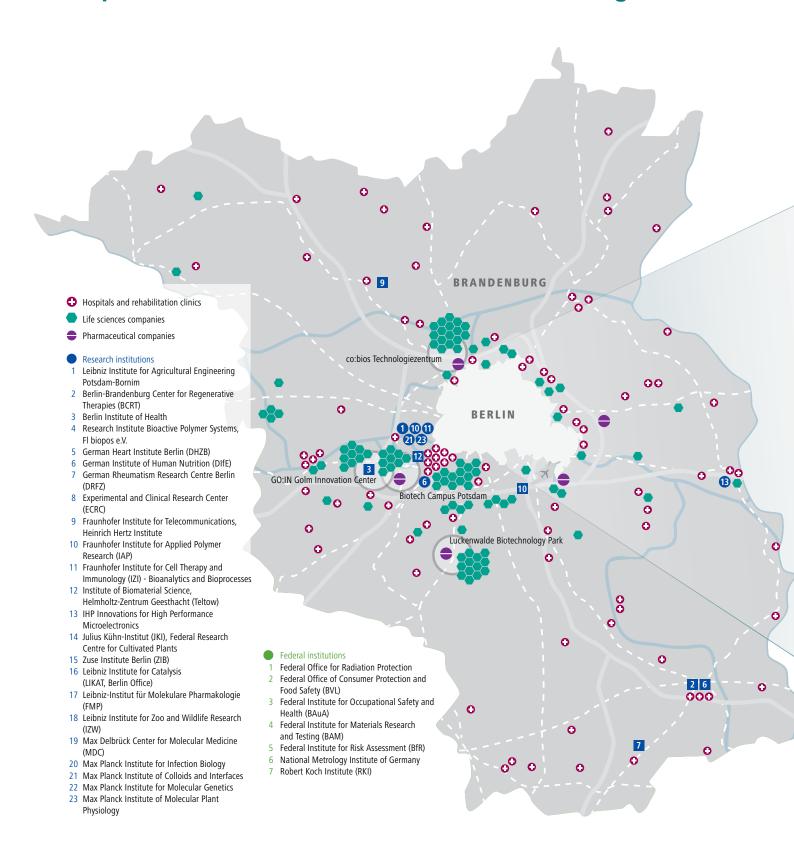
**Vaxxilon** aims to discover, develop, and commercialize synthetic carbohydrate vaccines. Vaxxilon has licensed exclusive rights to multiple preclinical vaccine candidates and additional technologies from Max-Planck Innovation GmbH, the technology transfer office of the Max Planck Society. The company is based on the scientific insights and innovation of Professors Peter Seeberger of the Max Planck Institute of Colloids and Interfaces and Gennaro de Libero of the University Hospital of Basel.

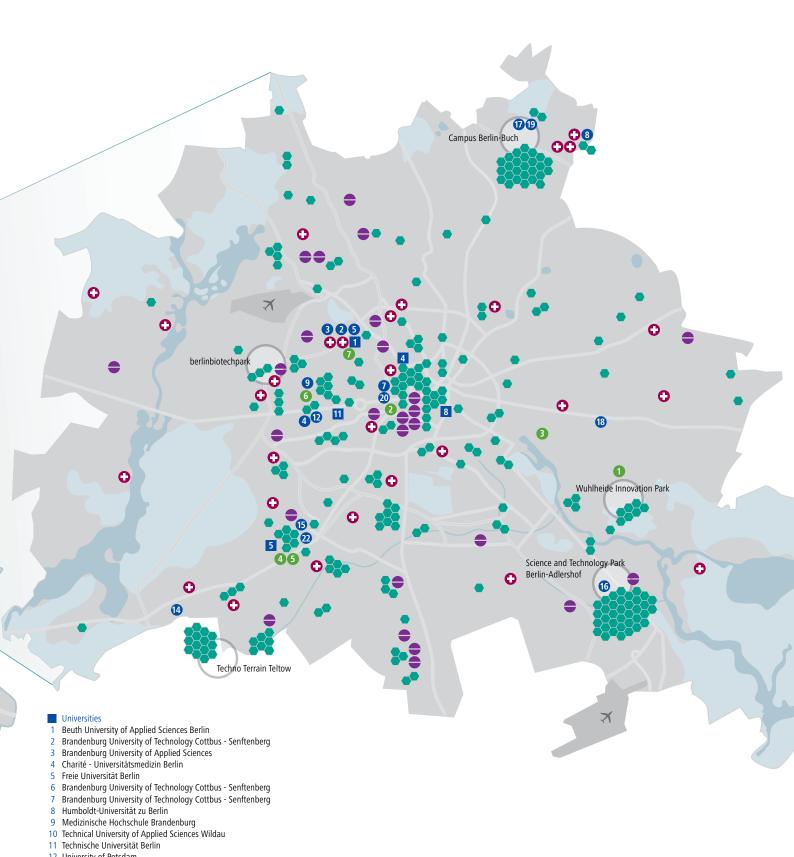
**Medianes** is a company based in Berlin that specializes in telemedicine and virtual doctor consultations. Medianes was founded for one basic reason: to provide the highest quality of healthcare to anyone in need, without the common restrictions of seeing a doctor. Medianes gives everyone in the world instant access to medicine, anywhere, anytime, and at an affordable price.

This year, the Internet platform *viomedo* started offering patients the easiest access to clinical trials and innovative treatment approaches within Germany. At viomedo, the patient is always in the foreground, with the aim of benefiting from the medicine of tomorrow, today. With its ease of use, range of current studies and contact to study centers, viomedo is the central and independent point of contact for clinical trials on the Internet.



# Map Healthcare Industries in Berlin-Brandenburg





12 University of Potsdam



# **Excellent Services for Berlin-Brandenburg**

Due to its high concentration of science and research institutions, the Berlin-Brandenburg region offers outstanding potential for technological development and cooperation. The joint Team for Inward Investment and Expansion of the Cluster HealthCapital supports the healthcare and life science industry with a full range of services, including marketing activities at national and international exhibitions. Berlin-Brandenburg stands out in the life sciences and Healthcare Industries because every segment of this sector is present here. The high concentration of international excellence facilitates interdisciplinary exchange and makes it easier to achieve new landmark developments. At the same time, the sheer number of players can make it difficult to find the right partner. The whole Cluster management team has been in direct contact with the region's companies and scientific institutions for many years and can provide quick access to the right contacts and potential partners.

We have made a conscious decision to locate our business in Berlin. This booming city offers innovative companies like SPMSD and its employees a highly attractive, inspiring environment. We are a pharmaceuticals company, and moving from our traditional location to a new one is not something we do every day. This is why the support we received for our location and funding search and employee relocation was very helpful.

Dr. Oliver Sadlek
Sanofi Pasteur MSD GmbH, Vice President, General Manager,
Germany and Austria



In 2014, Berlin Partner für Wirtschaft und Technologie supported expansion projects and provided location services to 35 companies in Berlin, which will create around 800 new jobs and produce investments of 102.2m € over the next three years. Among these are companies like Sanofi Pasteur MSD, Riemser Pharma, Calico Biolabs, Centogene, Ellex and S-Cape.

In addition, the Brandenburg Economic Development Board supported 77 investment and innovation projects in the healthcare sector. The medium-term investment volume amounts to 115.7 m €, with 328 new jobs created. The successful launch and settlement of innovative companies like MMM Medizinische Modellbau Manufaktur GmbH, Ananda Pharma GmbH and Kenomx Data Solutions GmbH deserves particular mention. Furthermore, expansion investments of resident companies Takeda GmbH and Christoph Miethke GmbH & Co. KG have also received assistance

In 2014, the Cluster's new investment team shifted its focus to intensifying contacts in Asia. For the second time in succession, a business delegation from Berlin and Brandenburg attended BioJapan and gave presentations on the Cluster to representatives from the Japanese business and science sectors. This helps cultivate initial contact with important regions, like Kobe and Osaka, which are substantively relevant in a number of different ways.

Cluster HealthCapital is also focusing on South Korea. A Medtech investor seminar was held during the KIMES (Korea International Medical & Hospital Equipment Show) in Seoul and highlighted the region's strengths. A Cluster presentation at Bio Korea likewise served to further intensify relations with the partner region of Chungbuk. Under the direction of the Korean central government, Chungbuk is to be developed into a Korean lead cluster in the field of biomedical technologies — players in Berlin-Brandenburg appear to have been predestined partners for joint R&D projects. Ongoing exploratory soundings in 2015, which were also pursued during the Bionnale, provide an example of the Cluster's managerial role at the international level.

Along with the Chungbuk region, the Commonwealth of Pennsylvania also served as partner region at this year's Bionnale. Working in close cooperation with the Charité Entrepreneurship Summit, international companies were provided with an ideal platform to highlight their special skills and to initiate partnerships with science and business in the capital region. In addition, the capital region also had opportunities to showcase itself at numerous conferences in the US, Japan and in Europe.

To support companies and scientific institutes currently located in Berlin and Brandenburg with matters relating to internationalisation, technology transfer and regulation issues, the Cluster HealthCapital organised a couple of conferences, workshops and networking events with from across Germany.

# In Berlin



# **Carolin Clement**

Head of Unit Biotech | Pharma
Berlin Partner for Business and Technology
Phone +49 30 46302-430
carolin.clement@berlin-partner.de
www.berlin-partner.de

www.businesslocationcenter.de/healthcareindustries

# In Brandenburg



#### Dr. Ute Hartmann

Head of Department

Healthcare Industries / Life Sciences

Brandenburg Economic Development Board (ZAB)

Phone +49 331 20029-250

ute.hartmann@zab-brandenburg.de

www.brandenburg-invest.com

www.brandenburg-business-guide.de/en

# **Spotlight on European Business and Internationalization**

The Healthcare Industry Cluster Berlin-Brandenburg is an active member in various networks, providing an excellent instrument to support the regional innovation-driven companies in their ambition to internationalize and grow.

Most notably the Enterprise Europe Network (EEN) provides enormous benefit to the cluster activities. In line with the objective of the Joint Innovation Strategy of the States of Berlin and Brandenburg (innoBB) of helping businesses to strengthen and enhance their competitive position internationally, the EEN supports small and medium-sized enterprises (SMEs) to find business and technology partners throughout Europe by providing information and advice on initiatives and programs of the European Union. Three partner organizations with more than 20 experts constitute the EEN Berlin-Brandenburg consortium for the European funding period 2014-2020: Berlin Partner for Business and Technology, Brandenburg Economic Development Board (ZAB) and the East Brandenburg Chamber of Commerce and Industry. The involvement in European cooperation through the Enterprise Europe Network provided a fruitful basis for internationalization of regional actors - particularly local small and medium-sized enterprises.

# Finding cooperation partners in Europe

The cooperation services of Berlin-Brandenburg's Enterprise Europe Network get companies on the right track for international research and development! Brokerage events at international trade fairs (conhIT, MEDICA, BioJapan) and international conferences (BIONNALE, Technology Forum In-vitro Diagnostics) give companies the opportunity to find suitable business and technology partners for further development and cooperation activities abroad. The network offers information and advice on international cooperation and provides tools to find project partners across the EU and selected partner countries.

# Funding of projects with international relevance

Through the European Framework Programme for Research and Innovation "Horizon 2020" and beyond, the European Union provides many interesting funding opportunities for collaborative projects with European partners. There is a multitude of suitable programs for joint research

and development activities, as well as innovation projects. Taking part in an EU-funded research project is a great way to boost a company's competitiveness. EEN Berlin-Brandenburg supports companies in finding suitable calls for proposal for their innovative undertakings and assists with the development of project ideas throughout the application process. On a continuous basis, the EEN provides informative events, seminars and gives tailor-made advice for small and medium-sized businesses and researchers.

The EEN Berlin-Brandenburg also offers a Horizon 2020 email-alert informing readers about the world's biggest joint research and innovation program. Horizon 2020 aims to boost research and innovation in Europe. Every two months the email-alert informs about news, forthcoming calls for proposals, funding priorities and conditions as well opportunities to participate. The email-alert is sent to more than 400 subscribers from the regional healthcare industry.

## In Berlin





### **Bettine Gola**

Project Manager Medical Technologies |
Enterprise Europe Network Berlin-Brandenburg
Berlin Partner für Wirtschaft und Technologie GmbH
Fasanenstr. 85 | 10623 Berlin
Phone +49 30 46302-518
bettine.gola@berlin-partner.de

# In Brandenburg





#### Dajana Pefestorff

Senior Manager International Business, European Service |
Enterprise Europe Network Berlin-Brandenburg
ZAB ZukunftsAgentur Brandenburg GmbH
Steinstraße 104-106 | 14480 Potsdam
Phone +49 331 660-3234

dajana.pefestorff@zab-brandenburg.de

# **Contacts**

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### **Biotech Parks**

## Berlin Adlershof Centre for Biotechnology and Environment

Berlin Adlershof is one of the most successful high-tech locations in Germany with focus on Photonics and adlershof.de optical technologies, material and microsystems technology, information and media technology, biological, environmental and energy technology. There are currently 25 biotech companies in Adlershof occupying 18,200 sq.m of lab and office space.

#### berlinbiotechpark

berlinbiotechpark is located on a 86,000 m² site in the very heart of Berlin, currently offering a total of approx. berlinbiotechpark.de 57,000 m<sup>2</sup> of office, laboratory and production space, with a building potential for another 45,000 m<sup>2</sup> of rental area. Offering flexible growth potential, production-orientated media equipment and comprehensive industrialspecific services and infrastructure, berlinbiotechpark is particularly attractive for growing internationally orientated technology companies.

# **Biotech Campus Potsdam**

Just a few minutes away from Potsdam's central railway station in the direction of Caputh, BIOTECH CAM- biotechcampus.de PUS POTSDAM is located on the Hermannswerder peninsula in the river Havel. It is owned and operated by BIOTECH CAMPUS POTSDAM GmbH, a fully owned subsidiary of the Investment Bank of the State of Brandenburg.

#### **Biotechnology Park Luckenwalde**

Located just 30 miles south of Berlin and 25 miles from Berlin-Brandenburg International Airport in the rural bio-luck.de district of Teltow-Flaeming, the Biotechnology Park Luckenwalde is one of the most modern facilities of its kind in Germany. It is home to 35 companies with 500 employees from Germany, USA, UK, Korea, India, Italy and Russia.

## Campus Berlin-Buch

Berlin-Buch is home to one of the largest biotechnology parks in Germany, with 31,000 square meters of scalable lab and office space for startups and maturing companies. Situated to the northeast of the city, the campus is currently home to 56 companies, 41 of which are biotech companies; the rest provide support services.

bbb-berlin de

# Co:bios Technologiezentrum GmbH

The co:bios Technology Center in Hennigsdorf offers affordable rental opportunities and a selected portfolio of cobios-technologiezentrum.de services and advice to young startups as well as medium-sized companies. Therefore Hennigsdorf is a center of excellence for life sciences, especially in the field of red biotechnology and medical technology.

## **Other Parks**

## innovationspark wuhlheide berlin

So far 196 companies have decided to locate at the Wuhlheide Innovation Park, where the creative environ- ipw-berlin.de ment and service-oriented management provide important stimuli with respect to product development and innovation. Our companies have attractive office accommodation, workshops, laboratories and service areas at their disposal. Furthermore, they also have the opportunity to acquire fully developed investment sites for the evolution of their company! The location stands for successful new businesses, growth and long-term perspectives.

#### **GO:IN Golm Innovationszentrum GmbH**

Science Park Potsdam-Golm is one of the most innovative and promising locations in Brandenburg. In the wissenschaftspark-potsdam.de; GO:IN facility, innovative companies will find an excellent working environment where they will benefit from the synergy effects of the location and the specific equipment offered by its laboratories. The location provides a wide range of services and consulting, as well as integration into the existing regional networks.

goin-potsdam.de

# Universities, Research Institutions

BAM Federal Institute for Materials Research and Testing	bam.de
Berlin Institute of Health	bihealth.org
Berlin-Brandenburg Center for Regenerative Therapies (BCRT)	b-crt.de
Bernstein Center for Computational Neuroscience	bccn-berlin.de
BfR Federale Institute for Risk Assessment	bfr.bund.de
Brandenburg University of Technology	tu-cottbus.de

Center for Microsystems Technology (ZEMI)	zemi-berlin.de
Charité - Universitätsmedizin Berlin	charite.de
Deutsches Rheuma-Forschungszentrum Berlin	drfz.de
Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik (FBH)	fbh-berlin.de
Fraunhofer Institute for Applied Polymer Research (IAP)	iap.fraunhofer.de
Fraunhofer Institute for Biomedical Engineering (IBMT)	ibmt.fraunhofer.de
Fraunhofer Institute for Open Communication Systems FOKUS	fokus.fraunhofer.de/ehealth
Fraunhofer Institute for Production Systems and Design Technology IPK	ipk.fraunhofer.de
Fraunhofer Institute for Reliability and Microintegration IZM	izm.fraunhofer.de
Fraunhofer Institute for Telecommunications (Heinrich Hertz Institute)	hhi.fraunhofer.de
Freie Universität Berlin	fu-berlin.de
German Heart Institute Berlin	dhzb.de
German Institute of Human Nutrition (DIFE)	dife.de
Hasso Plattner Institute for Software Systems Engineering	hpi.de
, , , , , , , , , , , , , , , , , , ,	helmholtz-berlin.de
Helmholtz-Zentrum Berlin für Materialien und Energie GmbH	htw-berlin.de
htw Berlin – University of Applied Sciences	
Humboldt-Universität zu Berlin	hu-berlin.de
Innovation Center for Immersive Imaging Technologies	3dinnovationcenter.de
Institute for the Reproduction of Farm Animals Schönow Inc.	ifn-schoenow.de
Institute for Thin Film and Microsensoric Technologies (IDM)	idm-teltow.de
Institute of Biomaterial Sciences, Helmholtz-Zentrum Geesthacht (Teltow)	hzg.de
Lausitz University of Applied Sciences	fh-lausitz.de
Leibniz-Institut für Analytische Wissenschaften - ISAS - e.V.	isas.de
Leibniz-Institut für innovative Mikroelektronik	ihp-microelectronics.com
Leibniz-Institut für Molekulare Pharmakologie (FMP)	fmp-berlin.de
Leibniz-Institute for Agricultural Engineering Potsdam-Bornim (ATB)	atb-potsdam.de
Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy	mbi-berlin.de
Max Delbrück Center for Molecular Medicine (MDC) Berlin-Buch	mdc-berlin.de
Max Planck Institute for Colloids and Interfaces	mpikg.mpg.de
Max Planck Institute for Infection Biology	mpiib-berlin.mpg.de
Max Planck Institute for Molecular Genetics	molgen.mpg.de
Max Planck Institute of Molecular Plant Physiology	mpimp-golm.mpg.de
MSB Medical School Berlin	medicalschool-berlin.de
Physikalisch-Technische Bundesanstalt (PTB) (Germany's national metrology institute)	ptb.de
Robert Koch Institute (RKI)	rki.de
Technische Universität Berlin (TU)	tu-berlin.de
University of Applied Sciences Berlin	beuth-hochschule.de
University of Applied Sciences Wildau	tfh-wildau.de
University of Potsdam	uni-potsdam.de
Weierstrass Institute for Applied Analysis and Stochastics	wias-berlin.de
Zuse Institute Berlin (ZIB)	zib.de

#### **Pharmaceutical Companies**

#### AbbVie Deutschland GmbH & Co. KG

ABBVie began as the pharmaceutical leader, Abbott, which was founded in 1888. Our focus is on the developabbyie.de ment of drugs with high clinical efficacy and measurable benefits for patients, particularly in areas of unmet medical need such as hepatitis C, diseases of the central nervous system, cancer, chronic kidney disease and immune system disorders. In Berlin is the capital city representative office of the company.

#### **Advance Pharma GmbH**

Contract manufacturer of solid drugs. Galenic development and admissions, analytics and microbiology, coat-advance-pharma.eu ing and granulation (organic and aqueous), compacting, packaging.

#### **ALPHAMADE GmbH**

Customized formulations as medications: parenteral feeding, intradialytic parenteral feeding, omega-3 fatty alphamade.de acids, cytostatics.

# **AstraZeneca**

We are a global innovation-driven biopharmaceutical company specialising in the discovery, development, astrazeneca.com manufacturing and marketing of prescription medicines that make a meaningful difference in healthcare. We operate in over 100 countries and our medicines are used by millions of patients worldwide. AstraZeneca was formed on 6 April 1999 through the merger of Astra AB of Sweden and Zeneca Group PLC of the UK - two companies with similar science-based cultures and a shared vision of the pharmaceutical industry.

#### Bausch & Lomb Dr. Mann Pharma

Bausch & Lomb is the eye health company dedicated to perfecting vision and enhancing life for consumers bausch-lomb.de around the world. Core businesses include soft and rigid gas permeable contact lenses and lens care products, and ophthalmic surgical and pharmaceutical products.

### **Bayer Pharma Aktiengesellschaft**

Bayer Pharma is one of the ten largest specialty pharmaceutical companies in the world and the company's bayerhealthcare.com goal is a leading market position in each of its specialist fields. With its distinctive expertise in research, the company develops new medicines and therapies which make an essential contribution toward improving patient's quality of life.

# **BERLIN-CHEMIE Aktiengesellschaft**

BERLIN-CHEMIE is a German subsidiary of the MENARINI Group. The company, which was formed in 1886 berlin-chemie.de and is headquartered in Florence, was developed over the generations to become a global, owner-managed pharmaceutical company. Research is centred on the development of innovative drugs for the following areas: inflammatory diseases and pain, cardiovascular diseases, oncology, viral disease.

#### Chemisch-pharmazeutisches Labor, Rolf Sachse GmbH

CPL SACHSE offers: Custom synthesis development of active pharmaceutical ingredients (API's); Contract cpl-sachse.de manufacture of active pharmaceutical ingredients from laboratory to kiloscale; Pharmaceutical analysis.

# Daiichi Sankyo

Daiichi Sankyo is a global pharmaceutical company with corporate origins in Japan. We provide innovative daiichisankyo.com products and services in more than 50 countries around the world. With more than 100 years of scientific expertise, our company draws upon a rich legacy of innovation and a robust pipeline of promising new medicines to help patients. Through the outstanding knowledge and commitment of our 30,000 employees worldwide, we create innovative new and generic medicines, and new methods of drug discovery and delivery. We share a passion for innovation, as well as compassion for the patients around the world who are in need of our medicines.

# Dentinox Ges. für pharmazeutische Präparate

The Dentinox Company for pharmaceutical preparations Lenk & Schuppan KG is a German inde-dentinox.de pendent family-owned company, managed in its second generation. Dentinox has more than 60 years of experience with manufacturing and marketing of medicine for children and health care products. All Dentinox preparations are characterized as special problem solutions with high innovative strength. This is a result of the highly specialized research and development capacity of Dentinox. Dentinox preparations are well proven million fold around the world.

# DR. KADE Pharmazeutische Fabrik GmbH

The company's activities concentrate on the production and marketing of drugs in the fields of gynecology, proctology, pain relief/ rheumatism and urology. The potential of proven drugs is expanded systematically by galenic developments to produce innovative products.

#### Haupt Pharma Berlin GmbH / Aenova Group

Haupt Pharma Berlin, founded in 1937 is one of the oldest pharmaceutical contract manufacturing companies haupt-pharma.de in Germany. The company today is one of the leading contract manufacturers for pharmaceutical products in Berlin-Brandenburg and since 2014 part of Aenova Group. Aenova operates 20 sites in seven countries throughout the world producing pharmaceuticals, medical devices, veterinary medicinal products, dietary supplements and nutraceuticals. The company offers to its customers the whole range of pharmaceutical presentation from development over clinical trial supplies to the production of conventional generics to high potent or sterile cytotoxic products. More than 4000 employees contribute to the group's success.

#### Heyl chemisch pharmazeutische Fabrik GmbH & Co. KG

HEYL is an independent, entrepreneurial family business that has its headquarters in probably the liveliest heyl-berlin.com German metropolis, Berlin, since its establishment in 1926. In cooperation with our international subsidiaries, the main focuses of our work are the Regulatory Affairs and marketing of medicines as well as the sale of active pharmaceutical ingredients (API's) and special chemicals.

# Klosterfrau Berlin GmbH

For more than 175 years Klosterfrau has been developing, manufacturing and marketing pharmaceutical klosterfrau.de products. The profile of traditional yet modern natural medicines has grown significantly in recent times. Based on the latest scientific discoveries combined with the development of new markets, the range is constantly being expanded with innovative products.

## medphano Arzneimittel GmbH

medphano Arzneimittel in Rüdersdorf stands for proven and cost-effective pharmaceutical preparations. Main medphano.de products are analgesics/anti-rheumatics, antibiotics, dermatics, diuretics, drugs to stimulate blood circulation, drugs for treatment of gastro-intestinal disorders, vitamins, expectorants, lipid-lowering agents, ophthalmics, cosmetics, food supplements, diet foods and foods.

#### Merz GmbH / Potsdam

Merz is an independent international pharmaceutical company with its own research and development. Core merz.de competences are medical and aesthetic dermatology and neurological movement disorders.

# **MUCOS Pharma GmbH & Co.KG**

As a specialist in enzyme preparations Mucos supplies a steadily growing market with specific and variably mucos.de dosed enzyme combinations. The company leads the world market in oral enzymes for therapeutic purposes.

#### **NextPharma Berlin**

NextPharma Berlin is specialised in the development, manufacturing and packaging of beta-lactam antibiotics nextpharma.com with a dedicated production area for pencillicin containing solid oral forms, as well products containing combined amoxicillin and clavulanic acid. The Berlin site is served by its own warehouse with high-rack storage. In addition, development services are offered for beta-lactam antibiotics, from development of new products, transfer of production, commercial supply to stability studies.

# Pfizer Pharma GmbH

The German headquarters of Pfizer Deutschland GmbH hosts the following businesses: Human Health, Conpfizer.de sumer Healthcare and Animal Health as well as Communication and Human Ressources. In addition, the Oncology unit covering the regions Europe/Africa/Middle East & Greater China and Asia Pacific is headed in Berlin.

# **Pharma Action**

Pharma Action has extensive expertise in global pharmaceutical marketing and manufacturing since 1988 and pharma-action.com offers cutting edge API solutions to the pharmaceutical industry in Europe and abroad.

## PharmaMar GmbH

PharmaMar is a biopharmaceutical subsidiary of Grupo Zeltia; it is a world leader in discovering, devel-pharmamar.com oping and marketing marine-based drugs to treat cancer. Yondelis® is the first marine-based antitumour drug. PharmaMar has four other compounds in clinical development: Aplidin®, Zalypsis®, PM01183 and PM060184. PharmaMar also has a rich pipeline of pre-clinical candidates and a major R&D programme. PharmaMar GmbH, the German subsidiary, was officially established in November 2013 in Berlin.

# **RIEMSER Pharma GmbH**

RIEMSER Pharma is a growing European and globally active specialty pharmaceutical company, which mar-riemser.com kets and distributes pharmaceuticals in selected therapeutic areas with high unmet medical needs. RIEMSER is a modern European platform for the marketing and sales of specialty pharmaceuticals and is an ideal partner for innovative pharmaceutical companies.

# Sanofi Pasteur MSD GmbH

Sanofi Pasteur MSD is a joint venture between Sanofi Pasteur (the vaccine division of Sanofi) and Merck spmsd.de (known as MSD outside the United States and Canada), formed in 1994 for 19 European countries. We are dedicated to the highest level of scientific excellence and quality standards in developing, producing, delivering and monitoring vaccines.

#### Sanofi-Aventis Deutschland GmbH

Sanofi-Aventis is a leading global pharmaceutical company based in Paris and operating in over 100 countries. sanofi-aventis.de R&D teams work on a global approach to patients, offering innovative therapeutic strategies in thrombosis, cardiovascular diseases, diabetes, vaccines, oncology, the central nervous system disorders and internal medicine.

#### Shire Deutschland GmbH

Shire's strategic goal is to become the leading specialty biopharmaceutical company that focuses on meeting shire.de the needs of the specialist physician. Shire focuses its business on attention deficit and hyperactivity disorder, human genetic therapies and gastrointestinal diseases.

## Spreewälder Arzneimittel GmbH

Spreewälder Arzneimittel is a contract manufacturer of drugs, veterinary drugs, food supplements, diet foods spreewaelder-arzneimittel.de and cosmetics in liquid, semi-solid and solid administration forms.

# Steiner & Co. Deutsche Arzneimittelgesellschaft mbH & Co. KG

Production and marketing of pharmacy and prescription drugs, particularly plant-based drugs (tranquillizers, steinerarznei-berlin.de rheumatism drugs, bile duct and gastro-intestinal as well as gynecological and urological drugs), analgesics and mineral preparations.

#### Steripharm Pharmazeutische Produkte GmbH & Co. KG

Production and marketing of folic acid products.

steripharm.de

#### Takeda GmbH

Takeda is Japan's and Asia's largest pharmaceutical company and among the leading global companies of its takeda.de branch, represented in more than 70 countries. Takeda committed itself for a better health care of patients all over the world by innovations in medicine. Its therapeutical core areas are metabolic, cardiovascular, inflammatory, immune and respiratory diseases, diseases of the central nervous system, oncology, gastroenterology and pain.

#### Teva GmbH

Teva in Germany is the leader in generics and an expert in innovative brand business. The German head- teva.de quarter is located in Ulm. Patent-protected medicines from the fields of neurology, oncology, pain management and respiratory diseases are marketed by Teva Specialty Medicines in Berlin. Teva Specialty Medicines' primary area of success is neurology. The first product to be come from the company's own development facility contains the active ingredient glatirameracetate and is the market leader among drugs used to treat multiple sclerosis. Another product from Teva's own research laboratories, is a standard in the treatment of Parkinson's disease.

## **Contract Manufacturers**

#### **Advance Pharma GmbH**

Contract manufacturer of solid drugs. Galenic development and admissions, analytics and microbiology, coat- advance-pharma-berlin.de ing and granulation (organic and aqueous), compacting, packaging.

# **ALPHAMADE GmbH**

Customized formulations as medications: parenteral feeding, intradialytic parenteral feeding, omega-3 fatty alphamade.de acids, cytostatics.

# Ayanda GmbH

Ayanda is an innovative business partner and manufacturer of consumer ready pharmaceuticals and food ayanda.com supplements. In Pritzwalk, Brandenburg, the company has a pharmaceutical soft gel encapsulation plant.

# Chemisch-pharmazeutisches Labor, Rolf Sachse GmbH

CPL SACHSE offers: Custom synthesis development of active pharmaceutical ingredients (API's); Contract cpl-sachse.de manufacture of active pharmaceutical ingredients from laboratory to kiloscale; Pharmaceutical analysis.

## Haupt Pharma Berlin GmbH / Aenova Group

Haupt Pharma Berlin, founded in 1937 is one of the oldest pharmaceutical contract manufacturing companies haupt-pharma.de in Germany. The company today is one of the leading contract manufacturers for pharmaceutical products in Berlin-Brandenburg and since 2014 part of Aenova Group. Aenova operates 20 sites in seven countries throughout the world producing pharmaceuticals, medical devices, veterinary medicinal products, dietary supplements and nutraceuticals. The company offers to its customers the whole range of pharmaceutical presentation from development over clinical trial supplies to the production of conventional generics to high potent or sterile cytotoxic products. More than 4000 employees contribute to the group's success.

#### **Pharma Action GmbH**

Pharma Action has extensive expertise in global pharmaceutical marketing and manufacturing since 1988 and pharma-action.com offers cutting edge API solutions to the pharmaceutical industry in Europe and abroad.

#### Spreewälder Arzneimittel GmbH

Spreewälder Arzneimittel is a contract manufacturer of drugs, veterinary drugs, food supplements, diet foods spreewaelder-arzneimittel.de and cosmetics in liquid, semi-solid and solid administration forms.

# **Contract Research Organisations**

#### analyze & realize ag

analyze & realize ag is a leading CRO and consulting firm, which primarily give complete advice and guidance analyze-realize.com to companies in the natural products sector.

#### **Allied Clinical Management GmbH**

The CRO has broad experience in monitoring and managing phase I to phase IV clinical trials including advanced therapy medicinal product (ATMP) trials as well as in accompanying and conducting medical device trials and post-marketing surveillance.

allied-clinical.com

#### **Assign International GmbH**

Assign International in Berlin is part of the Assign Group, a mid-sized full-service CRO with six offices in five assigngroup.com countries.Our expertise meets development requirements of pharmaceutical and biotechnological industries. We manage clinical trials from study set-up to final clinical report. Our services, among others, comprise Data Management and Biostatistics, integrated EDC-Systems, Pharmacovigilance, Protocol Writing, Laboratory Services and Quality Management.

#### **BLS Preclinical Services**

BLS Preclinical Services is a contract research organization (CRO) located in Berlin. BLS provides a range of bls-germany.com highquality and integrated preclinical services in animal models. Through our highly skilled scientific partners we provide a "one-stop" service and tailored solution. We take the time to understand your business needs and provide comprehensive tailored solutions either in-house or in co-operation of our network. We are backed by a highly skilled scientific team with a wealth of experience in all disciplines of preclinical development.

# **CBR Biotech Strategies GmbH**

CBR International Corporation is a global, full-service product, clinical, and regulatory compliance develop- cbrintl.com ment group dedicated to providing comprehensive consulting services. We understand commercial pressures and regulatory constraints of biopharmaceutical product development and offer full support and guidance to all of our clients. Our experienced staff and consulting affiliates offer detailed and strategic services to members of the biotechnology, pharmaceutical, and device industries worldwide.

# **Charité Research Organisation GmbH**

Based in Berlin, the Charité Research Organisation (CRO) was founded in collaboration with Berlin's famous charite-research.org Charité University Hospital. This relationship fosters a level of cooperation with centers of clinical excellence that we think is unique in the industry. The CRO offers a whole new approach to the concept of partnering with centers of clinical excellence to facilitate access to patients, clinical expertise and specialist methodologies in support of early clinical development programs.

#### Cooperative Clinical Drug Research and Development (CCDRD) AG

CCDRD is an independent contract research organization (CRO). CCRDR is dedicated to offer creative and ccdrdag.com innoative full service from planning to market authorization to its customers in the pharmaceutical, biotechnological and medical device industry.

# CSG Clinische Studien Gesellschaft mbH

Since its foundation in 1998, the CSG Clinische Studien Gesellschaft mbH has focussed on aligning clinical csg-germany.com research with public health demands, with special attention to facilitating access by physicians and patients to clinical studies.CSG cooperates closely with the largest research institute for public health in Germany, the IGES Institut.

# Dr. Notghi Contract Research

Dr. Notghi Contract Research GmbH is a service provider for large, medium and small-sized companies in notghi.com the pharmaceutical, generics and biotechnology industries. We support and advise you in the conduct and management of national and international projects.

#### **ICON Clinical Research**

ICON is a global provider of outsourced development services to the pharmaceutical, biotechnology and medi- iconplc.com cal device industries. They specialise in the strategic development, management and analysis of programs that support Clinical Development - from compound selection to Phase I-IV clinical studies.

#### Klinische Forschung Berlin GbR

Klinische Forschung Berlin is a study centre that implements clinical studies from phases IIA to IV for the klinische-forschung-berlin.de pharmaceuticals industry.

## Klinische Forschung Gruppe Nord GmbH

The Klinische Forschung Gruppe Nord (Clinical Research Group North) is a network of independent investiga- kfgn.de tor institutes with five centres in Northern Germany, two of them in Berlin. The Klinische Forschung Gruppe Nord has carried out trials with up to 250 patients. Phase II and III studies are the core competence. The test centres have altogether 30 overnight accommodation places for phase I and IIa studies.

#### Lampe & Company GmbH & Co. KG

Lampe & Company is a consulting firm specialized in multidimensional analysis of biomedical literature for lampeandcompany.com evidence-based decision making. Our team of experts combines industry expertise with our unique L-Matrix Method and exclusive L&C relational database to deliver critical information to leading decision makers of pharmaceutical, life sciences, and medtech companies.

#### **LINK Medical GmbH**

LINK Medical is a full-service contract research organization (CRO). We provide services for clinical trials, linkmedical.no regulatory affairs, pharmacovigilance, health economics and quality assurance for the pharmaceutical and medical device industry and aim for accelerating our customers' product development.

#### **MEDIS RESEARCH GROUP**

MEDIS RESEARCH GROUP is a partnership of clinical research services providers with a joint mission to medis-research.com combine clinical research expertise and provide complete service solutions across all stages of the clinical development process.

#### **OSMUNDA Medical Device Service Group**

OSMUNDA is the largest Chinese clinical trial CRO and service provider for the medical device and in-vitro osmundagroup.com diagnostic industry. Over 2000 international clients have entrusted our expertise in regulatory affairs, clinical trials and industrial distributor/supplier resources to achieve their business goals.

### **PAREXEL International GmbH**

The German subsidiary of the US clinical research organization PAREXEL employs more than 1,400 people in parexel.com Berlin. In two units with a 160-bed capacity (incl. 8 sleep lab beds) and an annual enrollment of approximately 2,500 volunteers in Berlin, more than 75 clinical studies are performed each year.

## **PharmaLex GmbH**

PharmaLex is one of the leading service providers in the International pharmaceutical business. The compharmalex.com pany is dedicated to the development, registration and marketing authorization, market access and product maintenance of medicinal / biotechnological products and medical devices, worldwide. The corner stones of PharmaLex' successful co-operation with companies of all sizes and specializations are very high quality of work, reliability, efficacy, flexibility and anticipatory strategic planning.

# Sacura GmbH

Sacura is a full-service contract research organization granting a high level of quality (FDA approved), flexible sacura-cro.com structures and qualified staff.

# syneed medidata GmbH

syneed medidata GmbH is an independent, privately owned, contract research organization (CRO) that has medidata.de been providing end-to-end services for phase II to phase IV clinical trials and for observational studies for more than 25 years. Since 1995, we have also excelled in trials involving medical imaging (oncology, neurology, radiology) and in trials with medical devices.

# WITEGA Laboratorien Berlin-Adlershof GmbH

WITEGA Laboratorien Berlin-Adlershof GmbH is a medium-sized company specializing in the realization of auftragssynthese.com organic customer syntheses. Our customers are companies from the chemical and pharmaceutical industries as well as from other technology fields. The main focus of our activities is the lab-scale custom synthesis of organic building blocks, intermediates and target structures and of isotope-labeled compounds (D, 13C, 15N) for chemical and pharmaceutical research and development. The company is also a supplier of analytical standards for residue analysis (especially in veterinary medicine).

# **Biotech Companies**

#### 3B Pharmaceuticals GmbH

3B Pharmaceuticals GmbH (3BP) is a privately held pharmaceutical R&D company based in Berlin, Germany. 3b-pharma.com The company is dedicated to the development of peptide-based pharmaceutical and diagnostic products. 3BP is pursuing projects in hemophilia and nuclear medicine.

#### 8sens.biognostic GmbH

8sens.biognostic develops, produces and sells rapid tests (lateral-flow) and ELISAs for different markets biognostic.de (human and veterinary diagnostics, food control). Our products are the QuickSens®-tests for h-FABP, Tropl, CRP and hs-CRP and the Reader for quantification QuickSens®OMEGA. Development-on-demand, feasibility studies and production-on-demand are also offered.

#### **ABITEP GmbH**

The ABiTEP GmbH is working in development and production of biotechnological products for sustainable abitep.de agriculture. The team of ABiTEP works for development of non GMO customer specific technologies in laboratory scale and scale up with modern equipment and Know how. Capacities for fermentation up to 5.000 L, down stream equipment as well as freeze drier with capacity of 90 L are available for services. A molecular biology lab is available for basic science.

#### **Accelero Bioanalytics GmbH**

Accelero® Bioanalytics GmbH is a biotech CRO focussing on GxP compliant bioanalytical ligand binding assays. The company supports PK and PD preclinical/ clinical drug development on microRNA, miRNA, siRNA, aptamers, plasmid APIs, antisense drugs, as well as peptide hormones, biosimilars, antibody therapeutics, or cell-based therapeutics (ATMP). The Applied Biosystems Viia7 real-time qPCR system with IVD label for human Dx operates in full compliance to Good Laboratory Practice (GLP).

#### **Acuros GMBH**

Development of osmotic micropumps for medical or microfluidic applications. The innovative technology enables new options in liquid handling - from disposable micropumps for drug delivery to precision micropumps for lab-on-a-chip development.

# **Adrenomed AG**

Development of biologics against severe sepsis.

adrenomed.com

# **Aevotis GmbH**

The core competencies of aevotis lie in the targeted conversion of simple carbohydrate containing substrates aevotis.com (e.g. agricultural by-products, waste streams, inexpensive sugars) to high-value carbohydrate based products, their characterization, processing and testing. Marketable products include novel /optimized enzymes, expression systems, &nbsp, specialized biotransformation and down-stream processes, customized oligomers and polymers for food and non-food uses.

#### **AFOSA GmbH**

Development, production and marketing of diagnostics (ELISA kits), primarily for use in veterinary medicine.

afosa.com

## **Aglycon Mycoton GmbH**

Aglycon Mycoton GmbH is active in the research, development and application of biopolymers as well and aglycon-mycoton.net their manufacture and the sales and marketing of products based on these.

#### AJ Innuscreen GmbH

The AJ Innuscreen GmbH is a young life science company working in the field of biotechnology and boosts the life science unit of Analytik Jena AG. Innovative technologies and products are developed and produced for the isolation and purification of nucleic acids. Reagent systems for molecular biology, as well as technologies and products for molecular diagnostics, are also included in the product portfolio. The company is EN ISO 9001:2008 and EN ISO 13485:2003 + AC:2009 certified.

aj-innuscreen.de

# **Alacris Theranostics GmbH**

Alacris Theranostics GmbH is a company based in Berlin specialised in developing new approaches in personalised medicine for cancer patient diagnosis, treatment and drug stratification. Alacris is applying a systems biology approach that has been developed in the Department of Prof. Lehrach at the Max Planck Institute for Molecular Genetics and is exclusively licensed as  $\mathsf{ModCell^{TM}}$  to Alacris.

#### **Alcat Europe GmbH**

Alcat Europe GmbH is the daughter of the US company Cell Science Systems, the original developer of the alcat-europe.com Alcat test technology. The company is specialized to identify intolerant reactions of the leucocytes to foreign substances like foods, drugs or chemicals.

#### **Algenol Biofuels Germany GmbH**

The company focuses on the biotechnological use of cyanobacteria, especially the development and optimiza-algenol.com tion of cyanobacteria for the production of environmentally friendly biofuels and chemical feedstocks.

#### **ALRISE Biosystems GmbH**

ALRISE is a drug delivery company that specializes in the nano- and micro-encapsulation of active ingredialrise.de ents. Using its globally patented ImSus® technology, ALRISE are developing parenteral deposit pharmaceutical forms for proteins, peptides or small molecules. Customers are mainly large pharmaceutical companies who are developing improved administration forms for active ingredients whose patents are expiring together with ALRISE as part of their "Product Lifecycle Management".

### **Amal Therapeutics S.A.**

Amal Therapeutics S.A. is a Swiss biotech startup company and spin-off from the University of Geneva with amaltherapeutics.com a subsidy in Berlin. Amal uses its proprietary cell penetrating peptide platform to develop and progress therapeutic vaccines in oncology.

# **Amocol Bioprocedures Ltd.**

Amocol Bioprocedures Ltd. is a life science research & development and manufacturing company headquartered in Germany. Our mission is to supply innovative affinity chromatography media products and protein purification tools for research scientists and clinical customers in public sector institutes and industry.

#### AnaKat Institut für Biotechnologie GmbH

AnaKat Institut für Biotechnologie GmbH has specialized on analytical determination of pharmaceutical ingredients.

## **AnalytiCon Discovery GmbH**

AnalytiCon is a biotechnology company focusing on the development of compound libraries consisting of ac-discovery.com natural product (NP) and synthetic small molecules. As the global market leader in NP small molecule screening compounds, AnalytiCon is the only company which is able to provide vast collections with completely disclosed structural information. As a pure compound provider the company is offering its products and services to the pharmac., chemical, biotech, cosmetical and nutraceutical industry.

## Analytisches Zentrum Biopharm Berlin GmbH

Analytisches Zentrum Biopharm GmbH Berlin is a contract research organization providing services on phar- analytisches-zentrum-biopharm.de maceutical analysis and bioanalysis for active compounds in the dosage form, for the quantitative determination of analytes in a biological matrix and also the determination of physicochemical parameters of chemicals according to OECD guidelines. AZB carries out these services in compliance with GLP and GMP and has the GLP certificate.

## AnaTox GmbH & Co. KG

The AnaTox GmbH & Co. KG deals with the development and optimization of analytical methods and devices anatox.de for HPLC and dissolution.

### **ANIMOX GmbH**

Development of applications for the use of natural peptide / amino acid mixtures in chemistry and biotechnology, f.i. as a scavenger material in formaldehyde bounded formulations, foaming or hydrophobic Tensid compounds or as a N-source in biotechnological fermentation processes, distribution of a technology for the production of such basic materials from raw and residual materials.

#### **Aokin AG**

Aokin AG is a Berlin biotechnology company that is specialized in the development and commercialization of aokin.com innovative analytical systems on the base of the rapid kinetic assay technology. The aokin systems are unique in their precision and operating speed. Areas of application are food and antibody analytics as well as clinical diagnostics. We also offer laboratory services in the area of food analytics, Pharmacoanalytics and chemical

### **ARGUS Umweltbiotechnologie GmbH**

ARGUS is a medium-sized company. Since 1987 ARGUS works on the field of remediation of contaminated argus-umwelt.de groundwater, soil, waste water and waste air. ARGUS is able to elaborate a specific remediation program in each different pollution case considering economic aspects beside ecological aspects. All necessary treatment steps can be planned and carried out. The combination of microbiological steps with classic processes leads to a successful remediation of complex contamination.

# **Artemiflow GmbH**

Artemiflow is a spin-off from the Max Planck Institute of Colloids and Interfaces (MPIKG). By the industrial use artemiflow.com of an international patent held by MPIKG, Artemiflow uses a new process to produce Artemisinin from dihydroartemisinic acid (DHAA). DHAA is available in abundance in the waste of the current production process for Artemisinin.

#### **ASCA GmbH Angewandte Synthesechemie Adlershof**

ASCA is a partner for contract research in the field of medicinal chemistry. The synthesis and optimization of asca-berlin.de lead structures, the development of new active structures and their check on a laboratory scale are offered. We take a lot of care on working out the synthetic schemes, rapid preparations and exact analysis of the samples. All our results are carefully documented for our customers. Access to literature databases and inhouse analytical facilities are available.

#### Astra Biotech GmbH

Astra Biotech GmbH offers high quality reagents, allergens, antibodies, recombinant proteins, and assays for astrabiotech.de the determination of hormones, allergies, tumour markers and infectious diseases. Quality is one of the key cornerstones on which Astra Biotech maintains its reputation and with which we strive to increase customer satisfaction and gain growing customer loyalty. We take great pride in our highest quality assays, which are all IVD compliant and therefore suitable for direct, accurate and reproducible diagnostic purposes, as well as for research.

#### **ATLAS Biolabs GmbH**

ATLAS Biolabs GmbH is a leading provider of microarray based genomic services such as genome wide gene atlas-biolabs.com expression and SNP analysis, CGH analysis and diagnostic services for registered doctors and hospitals, as well as for pharmaceutical, biotechnological and diagnostic enterprises.

#### Attomol GmbH Molekulare Diagnostika

The company's aim is to develop, produce and distribute medical diagnostics for human medicine in the field attomol.de of molecular genetics, infectious and autoimmune diseases.

#### AudioCure Pharma GmbH

AudioCure Pharma focuses on the development of drug candidates, in particular on neurological disorders of audiocure.de the ear, including noise-induced hearing loss, ototoxicity, age-related hearing loss and tinnitus.

#### **AutoTissue GmbH**

The company is engaged in the development, production and marketing of medical devices for cardiovascu- autotissue.de lar surgeons. The products are specially made for the patients and have less side effects. The first certified product was a pulmonary heart valve (Matrix P) for the right ventricular outflow tract reconstruction (RVOT). The second product is also a heart valve which considerably shortens the operation time (Matrix P plus). Meanwhile a complete glutaraldehyde free valve is available called Matrix P plus N.

#### **Avitop GmbH**

Avitop is focusing on probiotics and food concepts with specific health indications. Based on the highest sci-avitop.de entific standards, we develop a new generation of probiotics and food with unmet specific functions. We deliver the food industry with new and specific solutions for actual and future health challenges facing modern society.

#### **Bbi-biotech GmbH**

In the focus of the activities of bbi-biotech lie systems for the sterile sampling from bioreactors for all applica-bbi-biotech.com tions in the biotechnology, pharmaceutical, food, cosmetics and chemical industry. In addition, bbi-biotech develops components - in especially disposable ones - for the preparation of a new generation of fermentors and bioreactors and offers consulting and planning services for biotech projects, its implementation and services.

# **BEB BioEnergy Berlin GmbH**

Planning, Design, Construction, Supervision and Implementation of Biogas/Hydropower plants, Preplanning, bebgmbh.de Feasibility Studies and Research activities in the field of renewable energies, Optimization of the process in existing biogas plants.

## **Berlin Cures GmbH**

The company's goal is to bring aptamers as new drug candidates against autoantibody-induced dilated car- berlincures.de diomyopathy and other autoantibody-associated diseases into the clinical application.

# **BG Berlin-Genetics GmbH**

BG Berlin-Genetics GmbH is a new provider for genetic diagnostics and consulting in genetic diagnostics. We bg-berlin-genetics.de are a team of experienced human geneticists and have worked for many years in the field of human genetic science and human genetic diagnostics. Our aim is the development of innovative cooperation concepts, to connect classical patient-based medical care centers with modern technology-based service centers. In future, these cooperation forms will enable efficient, high quality, and patient-based genetic diagnostics.

# **Bioanalyt GmbH**

Bioanalyt develops and distributes the worldwide first easy-to-use and portable test kits for the analysis of vita- bioanalyt.com mins and micro nutrients. The iCheck-iEx test kits enable food producers, food authorities and NGOs to monitor their ongling food programms more efficiently and at low-cost. The company was founded in 2006 by Prof. Dr. F. J. Schweigert as a spin-off of the University of Potsdam. Read more on our website www.bioanalyt.com.

#### **Bioassays GmbH**

Service related to the development of medical in vitro-diagnostic products. Basic science to clinical developbioassay-online.de ment. Profiling of biomarkers in clinical trials.

#### **Biochrom AG**

Biochrom is Germany's largest manufacturer of cell culture products (media, sera, and others) and sterile biochrom.de liquids. They are distributed to universities, industrial cell culture laboratories and industrial manufacturers. Service is of special significance for users of cell cultures. Special media developments and production optimizations are offered.

## BIOCYC Gesellschaft für Biotechnologie und Recycling mbH & Co.KG

Production of bio-chemicals, peptides, in vitro-diagnostics, test-kits. Development of consumer service for quartett.com peptides and biochemicals.

#### **BioGenes GmbH**

BioGenes is a full service immunoassay and antibody (monoclonal and polyclonal) development company biogenes.de with outstanding problem solving capabilities specializing in challenging projects that are carried out by an exceptionally experienced and interdisciplinary team.

#### **Bioline GmbH**

Our mission is to provide customers with a range of products which are fast and easy to use, guaranteed to bioline.com work and developed by scientists who understand what our customers are trying to achieve so they can focus on their scientific goals. Bioline reagents are used by molecular biologists and other research scientists to perform test-assays and research in many fields from medical, biotechnology and marine biology.

#### **BioMedion GmbH**

IT-Service for all GxP-Regulatory Tasks Data- and Document Management, Long-Term-Archiving and Digital Signature, SOP-Management, CAPA, Raw Data Management, Consulting for Validation of Computerized Systems according to GAMP4/5.

biomedion.com

#### **Biopract GmbH**

Service and Additives (enzymes, trace elements, microbes) for biogas and waste water sludge treatment. dsmbiogas.com Enzyme analysis in agriculture industry Contract reserach feed additives.

#### Biorefinery.de GmbH

Based on main precursors of plants, carbohydrates in kind of sugar, starch and cellulose, and proteins, the biorefinery.de company has developed four complex product lines (Biorefinery systems) which leads to a great number of valuable products with the help of chemistry and biotechnology.

biorefinerv.de

## **BioRepro GmbH**

BioRepro is the first pharmac. company, whose core competency is the breeding of leeches under controlled biorepro.de laboratory conditions for medical therapies. We concentrate on the establishment of GMP breeding procedures and will be able to provide leeches with standardized quality while equally allowing scalability to supply medical demand. Additionally, through the re-initiation of fundamental research, we will gain deeper understanding of further potential in medical and cosmetic treatment areas.

### **BioS Biotechnologie Schönow GmbH**

Embryo transfer and associated biotechnologies in animals. Service, training and research in this field.

bios-schoenow.de

#### BIOSYNTAN Gesellschaft für bioorganische Synthese mbH

BIOSYNTAN offers the custom synthesis of standard peptides, the synthesis of modified peptides (e.g. glycobiosyntan.de and phosphopeptides, dye labeled peptides) and hapten modifications for the conjugate synthesis. In cooperation with BIOGENES GmbH Berlin we offer poly- and monoclonal antibodies.

## Biotech-Laboratorium für Environment BLE GmbH

Development of detection systems which are able, economically and rapidaly, to detect oil contaminations mobiclup.de and industrial oil waste, in soil and in water and their biological depletion. The BLE GmbH is concerned with the biological degradation of oil contaminations and the development of a set of bio-preparations consisting of different bacterial strains which break down oil.

#### biotechrabbit GmbH

biotechrabbit GmbH is determined to offer the newest and best life science products and innovative solutions biotechrabbit.com to scientists leading the fight againstdisease and fueling our lives with innovations. We supply ultra pure enzymes and high-quality antibody services for diagnostics and a life science product portfolio (including reagents for PCR and nucleic acid purification) for molecular biology and proteomics. The biotechrabbit advantage is our combination ofpassion for excellent research with the agility of true entrepreneurship.

#### **BIOTECON Diagnostics GmbH**

BIOTECON Diagnostics has been well known as a qualified partner in the field of molecular and microbiol- bc-diagnostics.com ogy for the last 13 years. We focus on development, production and marketing of PCR-based rapid detection systems. BIOTECON Diagnostics offers solutions for the food and beverage industry as well as for producers of pharmaceuticals and cosmetics.

# **BioTeZ Berlin-Buch GmbH**

Services (Custom DNA and RNA Oligonucleotide synthesis, Immuno affinity columns) - Development of En- biotez.de zyme Immunoassays, e.g. for Therapeutic Antibodies- Bio Conjugates - Immobilization of Bio Molekules for better Signalling-R&D (Aptamer).

#### **BIOWORX -Biotechnologielabor- Thomas Grimm**

BIOWORX offers services in the fields of contract research for customer-specific Biotransformations, the bioworx.de screening, isolation and production of Biocatalysts from microorganisms and plants and the bioanalytic syntheses. Further organic compounds and metabolites will be synthesized with enzymes for customer in kg scale.

#### **BiRDS Pharma GmbH**

BiRDS Pharma GmbH, integrated into the BDD/CCDRD group, provides services in the field of drug devel-birdspharma.com opment to pharmaceutical and biotech companies, including management of drug development projects as well as consulting services. The company also pursues own drug development projects based on intellectual property generated within BDD/CCDRD group, with a focus on drug candidates derived from Atomic Substitution Technology (AST).

#### Blue Biolabs GmbH

Blue Biolabs is a spin-off company from the TU-Berlin, which specialises in the development of products and bluebiolabs.de services in the field of environmental analysis using methods of microbiology and molecular biology.

# **Botiss medical AG**

Botiss biomaterials is a privately owned biotech company, headquartered in Berlin. botiss is the leading Ger-botiss.com man specialist for dental bone and tissue regeneration (BTR). We focus on the development of innovative regenerative materials and clinical marketing / distribution in over 50 countries world-wide. The botiss subsidiary Cell+Tissue Bank Austria is a leading European manufacturer of allogenic materials for hard tissue regeneration.

#### **Breecon GmbH**

The breecon GmbH is an innovative service company in life science with focus on green biotechnology. The breecon.com objectives of the company are consulting, application and mediation of biotechnological-analytical services as well as their development and marketing. The breecon GmbH offers his services to plant breeders and companies of the industrial biotechnology and supports the utilization of genetic diversity in the context of SMART breeding.

# **BST Bio Sensor Technology GmbH**

BST develops and produces biosensors to provide high quality analysis at moderate prices. In 1982 BST bst-biosensor.de brought on the market the first multi-way biosensor based blood glucose analyzer in Europe and is since then market leader in Europe. Today BST sells more than 60.000 sensors a year. Since 2008 BST is besides biosensors also manufacturer of POCT and laboratory instruments.

# Calico GmbH

Calico GmbH's proprietary antibody production platform is providing high-quality customized monoclonal antibodies for biomarker research and diagnostics applicable in immunohistochemistry, ELISA and Western Blotting. Our antibodies are produced recombinantly and can therefore overcome known barriers connected with conventional development of monoclonals. Moreover we can develop monoclonals from a broad host menu such as rabbits, goats or chickens.

# Caprotec bioanalytics GmbH

Caprotecs Capture Compound Mass Spectrometry (CCMS) Technology allows separation and isolation of proteins based on functionality. For many applications, CCMS is clearly superior to conventional methods - thus addressing an unmet need in the proteomics research community. The company is commercializing the CCMS technology through ImproMed projects with pharmaceutical and biotechnology companies. The focus on these collaborations is on investigating mechanisms of drug action (MoA) and identification of on- and off-target proteins to understand potential adverse effects of drug candidates on a molecular level. This can be easily carried out in the lead optimization process, or even earlier to increase the probability of success later on in the clinic.

# **Celares GmbH**

Specialist for Drug Delivery of peptides/proteins by using PEGylation. Modification of Biopharmaceuticals with celares.com polyethylene glycol in order to substantially improve pharmacological properties. Offers the unique CelaSYS-PEGylation technology, which is patented by celares. CelaSYS: non-dispersed, highly branched polyethylene glycol based reagents. Additionally celares offers customized PEGylation solutions as well as synthesis of customized PEG-reagents.

#### CellServe GmbH

CellServe is a service provider for research groups in regenerative medicine and fills an important gap in the cellserve.de conversion of applied treatment concepts from research into marketable products. Furthermore CellServe develops own innovative cell-based products for cardiology and uses novel cardiac derived cells ("From the Heart to the Heart") for the treatment of chronic heart failure.

#### CellTrend GmbH

CellTrend is certified according to ISO 9001, ISO 13485 and GMP Cell culture systems for research on accelltrend.de tive substances (bioassays, preclinical research, for quality control)Development and production of antibodybased detection systems (ELISA) Chemosensitivityassay for optimisation of chemotherapy (tumor patients).

### Centogene AG

Centogene is a worldwide leader in the field of genetic diagnostic testing for rare hereditary diseases, with centogene.com a broad test portfolio covering over 2800 genes, biochemical tests, biomarker and clinical whole exome sequencing and whole genome sequencing.

## Chemicell GmbH

Chemicell develops and produces magnetic, fluorescent and coloured nano- and microparticles, reactive fluo- chemicell.com rescent dyes and special chromatography-materials for the separation or detection of cells, bacteria, viruses, proteins or DNA/RNA and new gene transfer systems.

#### **Chipron GmbH**

Chipron GmbH specializes in production and distribution of array based detection systems for DNA/patho- chipron.com

#### **CHIRACON GmbH**

Chiracon is a qualified partner to develop chiral intermediates at a constant high quality for innovative drugs regarding economic, environmentally acceptable and scaleable aspects. We offer support through expert knowledge and key technology to meet your increasing needs. Our core competence is chirality. In addition we have a broad variety of chiral building blocks as an inhouse raw material source for high-level API production and development.

chiracon.de

## **CMZ-Assay GmbH**

Marketing of diagnostic reagents for measuring concentrations of proteins, hormones and their isoforms, cmz-assay.com exclusively for research purposes.

### co.don® AG

co.don® AG is one of the leading biopharmaceutical companies in the area of RegenerativeMedicine/Tissue codon.de Engineering. Since 1997, co.don® AG has developed, manufactured and distributed human Tissue engineering therapeutics for the regeneration of articular cartilage and intervertebral discs.

# **CONGEN Biotechnologie GmbH**

CONGEN is specialized in food testing by molecular analytics based on DNA and RNA detection. CONGEN congen.de has been a pioneer for over a decade in the development and application of food and feed analytics by realtime PCR. The methods are available as complete analytic kit as well as a Service. Our mission is to serve the food industry with an excellent service and with standardized and reliable test kits in order to realize highest possible food safety and food quality.

# cpo - cellular phenomics & oncology Berlin-Buch GmbH

cpo is a state-of-the-art in vitro service provider aimed at offering high-quality, reasonable priced cell culture cpo.berlin models complementing classical in vivo assays using patient-derived 3D cell cultures. We view ourselves as partners with our customers, our employees, our scientific community and our environment. Our mission is to help the biotech and pharma industries create innovative testings of novel anti-cancer drugs.

# Cyano Biotech GmbH

Cyano Biotech identifies and characterizes natural products from cyanobacteria and optimizes their phar-cyano-biotech.com macological activities employing a biocombinatorial approach. The company conduct further development of identified lead structures till the preclinical phase.

## **DendroPharm GmbH**

DendroPharms patented technology brings your drug to the target. We develop your API into a patentable new dendropharm.de formulation. We offer formulation delivery services as well as full regulatory project management.

#### **DexLeChem GmbH**

We are experts in the reactivation of complex chiral catalysts. For the first time the unmodified homogeneous dexlechem.com catalyst can be re-used repeatedly thanks to our innovative water based process. Supported by quantum chemical analysis we are able to simulate catalytic cycles. Combined with our special knowhow this enables us to find the best solvent system for our customers. By using this new resource-efficient reaction route our customers - manufacturers of active pharmaceutical ingredients (APIs) and fragrances - gain two advantages: reduction of production costs and a more sustainable process.

#### **Diaglobal GmbH**

Development, production and distribution of in vitro-diagnostics for analytical purpose and the distribution of diaglobal.de medical products.

#### DIZG Deutsches Institut für Zell- und Gewebeersatz gemeinnützige GmbH

DIZG German Institute for Cell and Tissue Replacement engages in cell and tissue preservation as well as dizg.de in cell and tissue replacement, and provides tissue preparations of human origin to clinics, teaching and research organisations. Further service is culturing of skin cells (keratinozytes) for serious burns and other skin defects not healing well or affecting large areas. DIZG supplies cell cultures to help avoid experimentation with animals e.g. in the cosmetics industry.

#### Dr. Götz Verfahrenstechnik Biotechnik Umwelttechnik

Contract research and contract manufacturing using bacteria, yeasts and fungi.

drgoetz.de

#### Dr. Lerche KG

Innovative company engaged in development, production and marketing of specialized microcapsules for lerche-biotec.com bio- and medical technology - Development and production of novel DNA-Purification-Kits with proprietary technology - Production and marketing of microcapsules (LUMiTainer), microbeads and cell based sedimentation standards for blood analysis (Sedi-Val ESR standards) - Encapsulation of cells - Contract analysis for characterization of microcapsules, porous membranes and hollow fibres.

#### Dr. Otto GmbH

Handling with research and development of ecological products its process of development also its production dr-otto-gmbh.de and marketing - Production and refinement of plantingredients - Operate an analytical laboratory of renewable resources and chem. analysis.

#### Dr. Rölleke Labor für Genetische Analytik GmbH

Dr. Roelleke is specialized on the identification of microorganisms, particularly in the area of food safety. Furder-older driver drive thermore, Dr. Roelleke is authorized expert on paternity tests for courts and the private sector.

# **Drug Response Dx GmbH**

DRDx makes drug response predictable: Challenge and necessity of personalized medicine and individual- drdx.de ized therapies demand for convincing and reliable companion diagnostics. The first field of activity of DRDx is Rheumatoid Arthritis (RA). The goal of our company is the technical and clinical validation of an IVD test kit for the reliable prediction of therapy response to TBAs ahead of treatment.

#### **Durakult GmbH**

Durakult GmbH discovers and optimizes starter cultures and novel whole-cell catalysts for customers in the durakult.de food, chemical and renewable energy industries. durakult provides a new technology to explore microorganisms from natural untapped biodiversity for industrial applications. durakult stabilizes genetically manipulated cells which show weak growth or unstable metabolic properties and fits them to industrial purposes.

# E.R.D.E.-AAK-Diagnostik GmbH

E.R.D.E.-AAK-Diagnostik GmbH is a laboratory that offers antibody testing for commercial purposes.

aak-diagnostik.de

# **EMP Biotech GmbH**

Production of fluorescent dyes and chemiluminescent reagents. Contract chemical synthesis of small molecules. Contract labeling and purification of proteins, antibodies and oligonucleotides. Production of sizeexclusion gels, columns and filter plates. Production of high quality reagents for DNA synthesis.

# **Epigenomics AG**

Development and commercialization of innovative molecular diagnostic test products based on DNA methyla- epigenomics.com tion for cancer screening and for cancer specialty applications.

#### **Epinamics GmbH**

Epinamics GmbH, a newly established Berlin based pharmaceutical research and development dedicated epinamics.com company, is owner of a proprietary film forming formulation technology platform, the "Invisible Patch" system. The system is offering a broad basis for the development of formulations for treatment of dermatological diseases as well as for the development of transdermal systems.

#### **Epiontis GmbH**

Establishing methylation fingerprinting as Gold Standard for quality control in Regenerative Medicine and epiontis.com Immunomonitoring.

## **EPO Experimentelle Pharmakologie & Onkologie GmbH**

The pharmaceutical and oncological testing of new drugs or treatment concepts for cancer is a specialized epo-berlin.com market segment. Using the equipment available, all experimental techniques can be carried out in first-rate quality. That means that EPO is an attractive partner for the drug development section of large pharmaceutical companies, for partners from the Biotech industry and for research institutions.

# **Eternygen GmbH**

Eternygen is a Berlin based start up founded in June 2012 focusing on research, development and marketing eternygen.com of innovative drugs using a network of renowned scientists and contract research organizations. The main focus of Eternygen's development and core competences of its founders are research and development of new drugs for dietary-related metabolic diseases with dramatically increasing prevalences in the last decades.

### Eurovir Hygiene-Institut/Dr. Thraenhart

Laboratory service for testing the efficiency of products against viruses (virucides) and of processes for inac- eurovir.de tivating or eliminating viruses (virus safety).

#### **EVESTRA GmbH**

EVESTRA is a newly founded biotech company focusing on developing female health products. The companies expertise resides with steroid chemistry and biology. EVESTRA's product pipeline includes products for contraception, hormone replacement therapy, gynecological disorders and hormon dependent cancers.

## F.A.T. Forschungsinstitut für Antioxidative Therapie GmbH

Measuring instruments and kits for evaluating the antioxidant properties and the degree of oxidative damage antioxidant-research.eu in biological substrates.

#### **Fermtec GmbH**

Development of non-alcoholic beverages, beers and beer mix beverages, lactic acid fermentation, innovative fermtecgmbh.de foods and beverages and auxiliary substances for the food industry.

#### FILT Lungen- und Thoraxdiagnostik GmbH

Development of innovative, non-invasive diagnostic methods in the area of respiratory diseases and allergies. filt.de

formula-pharma.de

# Formula GmbH

Galenical development of liquids and solid formulations Lyophilization Technolgy also apllicable for biochemical products Granulation, drying and coating using fluid bed drying-technology, tabletting Development and validation of analytical methods including UPLC Stability testing (ICH / GMP related to on going) Import of medicinal poducts from non-EU-countries, manufacturing, quality control (re-test) and release for market in accordance with §16 AMWHV for medicinal products and clinical supplies GMP-certificat / Manufacturing license in accordance with §13 AMG.

**G&Life SpA** 

G&life provides personalized strategies based on genetics. The life-science company is made up of a multi- glifecompany.com disciplinary team combining expertise in genetics, nutrition, sport and engineering to develop products and services aimed at improving the quality of life.

# **GA Generic Assays GmbH**

Development, manufacturing and distributing of in vitro-tests, focussing on autoimmune diseases, hereditary genericassays.com and infections diseases.

## Gene Analysis Service GmbH

Gene Analysis Service is specialized on genetic testing of a number of rare hereditary diseases and provides gene-analysis-service.de nucleic acid based molecular biological services like PCR and custom DNA sequencing for healthcare providers and research institutes worldwide.

# GenExpress Gesellschaft für Proteindesign GmbH

GenExpress is a flexible company providing services in molecular biology. For over a decade we have suc- genexpress.de cessfully worked for customers in clinical laboratories, research institutions and the industry. We offer cloning of PCR targets, preparation of synthetic genes, expression of proteins, evaluation of LightCycler® assays, furthermore production of internal controls and standards for Real Time PCR systems, also cloning, expression and purification of proteins.

# **GILUPI GmbH**

GILUPI is a medical diagnostics company with an initial focus on the prenatal and cancer market. The company is developing an innovative new diagnostic product based on nanotechnology. Our goal is to catch specific cells, which can be found only in very low concentration in the blood. The first application for our new nanosensor device will be prenatal diagnoses of chromosomal aberration out of maternal blood. The second application will focus on the early diagnosis of cancer.

#### GlucoMetrix PVS GmbH

The GlucoMetrix AG focuses on the early detection and management of diabetes mellitus-aftermath. At the glucometrix.de foreground of research and development is the enhancing the quality of life of diabetics. In addition, the life science company develops some IT-based diagnostic procedures and medical devices as well as biopharmaceuticals and other highly effective products in order to raise the quality of life of diabetics sustainably.

#### **Glycon Biochemicals GmbH**

Production of carbohydrate components used for the synthesis of new pharmaceutical compounds or diagnostics.

#### **Glycotope GmbH**

Glycotope is a leading company in glycomics and immunotherapeutics. It has developed novel therapeutic glycotope.com antibodies and unique platform technologies to optimize the glycosylation of new biological entities. Glycotope Biotechnology, with over 30 years of experience in GMP-production, enables us to offer the entire process of biopharmaceutical development with a dedicated focus on our unrivalled expertise in protein glycosylation from the gene to production and fill & finish of clinical grade material.

## **GlycoUniverse GmbH**

GlycoUniverse GmbH & Co KGaA is a technology spin-off of the Max Planck Institute of Colloids and Interglycouniverse.de faces. Registered on 10th October 2013, the company deals with the automated development and synthetic production of complex sugars and is seeking customers and collaboration with leading scientific institutes in Europe and world-wide.

#### Götz Protein Engineering

Offering a wide range of protein technology up to the final purified protein.

goetz-protein-engineering.de

#### HealthTwiSt GmbH

HealthTwiSt is a service provider for "Genetic Contract Research" in the fields of Functional Genomics, Epi- healthtwist.de genetics, Proteomics or Functional Food / Nutriceuticals. In particular, HealthTwiSt is offering access to extensively characterized human subjects and samples as well as prospective studies in twins, together with know-how in the analysis of complex genetic traits. Furthermore, database development, data management and statistical analyses for clinical projects are provided.

# **HF Biotec Berlin GmbH**

Development, selling and operating of digestion plants using liquid substrates of industrial and agricultural hf-biotec.com provenience, Development and operating of combined plants to upgrade biogas into bio methane useable in public gas grids with parallel production and selling of high quality PCC, Development of innovative biotechnological processes and plants.

# Histalim

For nearly 10 years HISTALIM provides services in the fields of histology, cytology and molecular biology for histalim.com clients from a wide range of sectors including human and animal health, dermo-cosmetics, chemistry, environment, agronomics, agri-food industry.

# hospital Laborverbund Brandenburg-Berlin

The hospital laboratory composite Brandenburg-Berlin, based in Berlin, employs approximately 100 employ- hospital-laborverbund.de ees at 5 locations. More than 4 million tests are carried out with a total of 2,000 different analytical procedures annually. The goal is an inexpensive, fast and high-quality laboratory diagnostics.

# **Hybrotec GmbH**

Hybrotec GmbH is specialized in the development of monoclonal antibodies and immunoassays (preferably homogenous assays) as customs service. Our main focus lies on antibodies binding low molecular weight substances (e.g. toxins, fluorophores, hormones) as well as antibodies against novel proteins.

hybrotec.com

#### **ICI GmbH**

ICI – immunochemical intelligence GmbH – is dedicated to the development and production of innovative imici-diagnostics.com munoassay components and kits for research use. Their goal is to provide individual solutions, exactly tailored to the client's needs and to create lasting relationships by providing outstanding services and high quality products to demanding clients.

# Icon biotech Icon biotech is an innovative biotechnology company, which uses the extraordinary characteristics of Ciliates icon-biotech.com for the development of bio-analytical and toxicological model systems. IDrug supports business strategies with innovative methodologies in analytical and biopharmaceutical chemistry. idrug.de Ifp Institut für Produktqualität GmbH Ifp Institut für Produktqualität is a laboratory and competence centre for state-of-the-art food, drinking water produktqualitaet.com and pharmaceutical analysis. The accredited and GMP-certified company focuses on comprehensive services for the food and pharma industry. An additional core competence of ifp is the development and production of innovative diagnostics comprising the real-time PCR kits of the brand "mericon" (QIAGEN), vitamin tests in microtiter plate format, enzymatic microtiter plate kits for sugars/acids, and allergen tests in lateral flow and ELISA formats. IGV Institut für Getreideverarbeitung GmbH The range of services offered by the Biotechnology Division of the private research IGV GmbH institute is igv-gmbh.de based on 25 years of experience in R&amp,D for the cultivation of phototropic micro-organisms. Excellent, world-wide contacts to biomass producers, food producers, to the pharmaceutical and cosmetics and energy industry provide the fundament for innovative, market-oriented developments. In focus are development of photo bioreactor technology and active substances from algae. IKDT Institut Kardiale Diagnostik und Therapie GmbH IKDT was founded in August 2002 in Berlin-Steglitz and is one of the leading laboratories on Viral Infections of ikdt.de Heart Muscle Tissue and Dilatated Cardiomyopathy (DCM) in Germany. IKDT lab is performing a comprehensive molecular diagnostic examination of endomyocardial biopsies as one of a limited number of specialized cardiological labs worldwide. Its service enables physicians firstly to start an efficient, pathophysiologically based causal therapy. **ILBC GmbH** Research, consulting, production, trade & services in the areas biology, molecular biology and protein chem- mobiclup.de istry - Expression and production of antimicrobial peptides. in.vent DIAGNOSTICA GmbH in.vent DIAGNOSTICA GMBH is a biomedical company. We are focused on the project-oriented provision, inventdiagnostica.de processing and distribution of biological raw material for development and production of diagnostics and control material. We are your reliable partner for the customised development of assays for medical in vitrodiagnostics. inbion GmbH inbion GmbH provides services to support research in the interface between university, students and industry. inbion.de For companies, we provide the benefit of outsourcing projects quickly and cost-efficiently to competent teams. Cooperation with research groups in the university is also facilitated, so that targeted knowledge transfer can take place here. Innovative Optische Meßtechnik GmbH Fluorescence Assay Solutions and Instrumentation (Microplate Readers). iom-berlin.de Institut für Medizinische Molekulardiagnostik (IMMD) GmbH Gene tests for prenatal, predictive and tumor -diagnostics. immd de InVivo Biotech Services GmbH As a contract manufacturing company (CMO) Invivo offers a wide range of services: the development and invivo.de production of monoclonal antibodies and recombinant proteins for diagnostic and pre-clinical use (endotoxinfree antibodies and compliant documentation), cell line development and transient transfection. We are an ISO9001:2008 certified company. InvivoContrast GmbH InvivoContrast provides globally high quality MRI (Magnetic Resonance Imaging) contrast agents and profes- invivoContrast.com sional support for preclinical imaging in academic and commercial institutions. **JPK Instruments AG** JPK Instruments AG is a world-leading manufacturer of nanoanalytic instruments - particularly atomic force jpk.com microscope (AFM) systems and optical tweezers - for a broad range of applications reaching from soft matter physics to nano-optics, from surface chemistry to cell and molecular biology. From its earliest days applying

atomic force microscope (AFM) technology, JPK has recognized the opportunities provided by nanotechnol-

ogy for transforming life sciences and soft matter research.

## **JPT Peptide Technologies GmbH**

JPT is an ISO 9001:2008 certified provider of innovative peptide products and services and a partner for research projects focusing on the development of novel immune therapeutics & diagnostics, profiling of various enzyme classes and proteomics. JPT has developed a portfolio of proprietary technologies and a series of unique products which support a worldwide customer base. Since 2011 all catalog products such as peptide microarrays & peptide pools are avalaible through an online shop.

## Kairos GmbH - Berlin

Kairos is a renowned IT-specialist, which looks back on more than 10 years of experience in the development kairos.us of IT-system solutions for the health care. In addition to technological special knowledge in the implementation of medical middleware platforms, we have extensive know-how in the IT-supported orchestration of work processes via workflow engine.

## Klinomed GmbH

Development of new technologies for manufacturing bio-active nano particles / development of therapeutic klinomed.de formulations based on nano particles.

#### KNAUER - Wissenschaftliche Gerätebau Dr. Ing. Herbert Knauer GmbH

KNAUER UHPLC and HPLC systems as well as columns are used in research and development, quality con-knauer.net trol and production plant laboratories around the world. Customers are typically governmental and industrial organizations as well as universities. Fields of application are wide-ranging and include pharmaceutical and medical research, analysis of foodstuffs and cosmetics, as well as environmental analysis. With our biochromatography solutions we focus on high resolution separations.

## L.U.M. Gesellschaft für Labor-, Umweltdiagnostik & Medizintechnik mbH

Analysis, diagnosis and sensor technology as well as stability, rheology and segregation behavior of disper- lum-gmbh.de sions.

#### Labfolder GmbH

labfolder is a digital notebook and collaboration platform for laboratory research. As a viable alternative to labfolder.com traditional paper-based laboratory notebooks, labfolder allows scientists to document and organize their research, plan their experiments and collaborate with others digitally. The software provides an intuitive user interface and is compliant with the rules of Good Scientific Practice (GxP), including full audit trail and digital signatures for maximum intellectual property protection. labfolder is also available on all mobile devices operating under Android and iOS, allowing scientists to access and manage their data from everywhere. labfolder is free for individual scientists and small groups and offers advanced functions for large research groups and enterprises for a monthly fee.

## Labor Berlin - Charité Vivantes Services GmbH Labor Berlin - Charité Vivantes GmbH

Labor Berlin Services is the service subsidiary of Europe's largest hospital laboratory for clinical pathology laborberlin.com and offers complete solutions for any kind of testing for the ivd industry, CROs, the pharmaceutical industry, life science companies and research facilities, while Labor Berlin is the exclusive laboratory partner of Charité - Universitätsmedizin Berlin and the Vivantes Network for Health. Labor Berlin and Labor Berlin Services both perform over 35 million analyses in clinical pathology per year and provide the diagnostic services for approximately 400.000 in-house patients a day and some one million out-patients per year.

## **LGC Genomics GmbH**

LGC Genomics is the division of LGC with specific expertise in high quality, cutting-edge genomic and related | lgcgenomics.com services and products. LGC Genomics delivers:- Next generation sequencing services- DNA sequencing- Genomics services- Nucleic acid extraction services- DNA extraction products. LGC is an international sciencebased company and market leader in analytical, forensic and diagnostic services and reference standards (www.lgc.co.uk).

## **LGC GmbH**

Production of calibration substances for purity testing of drugs.

mikromol.de

## Life Glimmer

Life Glimmer is a customer-oriented consulting and contract research company with the goal of providing the lifeglimmer.com biotechnological, biomedical and environmental research communities an efficient way to outsource scientific modeling and computing needs.

## **Limetec Biotechnologies GmbH**

The core competence lies in the development of high-speed and high-quality proof systems for the detection limetec-biotechnologies.de of pathogens, as well as in the allelic discrimination of hereditary diseases. All products are marked with the CE-Certificate. The second area of expertise is the creation of communication networks which connect outpatient and hospital patient treatments, intensify data exchange and provide information to all health institutions, thus establishing partner relationships between them.

# Lipidomix GmbH

LC/MS/MS based high trouput analytic of lipid mediators and metabolites. Analytical method development, lipidomix.de analytical support for LC/MS/MS in life science, food safety, forensic science.

## **Marinpharm GmbH**

Development and marketing of genetically altered cell lines on the basis of new fluorescence markers. Gen-marinpharm.com eration of stably transfected fluorescent cell lines.

## **MedInnovation GmbH**

MedInnovation GmbH has developed a new method and a special ESR-analyser, which for the first time al- medinnovation.de lows a simple routine laboratory test for evaluation of functional characteristics of plasma proteins and further opens a reliable possibility for cancer diagnostic, named MMS-technology (mobility of molecular structure).

Development, manufacturing and international distribution of radioactive (125J-IRMA) and non-radioactive (Elisa) in vitro-diagnostic tests, covering the field of Autoimmunity, mainly in Thyroid and Diabetes Typ 1 and automated interpretation of cell-based immunofluorescence tests by the AKLIDES system.

#### **MerLion Pharmaceuticals GmbH**

The business purpose of the Company is the research, production, optimization and the development by way merlionpharma.com of pre-clinical as well as clinical trials of new molecules for the treatment of infectious diseases.

#### Merz Pharmaceuticals GmbH / Standort Potsdam

Merz is one of the leading research-based health care companies. Merz Pharmaceuticals has achieved a merz.de leading position in Alzheimer's research with the world's first drug for the treatment of moderate to severe Alzheimer's disease. With high quality products from tetesept® and Merz Spezial®, Merz is making a key contribution to health and wellbeing.

#### **Metabolomic Discoveries GmbH**

Metabolomic Discoveries is an analytical service and research company. We provide mass spectrometry metabolomicdiscoveries.com based metabolite profiling and fingerprinting of biological material, as well as single compound measurements.

## **Metanomics GmbH**

Metabolite Profiling for identification of gene function relationship in plants, metabolite biomarkers and meta-

## **Metanomics Health GmbH**

Identification of metabolic biomarkers for pharmacology, toxicology, diagnostic and nutrition.

metanomics-health.de

## **MetrioPharm AG**

MetrioPharm AG develops innovative therapies for infectious diseases on the basis of new and innovative metriopharm.com medicines

## Mfd Diagnostics GmbH

The mfd Diagnostics GmbH (BT Luckenwalde) is a life science research and development company for di- mfd-diagnostics.com agnostic and therapeutic application of innovative laser technologies. The main advantages of the developed technologies are the non-/minimally-invasive measurement methods, the non-artificial approach and the possibility of real-time measurement. Therefore, those are promising tools for the diagnosis and therapy monitoring in the neurological practice and in the perinatal surveillance.

## **MicroDiscovery GmbH**

MicroDiscovery GmbH is a leading provider of high quality software for biomolecular research, innovative microdiscovery.de diagnostics and personalised medicine. The company is ISO 9001 certified and has a strong track record in creating software systems in accordance with relevant regulatory directives for the life science and IVD industry. Customised services ranging from biostatistical data analysis to bioinformatical design and support of complex research projects complete the product line of MicroDiscovery.

## **Microparticles GmbH**

Development, manufacture, surface modification and characterization of mono-disperse polymer particles in microparticles.de the nano- and micrometer range. In addition to classic polystyrol and polyacrylate-based polymer particles, microparticles GmbH has launched new melamine resin particles on the market with exceptional chemical and physical qualities. The main areas of application are in particle measurement technology, medicine, biochemistry and microelectronics etc.

## Minerva Analytix GmbH

Minerva Analytix GmbH is a leading analytical service lab for the control of microbial contamination. Our core minerva-analytix.com competence lies in the control of mycoplasma, bacteria and viruses in cell cultures and biopharmaceuticals.

#### Minerva Biolabs GmbH

Minerva Biolabs develops and produces IVD kits for diagnosing pathogens and for contamination control, minerva-biolabs.com especially mycoplasma in cell cultures and biopharmaceutical products. Minerva Biolabs is also active in ensuring water quality with sensitive processes for detecting legionella. Our distributors ensure that our products are available worldwide, quickly and at a good price.

#### mivenion GmbH

mivenion is a life-science company founded in Berlin aiming on the development and commercialization of mivenion.com diagnostic and therapeutic products. The company is built on two innovative technologies: the fluorescence camera system Xiralite for diagnostic imaging of early rheumatoid arthritis and a proprietary bioactive polymer drug development platform. Xiralite is mivenion's first product on the market.

## **MLB Mikrobiologisches Labor GmbH**

Accredited test laboratory for drinking water, clean rooms, sterility, bioburdens, D-PL-13398-01-00, EN 17025. mikroberlin.de Accreditation according to VDI 6022.

## Molnar-Institut für angewandte Chromatographie

Molnar-Institute, established in 1981, offers you a complete scientific and technical service for all problems molnar-institute.com concerning Quality by Design (QbD) for HPLC-methods. We develop for you the Design Space for your HPLCseparation and establish Critcal Quality Attributes (CQA's). We offer detailed DryLab-courses and show you, how to develop robust methods in the Design Space and how to save time. We supply and implement the DryLab-software and train your coworkers. We assist you in automated method development processes and support you in the selection of proper instruments, their installation and use.

## **MOLOGEN AG**

MOLOGEN AG is a biopharmaceutical company based in Berlin and specializes in the development of novel mologen.com DNA-based medicines against cancer and vaccines against infectious diseases. The proprietary platform technologies MIDGE® and dSLIM® build the foundation for all business activities. The company was founded 1998 and was one of the first biotechnology companies to go public.

## moloX GmbH

moloX GmbH is a company focusing on custom protein production in bacterial and insect cell expression molox.de systems and subsequent protein purification to ultra-high purity. On customer demand a team of experts can perform protein crystallization experiments and determine the 3D structure of target proteins by X-ray crystallography.

## **MRI.TOOLS GmbH**

MRI.TOOLS's main focus is the development, sales and services of innovative hardware and novel technol- mritools.de ogy for magnetic resonance imaging (MRI), computed tomography (CT) and positron emission tomography (PET). Our product portfolio encompasses enabling radiofrequency (RF) coils tailored for a broad range of applications, devices designed for reliable cardiac gating of imaging plus accessories that will make your daily life more comfortable. MRI.TOOLS is also very proud to offer consulting services such as validation and certification of medical devices.

## **Myelo Therapeutics**

Myelo Therapeutics GmbH develops innovative treatments in areas of high unmet medical needs.

myelotherapeutics.com

## Nano Access Technologies Ltd.

The company addresses the combined access to key technologies such as life science and nanotechnology. As a first product, a low cost AFM for operation with so-called active cantilevers has been developed. Besides this, functionalized cantilevers for future biosensors are another focus of the company.

nano-access.com

## Nanolytics Gesellschaft für Kolloidanalytik mbH

We are a contract laboratory specializing in the physico-chemical characterization of pharmaceutical proteins, nanolytics.de biopolymers, nanoparticles and colloidal systems. Our core-competences are Analytical Ultracentrifugation, in combination with Static and Dynamic Light Scattering as well as spectroscopic (CD, fluorescence) and thermodynamic techniques (ITC, DSC).

## Nanopartica GmbH

Nanopartica GmbH optimizes existing products of other companies, but are also developing new products nanopartica.com and materials. In particular, companies in surface-, bio-, and medical-technology can benefit from nanopartica. By means of functionalized polymers, we can encapsulate quest molecules (drugs, dves, vitamins), particles (gold, silver, platinum), or ions. This will indirectly change the guests properties and expands its scope.

#### nanoPET Pharma GmbH

As a technology and service provider to the biopharmaceutical industry nanoPET focuses on the R&D, pro-nanopet-pharma.com duction as well as marketing of innovative drug substances for diagnostic imaging based on novel nanoparticular materials. nanoPET offers consulting and contract research services, preclinical contrast agents (MRT, CT, US, NIR, PET) as catalog items and pursues the preclinical development of its patented core technology of inorganic nanoparticle PET tracers.

## **New Medical Enzyme AG**

New Medical Enzymes AG is a privately held innovative biopharmaceutical company with a focus on thera-medical-enzymes.de peutically useful enzymes. The company has developed a new product family based on amino acid depleting enzymes. This unique approach is highly effective against cancer - the major target market of New Medical Enzymes AG.

#### **NMI TT Pharmaservices**

NMI TT Pharmaservices is a Contract Research Organization that offers a wide range of preclinical research nmi-tt.de services for clients in Pharma, Biotech, Medtech and Academia.

#### NovaBiotec® Dr. Fechter GmbH

Microbiological and chemical investigations, in particular of soil, water and air samples, planning / inspec- novabiotec.de tion of sanitation, in particular analytics and sanitation support for mould and dry rot, incl. education in this field. Delivery of production auxilliaries and support for biogas plants with biological treatment processes incl. application, insulation and preservation of enzymes. Research, development and marketing of test kits for breweries and malthouses.

## **NOXXON Pharma AG**

NOXXON Pharma is a biopharmaceutical company pioneering the development of a new class of proprietary noxxon.com therapeutics called Spiegelmers. Spiegelmers are the chemically synthesized, non-immunogenic alternative to antibodies. NOXXON has a diversified portfolio of clinical stage Spiegelmer therapeutics: Spiegelmer® NOX-E36, Spiegelmer® NOX-A12, Spiegelmer® NOX-H94. The Spiegelmer platform provides the Company with powerful and unique discovery capabilities, which have generated a number of additional leads under preclinical investigation. Located in Berlin, Germany, NOXXON is a well financed mature biotech company with a strong syndicate of international investors, approx. 60 employees and a highly experienced management team.

#### OakLabs GmbH

OakLabs provides the most flexible products and services for large scale custom SNP genotyping on the oak-labs.com market. OakLabs offers several formats for analysing a variable number of SNPs in any sequenced organism.

## OctreoPharm Sciences GmbH

OctreoPharm Sciences GmbH is a clinical development company focusing on diagnostic radiopharmaceuticals. octreopharmsciences.com

## **OMEICOS Therapeutics GmbH**

OMEICOS Therapeutics is developing a novel, first-in-class, small molecule utilizing a new Mode of Action omeicos.com for the treatment and prevention of atrial fibrillation. OMEICOS' novel therapeutic strategy is based upon the discovery of natural metabolites of omega-3 fatty acids that mediate a strong anti-arrhythmic effect. In contrast to all other anti-arrhythmic drugs, OMEICOS' substances activate an endogenous cardio-protective signaling pathway that not only stabilizes the heart rhythm but shall provide curative effects to the diseased organ by preventing its electrical and structural remodeling.

## OpTricon Entwicklungsgesellschaft für optische Technologien mbH

OpTricon develops and produces mobile readers for quantitative analyzes of Immunoassays for Point-of- optricon.de Care-diagnostics, especially Lateral Flow Assays (LFA). Additional business segments are components and Systems for signal transmission and sensors for Ibioanalytics. opTricon develops the devices in partnership with the customers and works as OEM-suppliers and is certified by TÜV Rheinland according EN ISO 13485:2003+AC: 2007 and EN ISO 9001:2008.

## **ORGANOBALANCE GmbH**

ORGANOBALANCE is a company specializing in microbial strain development and screening. As a R&D organobalance.com contractor ORGANOBALANCE develops new biological products in the areas of nutrition, personal care and health care. The company draws on its own collection of microbial strains suitable for food applications and its OASSYS® bioassay systems. In the field of "metabolic engineering" ORGANOBALANCE exploits Saccharomyces cerevisiae yeast for synthesis of substances for the industrial and pharmaceutical industry.

## **ORGANOBALANCE Medical AG**

ORGANOBALANCE Medical AG funds and promotes the research and development of novel therapies based organobalancemedical.com on specific probiotic cultures, aiming to develop active substances and mechanisms for innovative medicinal products and medical devices, as well as offer new therapeutic concepts for hitherto inadequately treatable indications

## ovalehn GmbH

Production and application of specific recipes -containing IgY for diagnostics and oral, passive immune therapy.

## **Pentracor GmbH**

In the case of cardiac infarction, C-reactive protein (CRP) results in an increase of the primary damage. Based on a new prototype, the company Pentracor GmbH aims to develop an adsorber for therapeutic reduction of CRP, lead it to approval, establish its certified production and market the product after clinical validation.

pentracor.com

## Peptides&elephants GmbH

Custom synthesis of peptides and peptide libraries Development parallel Synthesis technologies Distributor peptides.de of Peptide Synthesis Automation.

#### **PharmaSol GmbH**

Modification of ingredients or introduction of new metabolic pathways in plants with gene-technology methods. pharmasol-berlin.de

#### PlasmaChem GmbH

PlasmaChem GmbH is an innovative R&D and manufacturing company specializing in nanomaterials, plasma- and ultra-thin film technologies. The company manufactures nano-coated medical implants (stents), nanomaterials, additives for metal plating (applied e.g. by Siemens AG), new additives to engine oils on the base of nanodiamonds and other industrial nanoproducts.

plasmachem.com

## PolyAn, Gesellschaft zur Herstellung von Polymeren für spezielle Anwendungen und Analytik mbH

PolyAn is specialised in Molecular Surface Engineering (MSE). Using our surface modification expertise poly-an.de PolyAn optimises the performance of analytical systems by improving the signal-to-noise ratio as well as the reproducibility of consumables for multiplex diagnostics, LifeScience research and screening applications. PolyAn's product portfolio includes functionalised microarray slides, microparticles for multiplex bead arrays and functionalised membranes for medical diagnostic applications.

## Preclinics Gesellschaft für präklinische Forschung mbH

Preclinics is a commercial cooperation partner for preclinical research and development. As a competent, creative and experienced partner preclinics investigates pharmaceutical substances, therapeutic methods and proceedings as well as medical products during the preclinical phase. Additional we provide custom antibody production in llama, goat, sheep, rabbit and other species.

## **Predemtec GmbH**

Predemtec GmbH is a company focused on the research, development and manufacture of innovative diagnostic tests for use in the detection of dementia-related risk factors. The goal has been to make the early and reliable diagnosis of various dementia-related illnesses a reality through the use of our innovative diagnostics

## **ProBioData GmbH**

BioProcessDB is a database solution for bioprocess R&D. It's designed to become the linking tool in your probiodata.de information process and to integrate the data i. e. from the SCADA system, the sample data management and the strain management.

## ProBioGen AG

ProBioGen is a Contract Development and Manufacturing Organization (CDMO) and Technology Provider, probiogen.de with extensive expertise in cell line engineering, process development (upstream- and downstream process) and GMP manufacturing of biopharmaceuticals. Offering state-of-the-art contract development and manufacturing services as well as access to proprietary cell lines (AGE1.cell lines®) for the manufacturing of biopharmaceuticals and vaccines. The company possesses the manufacturing authorization from the competent authority and meets the quality standards required by the EMA and the FDA guidelines.

Protealmmun is a specialized proteomic company providing purified human proteins, antibodies and ELISAs. proteaimmun.net Our proteins are designed for structural and functional studies of proteases screening and evaluation of protease inhibitors and modulators. Furthermore we develop highly sensitive ELISA kits and antibodies. Our Focus: MMPs, ADAMTs, HtrAs. Protealmmun produces a unique range of recombinant proteases for medical and pharmaceutical research. The main focus is on human Matrix Metalloproteases (MMPs), ADAMTS and HtrA proteins which play an important role in neurodegenerative disease, ancer and arthritis. Customer Service: Protealmmun provides activity analysis by zymography adapted for MMPs.

## **PROTEKUM - Umweltinstitut GmbH, Oranienburg**

We plan to eliminated fluid und solid waste products in a manner which is compatible with environment proprotekum.de tection. Our methodology is largely based on painstaking analysis. We use modern equipment and scientific methods. Protekum offers high-quality products and services in environmental analysis redevelopment.

## **Proteome Factory AG**

Biomarker & target discovery, validation, analysis of food and ingredients, absolute quantification of proteins proteomefactory.com and peptides, sequencing and characterization of proteins and antibodies (CDR), 2DE and LC-MS based proteomics studies, pharmacokinetics, pharmaco, immuno and membrane proteomics, protein identification, characterization of proteins and peptides (PTMs, e.g. phosphorylation, glycosilation), quality control, mass determination, N-terminal amino acid sequencing, silver staining kit etc.

## **Provitro GmbH**

Provitro combines more than ten years of experiences in commercialisation of cell culture technologies, Tissue Microarrays and immunohistochemical analyses with the scientific expertise of the Pathological Institute of the Charité, Berlin. Based on a quality management system according to ISO 9001:2008, we provide our customers not only with high-quality products, CE marked in vitro-diagnostics and state-of-the-art services but also with individual solutions for their specific requests.

## Rapidozym Gesellschaft für Laborhandel und DNA Diagnostika mbH

Expertise of cell biologists cell manufacturing and clean room technology specialists. Focuses on clinical stem rapidozym.de cell product development portfolio are stroke, myocardial infarction and plastic surgery.

## RENESA UG (haftungsbeschränkt)

Manufacturing and distribution of rapid tests, mainly for medical purposes (Point of Care Testing).

renesa.de

#### **RIPAC-LABOR GmbH**

RIPAC-LABOR offers high-quality diagnoses of bacterial infections, particularly in poultry, pigs and cattle, but ripac-labor.de also in other farm and domestic animals. The company uses pathogen differentiation to provide quick and effective methods for fighting pathogens. It performs resistance tests and epidemiological analyses and also focuses on producing herd-specific vaccines.

## **Roboklon GmbH**

Distribution, Marketing and Development of Products for Molecular Biological Research and Genetic Engi-roboklon.de neering.

#### **ROVALAB GmbH**

Our Master Mixes for QPCR, Standard-, Hot Start- and High Fidelity PCR as well as our high quality critical rovalab.com raw materials and reagents such as DNA Polymerases and dNTPs are designed to help you successfully and rapidly solve your scientific and manufacturing tasks.

## **Royal Biotech GmbH**

Royal focuses on developing, manufacturing and marketing innovative kits, portable or micro-structured systems, and the next generation of diagnostic chips for near real-time environmental, food safety, disease and laboratory diagnostics.

## **Scienion AG**

Scienion is a life science company in the markets of dispensing systems and microarray technologies. The scienion.de product portfolio comprises hardware, consumables and services. Scienion's leading product is the sciFLEX-ARRAYER dispensing system, available in a product line of six size versions. The dispenser allows the aspiration of ultra low liquid volumes from different reservoirs and non-contact micro drop delivery in the picoliter to microliter range onto a variety of carriers.

## selekt-ID BIOLABS GmbH

The selekt-ID BIOLABS is a molecular biology service laboratory. The portfolio includes several PCR-based selekt-id.de techniques detection methods: The core product is the identification of microorganisms (bacteria, yeasts, fungi) by sequence comparison of 16S respectively. Will also offer the detection of animal species in meat products and, as GMO analysis and detection of allergens.

## Sepiatec GmbH

Production, development and sales of automated HPLC machines for high-throughput purification and frac-sepiatec.com tioning of complex substance compounds.

## Seramun Diagnostica GmbH

Seramun offers peptide synthesis, purification and conjugation of proteins, production of antibodies, customer seramun.com research, in vitro-Diagnostics. We focus on the development and production of enzyme immunoassays for diagnosis of viral and bacterial infections and autoimmune diseases of the gastrointestinal tract, the development of multi-parameter assays as microtitre plate assays and as membrane immunoassays, as well as development of ready-to-use substrate solutions and for protein stabilizers.

## SGS INSTITUT FRESENIUS Berlin GmbH & Co. KG

Analytical laboratory services and consulting for development, production and quality control of drugs.

institut-fresenius.de

## SIFIN Institut für Immunpräparate und Nährmedien GmbH Berlin

Development, production and purification of monoclonal antibodies for use in diagnostics. Development and sifin.de production of blood grouping reagents, Serafol® bedside cards and test reagents for serotyping of Salmonellae, Shigellae, E. coli and Yersiniae. Development and production of culture media for microbiological diagnosis.

## **Signature Diagnostics AG**

Signature Diagnostics is dedicated to the discovery, validation and commercial development of novel diagnos- signature-diagnostics.de tic products that predict outcome and drug response in patients with colorectal cancer (CRC), non-small cell lung cancer (NSCLC) and ovarian cancer. Signature believes that patient selection and stratification based on molecular gene signatures will soon become an important component of routine cancer treatment.

## **Silence Therapeutics AG**

Silence Therapeutics AG is a leading RNAi therapeutics development company and offers a novel, proprietary silence-therapeutics.com siRNA technology (AtuRNAi) and proprietary systemic delivery systems for siRNA (AtuPLEX, DACC and DBTC). SILENCE pipeline consists of both partnered and internal programs of which 3 clinical phase II and 1 clinical phase I programs are partnered with Pfizer/Quark (2 ophthalmic indications) and Novartis/Quark (2 kidney indications). Silences internal lead compound Atu027 is currently in a Phase I clinical study for the treatment of solid tumours.

#### **SINA Science Services GmbH**

SINA is a modern company providing elaborate services in molecular biology and protein biochemistry. To-sina-science-services.de gether with our industrial partners and customers from research institutions we develop complex cloning and mutagenesis strategies including high-throughput applications. We offer cloning of genes, expression and purification of proteins, DNA and RNA isolation from numerous biological materials and the production of competent cells with high transformation efficiency.

## SLM- Speziallabor für angewandte Mikrobiologie GmbH

Microbiological quality control for medical devices, pharmaceuticals, cosmetics, drinking water, foodstuff, speziallabor.com monitoring in clean rooms.

## **Sopat GmbH**

SOPAT is specialized in the analysis of particulate systems. The company develops and markets an innova-sopat.de tive particle measurement technology for real-time analysis of multi-phase systems. Particles, such as droplets, grains, cells or bubbles, are measured with high precision in running processes.

## Source BioSceince GmbH

Premier service center for genome research and healthcare in Europe, provides one of the largest clone imagenes-bio.de collections in the world via its clone search engine GenomeCube®. Certified Service Provider for illumina Next Generation Sequencing services and comprehensive microarray application on Affymetrix, Agilent, and NimbleGen platforms. ISO 9001:2008 certified.

## STRATEC Molecular GmbH

STRATEC Molecular GmbH is a globally active provider of innovative system solutions for nucleic acid sample stratec.com collection, stabilization, and both manual and automated purification from any sample type. Since 1992 the company is internationally respected for its outstanding and high performance technology platforms and offers a broad spectrum of superior products for molecular diagnostics, drug discovery and Life Science research.

## **Strix Diagnostics GmbH**

Strix Diagnostics is a medical diagnostics company specializing in customized development of certified ana- strix-diagnostics.de lytical systems for multiparameter in vitro-diagnostics.

## **Surflay Nanotec GmbH**

Surflay Nanotec GmbH, a spin-off company from Capsulution NanoScience AG, is specialized on coating surflay.com colloidal and planar materials with functional films. Key technology is the patented LbL-Technology® with polymers. Applications are in the fields of separation materials, pigment encapsulation, bio-sensing and diagnostic particles. In addition to customer tailored projects Surflay offers an unique range of products of tunable multifunctional nano-or microparticles and dye-labeled polymers.

## t-cell Europe GmbH

t-cell Europe GmbH, a spin-off of the Berlin Brandenburg Center for Regenerative Medicines (BCRT), is aiming to become the world's technology leader in the application of T-cell-based therapies used in transplantation medicine. Over the next few years, with its three proprietary platform technologies, the company will develop and clinically validate novel T-cell-based products and corresponding diagnostics to regulate the immune system and treat viral infections. The company's lead reference product will be a first-in-class Treg cell product/ therapy for kidney transplantation that suppresses organ rejection in recipients.

## Thanares GmbH

Development, use and marketing of analytical process for diagnostic and therapeutic purposes. Future busithanares.com ness activities: detection process for bioactive substances in bodily fluids, isolation, characterization and investigation of bioactive compounds from plants, in particular insoluble proteins or low concentrations of proteins, development of low cost genetic systems for over-expression and/or production of such proteins.

#### TheraKine BioDelivery GmbH

Development of antibody drug delivery systems and related tasks.

therakine.com

## Thermo Fisher Scientific – B·R·A·H·M·S GmbH

Thermo Scientific Biomarkers (B·R·A·H·M·S GmbH) explores, develops and produces new diagnostic test thermoscientific.com/brahms procedures to improve the diagnosis, and thereby the treatment, of life-threatening illnesses. This takes place with over 470 employees, in the disease areas infectiology, cardiology and pneumology as well as thyroid, autoimmunity and cardiology on the basis of our own patented biomarkers. Since October 2009 B·R·A·H·M·S GmbH is part of Thermo Fisher Scientific Inc. (NYSE: TMO), the world leader in serving science.

## TIB MOLBIOL Syntheselabor GmbH

In 1990, TIB MOLBIOL became the first German manufacturer of oligonucleotides. In addition to designing tib-molbiol.com and synthesizing primers and probes for Real-Time PCR assays, we develop and produce LightMix® Kits for Roche Diagnostics LightCycler® Instruments, covering applications in Clinical Chemistry, Pharmacogenetics, Pathogen Detection, as well as Cancer Research. TIB MOLBIOL is ISO 13485 and ISO 9001 certified.

#### TissUse GmbH

TissUse is a vibrant growth company providing high-value services in the area of tissue culture analysis of tissuse.com drug candidates, cosmetics, chemicals and consumer products.

## TransTissue Technologies GmbH

TransTissue has been a subsidiary of BioTissue Technologies, Freiburg since September 2001. With more transtissue.com than 15 years of experience in regenerative medicine, the scientists of TransTissue Technologies have developed second-generation autologous tissue replacements, e.g. cartilage and bone grafts. We are mainly concerned with inventions and the development of tissue engineering products for regenerative medicine. We offer a broad panel of services in the field of regenerative medicine.

## **UGA Biopharma GmbH**

UGA Biopharma a private Research and Development company, focuses on Research, Development and ugabiopharma.com Commercialization of Biopharmaceutical products under contract with other Biopharmaceutical companies. UGA Biopharma conducts power of biosciences to develop high-tech, last generation of biomedicine, diagnostic kits, molecular biology items and also offers world class services in biotechnology area.

## Umweltbiotechnik - Berlin UG

Feasibility studies, development, planning, construction and operation of biotechnological plants for ground- bartetzko.com water, process water and waste water purification. Accredited microbiological laboratory for the investigation of drinking water, groundwater, bath water, soils, food, anti-microbial active ingredients and sterility according to Ph.Eur, approved in accordance with BiostoffV and the German infection protection act (Infektionsschutzgesetz).

## VasoTissue Technologies GmbH

The company is active in the field of product development for advanced medical therapies. For its first product vasotissue.de - the endothelialised vascular graft ("VasoGraft")- VasoTissue obtained a manufacturing license in 2008. Currently, VasoTissue's focus is on conducting its first clinical trial.

## **Vaxxilon GmbH**

Vaxxilon is a startup established by the Max Planck Society and Actelion Ltd to discover and develop novel vaxxilon.com vaccines against major infectious diseases. The innovative technologies are based on the scientific insights and research of Professors Peter Seeberger (the Max Planck Institute of Colloids and Interfaces) and Gennaro de Libero (University Hospital of Basel). Vaxxilon is advancing several vaccine candidates using homogeneous, synthetically produced carbohydrate antigens.

## Yashraj Biotechnology GmbH

Yashraj Biotechnology Limited (YBL) is a part of the "YASHRAJ GROUP" having diversified interests in finance, construction, agriculture, chemicals and biotechnology. YBL was established in 1999 with a mission to achieve excellence in biotechnology and utilize its power for the good of humanity.

## Zellwerk GmbH

Zellwerk produces the proprietary Z® RP cell cultivation system, comprising rotating bed bioreactor, GMP zellwerk.biz Breeder, Control Unit, software. Bioreactors with 50-5000 ml volume, 0,2-2 m² seeding surface, different cell carriers, can be delivered. In this culturing system cells grow tissue-like, being embedded in self-generated extra-cellular matrix. The technology opens unique opportunities for the GMP-compliant expansion of stem cells and primary cells, manufacturing of cell-seeded implants as well as production of recombinant proteins. In addition, we have recently developed a new bioreactor for expansion of immune cells for cell therapy of leukemia and several types of cancer.

## Zentrum für molekulare Onkologie GmbH

Innovative methods for diagnostic and therapy of tumor diseases - Molecular genetics (K-RAS, PCA3, molekulare-onkologie.eu Septin9) - Chemoresistance assay for prediction of chemotherapy - Pathology Development of new biomarkers and analytical services for studies.

## **Zytomed Systems GmbH**

Zytomed Systems' focus is the development, production and distribution of antibodies and detection systems zytomed-systems.de for immunohistochemical cancer diagnostics as well as reagents and kits for in-situ hybridisation.

## **Medtech Companies**

## 1000shapes GmbH

Software and services for image/geometry processing, 3D shape analysis, and product design. Advanced 1000shapes.com anatomical modeling, innovative implant design and computer-assisted surgery planning. Solutions for medical therapy planning: Advanced anatomical modeling, innovative implant design and computer-assisted surgery planning.

#### 3ííí - ínventing ínternational ímaging GmbH

3ííí develops and installs telemedicine networks (regional, national and international) among hospitals, clinics international-imaging-institute.com and private doctors for fast interdisciplinary diagnosis and second opinion on patients. Medical files, large images (CT, MRI) and histopathological specimens can be shared in an instant.

## 3M Health Information Systems GmbH

The product portfolio of 3M Health Information Systems includes software for coding, grouping, controlling, 3m.de/his and performance analysis in the DRG context and solutions for medical quality management.

#### A. Berkholz & Sohn GmbH & Co. KG

Repair and custom manufacture of surgical instruments, incl. minimal invasive surgery instruments.

berkholz-berlin.de

#### aap Implantate AG

aap is a medical technology company that develops, manufactures and markets biomaterials and implants for aap.de the areas Ortho/Trauma/Spine. Its product portfolio includes bone cements, bone graft substitutes, antibiotic carriers, and implants for fractur healing and joint replacement.

#### **Acuros GmbH**

Acuros provides micro pumps for microfluidic applications and drug delivery devices. Our unique disposable acuros.de infusion pump delivers precise flow without battery and power supply.

## **AEMtec GmbH**

AEMtec GmbH, based at the prestigious science and technology location in Berlin-Adlershof, is a well-established B2B enterprise that offers high-quality miniaturized technologies for sophisticated (opto-) electronic applications.

## **Aestodent GmbH**

The Aestodent GmbH offers future- oriented dentists quality products and services around the dental laser.

aestodent.de

## alco GmbH

Since the year 2000, we are developing, producing and distributing high quality medical device products for alco-gmbh.de the interventional medicine.

## AmbulanzPartner SozioTechnologie APST GmbH

AmbulanzPartner offers patients a network for coordinated supply of auxiliary and remedies, diet aids, mediambulanzpartner.de cations and care. Ambulance Partner combines case management with an Internet portal. The Internet portal AmbulanzPartner.de serves as "electronic care record", "management platform" and "review portal". Patients, relatives, doctors, pharmacists, nurses, medical homes, therapists and other care partners are connected via AmbulanzPartner.de and made all supply processes recognizable. Case management serves to facilitate the supply and to avoid misuse.

## **ARISTOTECH Implant Precision Forgings GmbH**

ARISTOTECH Implant Precision Forgings GmbH founded in 2006, is specialized in the manufacturing of med-aristotech.de ical products. The company, based in Luckenwalde, close to Berlin, supplies implant manufacturers throughout the world with precision forgings made of biocompatible materials according to ISO 5832.

## arivis AG

The arivis AG develops and provides IT solutions focused on the Life Sciences. Our product portfolio ranges arivis.com from solutions in science, regulatory, production to quality assurance for medical and pharmaceutical products.

## **ASKANIA Mikroskop Technik Rathenow GmbH**

Manufacturer of microscopes, Accessories for digital photograhy, Image analysis (software), Service and askania.de maintenance

## aviCOM GmbH

We are also offering our over 10 years experiences as customer tailored OEM and as other services.

avicom-med.de

#### **AVIDAL Distribution GmbH**

AVIDAL specializes in cardio-vascular, peripheral-vascular, and neuro-vascular patient care. With our business unit AVIDAL Distribution we offer a strong platform for medical devices manufacturers wanting to enter the central European markets. Our management team combines over 35 years of global marketing and sales experience. We hold close relationships with all cardio-vascular, peripheral-vascular and neuro-vascular key opinion leaders of these markets and are present in the majority of the top 100 care units.

## B. Braun Melsungen AG

B. Braun - Sharing Expertise. B. Braun supplies the global healthcare market with products for anesthesia, bbraun.de intensive medicine, cardiology, extracorporeal blood treatment and surgery, as well as services for hospitals, general practitioners and the homecare sector.

#### **BANDELIN** electronic GmbH & Co. KG

With our business unit AVIDAL Distribution we offer a strong platform for medical devices manufacturers wanting to enter the central European markets.

## Berlin Cert- Prüf- und Zertifizierstelle für Medizinprodukte GmbH

Berlin Cert GmbH offers you a wide variety of services as a testing facility and certification agency for health berlincert.de care products. Since 1997 Berlin Cert GmbH is listed as Notified Body. Through our cooperation with experienced partners and through close association with the Technical University of Berlin we are able to offer you a complete service.

#### **Berlin Heart GmbH**

Berlin Heart is the only European company in the emerging market of mechanical support of the heart. Our berlinheart.de lifesaving Ventricular Assist Devices, developed and manufactured in Berlin, are implanted in 44 countries, from Japan to Europe and the USA.

#### Berliner Glas KGaA Herbert Kubatz GmbH & Co.

The Berliner Glas Group is one of the world's leading providers of optical key components, assemblies and berlinerglas.com systems as well as high-quality refined technical glass.

We hold close relationships with all cardio-vascular, peripheral-vascular and neuro-vascular key opinion lead-berlinheals.de ers of these markets and are present in the majority of the top 100 care units.

## **Bermedi Medical Solutions GmbH**

Bermedi is specialized in the purchase and distribution of medical products. Our main focus: Export of products and services for medical radiology and medical imaging.

## Bernafon Hörgeräte GmbH

Bernafon GmbH is the German marketing company of Bernafon AG. Its activities in Berlin include the production and sale of hearing aids to the specialist trade, audiological consulting and custom manufacture of in-theear hearing systems and otoplastics. In 2012 a training facility unique in the industry was also established with the foundation of the Bernafon Academy.

## bess medizintechnik GmbH

Striving to combine top quality medical devices for ENT and Head & Neck Surgery with excellent, reliable bess.eu services, it is our target to live up to our customers' requests and needs now and in future. To this end, we are in constant contact with doctors, industry and other experts, constantly developing and adapting our portfolio.

## bess pro GmbH

bess pro gmbh develops, manufactures, packs, and sterilizes medical devices mainly for ENT, Head & Neck besspro.eu Surgery, Pulmonology and Gastroenterology. From 3D-CAD engineering via rapid prototyping and silicone injection molding, we offer full services up to clean room production and packaging (ISO class 7 and 8) for our affiliate companies (bess medizintechnik gmbh / Leufen Medical GmbH / Novatech S.A. / Boston Medical Products, Inc.) as well as for non-affiliate companies. Furthermore, bess pro offers laboratory tests with own climate chambers for real time and accelerated aging, equipment for strength tests and fatigue tests as well as high-resolution microscopy for sample tests or damage analysis. For sterility or packaging validation projects, or for other regulatory questions, our experienced engineers offer consultations as desired.

## Bio Mental Gesellschaft für Mentalsysteme mbH

BioMental GmbH develops, manufactures and sells biofeedback devices for respiration and eye movements. biomental.de They are used in medical and psychotherapy against tinnitus, migraine, chronic pain, ADS, burnout for preventive treatment.

## **BIOTRONIK SE & Co. KG**

As one of the world's leading manufacturers of cardiovascular medical devices, with several million devices biotronik.de implanted, BIOTRONIK is represented in over 100 countries by its global workforce of more than 5,600 employees. Known for having its finger on the pulse of the medical community, BIOTRONIK assesses the challenges physicians face, and provides the best solutions for all phases of patient care, ranging from diagnosis to treatment to patient management. Quality, innovation and reliability define BIOTRONIK and its growing success - and deliver confidence and peace of mind to physicians and their patients worldwide.

## **BLS Laboratories GmbH**

BLS is a preclinical CRO specialized in preclinical contract research and services in vivo. Our customers bls-germany.com develop drugs, biopharmaceuticals or medical devices and require preclinical studies in vivo to demonstrate biocompatibility, biological response, safety and efficacy according to national or international regulatory requirements.

## **BRAIN CENTER BERLIN GmbH**

The BCB is a Limited Liability Company. The companions decide on projects in research and development. brain-center-berlin.de Decisions are essentially steered by the scientific advisory board. At present, the activities of BCB focus primarily on attention deficit disorder (ADHS) and Alzheimer's disease (DAT).

#### **CAMERA MEDICA**

Camera medica is specialized in producing tailor-made medical advertising, educational and information films. camera-medica.de Our goal is to connect well foundet specialized medical knowledge with understandable responding visual design through film. Due to the company founders years of experience as a physician we are familiar with medical coherences, terminology and everyday clinical procedures.

#### Carl Zeiss Meditec AG

With a special focus on ophthalmology, ophthalmic surgery and visualization systems in the field of microsur- meditec.zeiss.com gery, Carl Zeiss Meditec AG supports healthcare professionals in setting new standards of care. The location in Berlin comprises production, sales, service, R & D, management and marketing for surgical ophthalmology, in particular intraocular lenses.

## Caterna Vision GmbH

As a certified manufacturer of medical products Caterna developed in collaboration with scientific partners caterna.de medical applications for doctors, orthoptists and concerned with which functional vision problems and other vision disorders can be treated.

## **Cedavis Technology GmbH**

With cedavisHealth, Cedavis Technology GmbH has created a solution that meets all requirements in the cedavis.com fields of data supply, data analysis and reporting in more than 80 hospitals.

## **Cerner Health Services Deutschland GmbH**

At Cerner, we're continuously building on our foundation of intelligent solutions for the health care industry. cerner.com Our technologies connect people and systems at more than 18,000 facilities worldwide, and our wide range of services support the clinical, financial and operational needs of organizations of every size.

## **CGM SYSTEMA Deutschland GmbH**

The CGM SYSTEMA GmbH Germany (Koblenz) is a subsidiary of CompuGroup Medical AG (CGM). CGM SYSTEMA bundles the CGM activities in the German hospital, hospital and healthcare sector. As a complete supplier, we offer customized IT solutions for the acute, rehabilitation and social market. Our interdisciplinary team of consultants of experienced industry experts lead your projects to success holistically.

## Christoph Miethke GmbH & Co. KG

Development, manufacturing and distribution of innovative neurosurgical products for the treatment of hydro- miethke.com cephalus.

## **Chronos Vision GmbH**

Swift image processing: For medical technology ChV develops, manufactures and markets eye movement chronos-vision.de measuring systems with image repeat rates of up to 1000 Hz. For industrial image processing we provide fast camera systems for 3D applications with up to 30 kHz.

## Circle Institute GmbH

Circle Institute was founded in 2000 by four physicians (mainly at the Charité). Since 2001, Circle in coopera-circle-institute.com tion with the UTC performs the multidisciplinary Training program - The clinical application of cardiovascular MRI - in cooperation with the Charité and the HELIOS clinics Berlin-Buch. In 41 courses, more than 700 participants received training so far. Attendee numbers at each session are deliberately kept low to assist participation and ensure personalized training.

## **CLEANICAL®** gmbh

Consulting for medical devices in surgical environment: Hygiene, cleaning, reprocessing cycle - function, design, ergonomics. Partner for manufacturers, clinical users, regulatory affairs officers worldwide. Cleanical Investigation & Application. International FORUM Medical Devices & Processes Vol. 1-15 since 1999

#### ClinPath GmbH

Data processing and organisation consultation in the health service.

clinpath.de

## **CLYXON Laser GmbH**

The CLYXON Laser GmbH - a wholly owned subsidiary of WOM WORLD OF MEDICINE GmbH - specializes clyxon.de in the development of medical laser systems and their application accessories. It thus supports innovation in the business sector Vision & Images of WOM WORLD OF MEDICINE GmbH.

#### **CMP Cleanical Medical Processes GmbH**

An entity on the network for validation and verification of medical devices & processes in hospitals and medical practices

## **CompuGroup Medical Dentalsysteme GmbH**

The range of practical software and add-on products traditionally aimed at practicing dentists in solo and cgm-dentalsysteme.de group practices. In addition, the CGM Dentalsysteme has with its wide range of solutions in the outpatient and inpatient area on the ability, especially for larger practice forms as ÜBAG and branch solutions offer top quality software solutions. In addition to the current core functions so diverse requirements can be implemented around the practice management and complete patient documentation.

## CompuGroup Medical AG

CompuGroup Medical is one of the leading eHealth companies in the world. Its software products are decomp.com signed to support all medical and organizational activities in doctors' offices, pharmacies, laboratories, hospitals and for other service providers in inpatient and outpatient facilities. Its information services for all parties involved in the healthcare system and its web-based personal health records contribute towards safer and more efficient healthcare.

Berlin-based Condat AG belongs to the leading vendors of innovative software solutions in the fields of media, condat.de mobility and monitoring.

## ConiuGo GmbH

Devices for telemedicine (Life Data Blazer). Medical transfers Data (e.g. Blood sugar values) from the patient coniugo.com to the physician or hospital.

## **CONWORX Technology GmbH**

Conworx is a specialist for the development of interfacing and data management software solutions for the conworx.com integration of medical and laboratory equipment into medical networks in Secondary care, Primary care and home care. Conworx sells proprietary products and develops OEM solutions for the industry.

## **Crystal Photonics GmbH**

Crystal Photonics is a highly-specialised producer of miniaturized nuclear radiation detectors of medicine, crystal-photonics.com defense and environment protection.

## daviko - Gesellschaft für digitale audiovisuelle Kommunikation mbH

Development and marketing of serverless multipoint videoconferencing software for cooperation on the intranet and internet.

## **DENS GmbH**

The DENS GmbH developes software for dentists and also takes on contract work. More than 2,000 dental dens-berlin.de practices nationwide use software solutions of DENS. Due to the good networking with leeding dentists, associations and authorities, the DENS GmbH is one of the most effective players in the market.

## **Dental Balance GmbH**

Dental Balance supplies dental practices and laboratories with innovative products. With imaginative soludental-balance.eu tions, flexible action and close cooperation with competent partners, we meet the high quality requirements of our customers. In order to meet the challenges in the everyday life of dentists and dental laboratory, we bridge the gap between conventional approaches and innovative technologies that allow an advanced and efficient work.

## **Dental Wings GmbH**

Dental Wings is one of the leading innovators in digital dentistry supplying dental scanning, design, surgical dentalwings.com planning, data management and manufacturing solutions. Dental Wings GmbH has offices in Chemnitz and Berlin. The parent company is based in Canada with over 100 employees worldwide.

dentaZOOM GmbH	
dentaZOOM GmbH develops and distributes dental microscopes.	dentazoom.de
DermoDyne HealthCare AG	
DermoDyne® light vaccination® is a new type of skin irradiation with pulsed blue light, which does not contain harmful UV components.	lichtklinik.de
Deutsch & Neumann GmbH	
Manufacturer of Laboratory Rubber And Synthetic Articles.	deutsch-neumann.de
dimedtec GmbH	
Sale of medical displays of every type as well as medical computers and galvanic separators. Quality assurance of image rendition devices, acceptance and constancy tests as well as teleradiology.	dimedtec.de
DiplIng. Jürgen Pfaender GmbH, Elektromedizinische Geräte	
As an ISO-certified mid-sized company, we have been specializing in electro-medicine for more than 25 years. Our core fields are anaesthesia and ventilation technology, monitoring devices, ZGA control units and operating tables.	pfaender-gmbh.de
diraal GmbH	
diraal GmbH is a provider of solutions and services for the quality assurance of image reproduction systems.	diraal.com
Doc Cirrus GmbH	
Doc Cirrus's core product inSuite is the world's first turnkey solution for practice management software, electronic health records and patient communication in a hybrid cloud setting. The patent-pending system is comprised of an all-in-one, browser-based software solution and the Doc Cirrus Data Safe, a micro server appliance customized for the needs of practices and medical centers. Besides optimized scheduling, documentation, prescription, documentation and billing, the solution also empowers caregivers using Doc Cirrus to offer their patients an integrated healthcare portal and telehealth services such as online video consultation.	doc-cirrus.com
DOCxcellence GmbH	
DOCxcellence GmbH sees itself as an IT services company in the healthcare sector and is characterized by "Thinking out of the box". By linking project management, product development and a comprehensive IT know-how, the DOCxcellence GmbH can respond optimally and always tailored to the customer requirements.	docxcellence.de
Dolosys GmbH	
Dolosys GmbH is an innovative med-tech company focused on the development and manufacturing of medical devices for the objective measurement of pain and pain control. The Dolosys Paintracker evaluates the prevailing level of pain attenuation in the spinal cord by measuring the excitability of the spinal pain reflexes. Pain therapy thus becomes measurable.	dolosys.de
Dr. H. Stamm GmbH	
Development and production of special preparations for ultrasound cleaning and disinfection.	dr-stamm.de
DrIng. Georg Wazau Meß- + Prüfsysteme GmbH	
Since over 90 years our company Wazau is the leading producer of measurement and testing systems. Our expert team of electrical engineers, mechanical engineers, high skilled technicans, microsystem engineers, business administrators, coaches and software engineers is up to date on the modern technologies and knows how connect mechanics, electronics and software to adapt any measurement and testing system to your individual requirements.	wazau.com
Dräger Medical Deutschland GmbH	
Dräger is a leading international company in the fields of medical and safety technology. Since 1889, Dräger has been developing advanced technical devices and solutions trusted by users all over the world. No matter where Dräger products are used: it's always about life. Whether for use in clinical, industrial or mining applications, in firefighting or rescue services, Dräger products protect, support and save lives.	draeger.com
DYNAMED Gesellschaft für Management und Logistik im Gesundheitswesen mbH	
Dynamed is one of the leading software company for logistics, transportation and service in healthcare. Since our inception, our goal is to make the various logistic processes in hospitals across divisions and processoriented to ensure that the residence of the patient is not a day longer than is medically necessary.	dynamed.de
eagleyard Photonics GmbH	
Manufacturer of high-performance laser diodes in the wavelength range 680 nm - 1120 nm. Specialized lasers	eagleyard.com

## **EBS Technologies GmbH**

EBS develops a unique non-invasive brain stimulation device to treat patients individual functional disorders ebstech.de of the brain. The mission is to improve neurological functions after stroke, head injury, glaucoma, amblyopia,

## **Eckert & Ziegler Strahlen- und Medizintechnik AG**

The Eckert & Ziegler Group is one of the world's largest providers of isotope technology for medical, scientific ezag.de and industrial use. The core businesses of the Group are: cancer therapy, industrial radiometry and nuclearmedical imaging. The three business segments are: Radiation Therapy, Isotope Products and Radiopharma. Eckert & Ziegler was founded in 1997 as a holding company. The oldest subsidiary, Eckert & Ziegler BEBIG GmbH, was preceded by the Zentralinstitut für Isotopentechnik, a research institute of the former Academy of Sciences of the GDR. Since 1999 Eckert & Ziegler is listed at the Frankfurt Stock Market. The shares are traded at the Prime Standard segment.

## **Eemagine Medical Imaging Solutions GmbH**

Development and production of medical equipment and software, especially for the recording and visualiza- eemagine.com tion of electrical brain activity (EEG) and integration with 3D images (MRI), for neuronavigation and related applications. Offers contract-based development services to medical industry. Certified according to EN ISO 9001 and EN ISO 13485.

Since 2010, the eHealth Labs develop headquartered in Potsdam-Babelsberg near Berlin innovative digital ehealth-labs.de technologies and applications for the health sector. These include apps to medical questionnaires for hospitals and medical practices and standardized tests of clinical psychology and neuropsychology. Moreover, eHealth Labs support their products well-known international institutions in multicenter studies, mobile data acquisition and document management.

## **EMO Systems GmbH**

Network isolators for electrical safety in networks (Ethernet) of hospitals and medical device to comply with the emosystems.de applicable safety requirements and ISO standards (Design, manufactureing and sale).

Our work covers the recruitment and supervision of new patients and conducting clinical trials. We are confident with clinical trials to advance the development of new drugs and thus might be able to bring about a cure or relief of various ailments.

## **EMPERRA GmbH**

Emperra is a development-driven medical-technology company in the fields of e-health technologies and emperra.com telediabetology - progressive software combined with future-oriented hardware, integrated into a medical/ scientific concept to provide telemedicine product systems for patients with diabetes mellitus.

## emtec e.V.

emtec e.V. is an institute for scientific advice and training in medical information technology. The service portfolio includes conception and organization of training seminars and conferences, development of a standard catalog system for harmonization and management of medical technical equipment and IT solutions for the healthcare industry.

## **EproTec GmbH**

Specialist for individual custom-made in all areas of modern orthotic care.

eprotec.de

## escotec Lasertechnik GmbH

Design and development, production and distribution of plants for laser material processing of medical devices as well as development of new laser technologies and laser material processing of medical products. Certification according to EN ISO 9001 and EN ISO 13485 (medical products).

## euro engineering AG

euro engineering AG is one of the leading engineering service providers in Germany. From research to full project implementation, the company covers the whole engineering portfolio. Key branches are automotive engineering, mechanical engineering, plant construction, precision and electrical engineering, construction, and medical engineering.

ee-ag.com

## **ExCard Research GmbH**

ExCard Research offers high-quality, centralized diagnostic ECG services. We are specialized in the analysis qtdrugs.com and interpretation of ECG recordings with particular focus on drug-induced prolongation of the QT-interval.

#### **Faromed GmbH Medizintechnik**

Development, manufacture and marketing of illuminated instruments and appliances in medicine and technol-faromed.de ogy: medical head lights, fiberoptic light sources, ENT instruments, laryngoscopes, procology, thermocautery and cold light cables. OEM and global marketing of the own brand. Highly specialized supplier of special replacement lamps for medical applications, laboratories and technological applications.

## **Farotec GmbH**

Contract manufacture of high quality mechanical components, electromechanical, medical and optical instruments and appliances, assemblies; development support for new products.

## Feingießerei Spremberg GmbH

We specialise in precision casting by waste-wax processes and provide expertise and highly complex products in a wide range of materials with part weights from only a few grams to app. 50 kg.

#### Feuerstein GmbH

Since more than 50 years the Feuerstein GmbH has been manufacturing surgical needles.

suprama.com

#### Fiagon GmbH

New medical Navigation System for intraoperative process control and positioning of instruments for ENT, fiagon.de Head-/ Neck- and Neurosurgery.

#### **First Sensor AG**

First Sensor AG is among the world's leading providers in the area of sensor technology. Our company devel-first-sensor.com ops and manufactures both standardized and tailor-made sensor solutions for applications in the industrial, medical and mobility growth markets. We will be among the top three providers in our core markets by 2019.

## F. MÜLLER® Dental-Technik GmbH

The laboratory F. Müller® Dental-Technik GmbH stands for a modern laboratory concept that combines precise f-mueller-dentaltechnik.de CAD - CAM technology and craftsmanship. Innovative dental solutions, advanced technology and over 15 years of experience in dental technology. As a "full-service" - laboratory we both your needs as a dentist, as well as the needs of our patients in aesthetics and quality.

#### Forschungsinstitut Havelhöhe gGmbH

In addition to concept development and evaluation of anthroposophic medicine, which include, in addition to fih-berlin.de the purely physical level, the areas of life, the soul and the spiritual, the aim of the FIH is to contribute to the inclusion of anthroposophic medicine in the modern scientific landscape.

## **FOR LIFE GmbH**

Since starting operation in 1990, FOR LIFE has been developing and producing high quality ostomy products stomocur.de which have become steadily more popular in Germany and throughout the world. Our products have been exported to more than 30 countries.

## FRANK OPTIC PRODUCTS GmbH optische Technologien

Development and manufacture of fiber-optic sensors, components and systems for laser surgery, minimal-frank-optic-products.de invasive surgery, ophthalmology, diagnostics, in-vitro diagnostics, dentistry, bleaching, endodontics, paradontology, PDT, angioplastics, urology and aesthetics. In particular laser cables, SideFire laser cables, fiber tips, sapphire tips, sapphire scalpels, hand pieces, distal pieces, fiber cannules, plug connectors, zoom lenses, focusing and collimation systems, laser components. All components are available ETO-sterilized or autoclavable. We develop and manufacture under DIN EN ISO 9001:2000 and DIN EN ISO 13485:2003 as well as CE0535 Medical laser cables and sensors.

## **GE Healthcare GmbH**

Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). gehealthcare.de Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries.

## gematik - Gesellschaft für Telematikanwendungen der Gesundheitskarte mbH

gematik - Society for Telematic Applications of the Health Card mbH is an organization that was founded by gematik.de the umbrella organizations of care providers and payers of the German health system on January 2005. The stated goal: the introduction of an electronic health card (eGK) and the telematics infrastructure to modernize the health system with focus on the patient.

## GeoCon Software GmbH

GeoCon developed for years user-friendly software solutions for companies in the health and care area and geocon.de continues with the products GeoCon roster 8.4 and GeoCon roster Pro standards.

#### getemed Medizin- und Informationstechnik AG

Development, production, sales, marketing and service of patient monitors, non-invasive ECG systems (Holter, rest and stress ECG) and telemonitoring solutions.

#### **GHC Global Healthcare GmbH**

Research, development and marketing of telemedical systems and services for use in emergency and accident medicine, routine diagnostics and home care.

## Gillert Medizintechnik e.K.

Sale of medical technology products to doctors, hospitals, care homes and therapists. Implementation of re- gillert-medizintechnik.de pairs as well as calibration. Supply of medical products for patients in the fields of medical technology, home care, rehabilitation technology.

#### **GT German Telematics GmbH**

GT German Telematics GmbH was founded in 2007 in the capital city - Berlin. GT is a part of the globally germantelematics.de operating Jolly Group with its headquarters in Berlin. The company draws on over 30 years of management experience in the fields of IT-Solutions, Telecom, Health Care, Smart Metering, Device Contract Manufacturing and Maintenance Services.

## **GUBBEMED International GmbH**

GUBBEMED International GmbH is a successful family owned German company. With a team of young and gubbemed.de ambitious development engineers, GUBBEMED has become one of the world leaders in manufacturing LED - Surgical Lights and complete Operating Theatre Solutions.

## Günther Frey GmbH & Co. KG

We offer consulting and provide innovative solutions in reference to producibility, material, surface engineer- frey-precision.de ing, heat treatment as well as production problems - from single piece to serial production - developed with the aid of state-of-the-art CAD and CAM systems.

## Gustav Kunze jr.

Manufacture of furniture for operating theaters, hospital stations and medical practices. Instrument tables, kunze-berlin.com bed screens, service tables, step-ladders, operating shoe shelves, patient transporters, corpse transporters, bedpan holders, customized products.

## **Harvard Dental International GmbH**

Harvard Dental International presents a number of innovative product developments of modern cements and harvard-dental-international.de materials which satisfy highest standards of quality. The portfolio ranges from temporary treatment with luting cements to provisional crown and bridge material and to definitive luting cements. Furthermore Harvard offers biocompatible endodontic and capsule-based MTA cement which provides for a problem-free mixing process and an excellent consistency of the material.

## HASCI Ingenieurgesellschaft GmbH

Development and production of measuring apparatus and test stands for industrial manufacturers of respira- hasci.de tory protection, medical engineering and fluid technology systems.

## HausMed eHealth Services GmbH

The HausMed health coaching support the care offered by family doctors and occupational health manage- hausmed.de ment by employers.

## Hempel GesundheitsPartner GmbH

We offer products and services for the prevention and rehabilitation. As a partner of the patient, physician and hempel-berlin.de payers are the competence and quality of advice, service and product in the foreground of our actions. At any time on the individual needs of the patient matched.

## **Hinz Fabrik GmbH**

Manufacture and marketing of documentation systems for the care and hospital sector, of mobile furniture hinz.de for hospitals, outpatient units and care homes as well as form concepts and software for hospitals and rest homes.

## **HiPer Medical AG**

HiPer Medical develops and manufactures components for endoprosthesis and dental blanks using high per-hiper-medical.de formance ceramic materials.

## Hoffmann Dental Manufaktur GmbH

Hoffmann Dental Manufaktur is a pioneer in the dental industry and has been developing dental biomaterials hoffmann-dental.com for over 120 years. In modern processes and mainly based on natural ingredients, Hoffmann's create very well tolerated and effective products for restorative and conservative dentistry.

## HOFFMANN+LIEBENBERG Gesellschaft für Informationsmanagement mbH Consulting, design and project management for information services and electronic services, in particular hoffmannliebenberg.de in science, technology and medicine, with the aim of developing solutions, capabilities and technologies in companies. Holistic Concepts GmbH & Co. KG Identify imbalances of the organism by means of objective methods in advance and analyze in order to pre- amsat-hc.de serve health and avoid illness is our goal. All developments and activities of our company are based on the Feeling- and Prevention Concept® that is based on the centuries-old Asian wisdom that "the exterior follows the interior". Hörgeräte Akustik Flemming & Klingbeil GmbH & Co. KG Flemming & Klingbeil is a company with over 40 years of experience and tradition in Berlin. In our team of flemming-klingbeil.de hearing aid master acousticians and qualified acousticians we also have specially trained acousticians for the fields of Tinnitus and children. HORICO DENTAL Hopf, Ringleb & Co. GmbH & Cie. Seperating strips - diamond and ruby coated. Diamondinstruments for Dentists and Laboratories, points and horico.de diamond discs. Metall strips, serrated strips, carbide burs, carbide cutters up to 7mm in diameter, polishers Hospital LogiServe GmbH For more than 15 years, we optimize material supply processes of our customers. We can supply you with hospital-logiserve.de all the products of the hospital operation: from the staple to the heart valve - and even more so: We organize and optimize the entire process chain logistics management. Starting with the implementation of professional purchasing and warehousing to material controlling. How to Organize Gesellschaft für Technologieentwicklung mbH How to Organize GmbH is a research and development company for innovative hardware and IT solutions at how-to-organize.de the cutting edge of technology. The company was founded in Berlin as a subsidiary of the medical technology manufacturer KARL STORZ **Humedics GmbH** Humedics is marketing an innovative measuring procedure consisting of an instrument, accessories and a humedics.de diagnostic permitting immediate determination of the liver performance at the patient's bedside. HyCARE Organisationsberatung und Softwarelösungen für Pflegeeinrichtungen GmbH Organization consulting and software solutions for care facilities. hycare.de Hydrotech Strausberg GmbH & Co. KG Producer for urological siliconballoncatheter and coated catheters, as well distributer for home care articles. hvdrotech-srb.de ID Information und Dokumentation im Gesundheitswesen GmbH & Co. KGaA Since 1985, ID has developed quality tools for medical documentation in hospitals, medical practices, insurid-berlin.de ance companies, professional associations and research facilities. iDoc Institut für Telemedizin und Gesundheitskommunikation GmbH & Co. KG Development and implementation of innovative e-health and telemedicine applications. idoc.de **IfG Institute for Scientific Instruments GmbH** Development and manufacture of X-ray capillary optics, monochromators, low power microfocus X-ray sourcifg-adlershof.de es, femto-second X-ray plasma sources as well as process-oriented X-ray analytical instruments. imassense Deutschland GmbH imassense is develloping innovateive solutions for PACS, archiving and image processing. Taking into ac- imassense.de count all technical and legal requirements,our systems support all network interfaces. Information systems for pathology (IS-P) and radiology (RIS) are already in use for a longer time and together with our tool for viewing and streaming no clinical practice could be without our tools. Nearly 20 years of experience in the development of scientifically based guarantee for a steady development. imassense is an independant firm and contains to the independent ALLY Group. **Imatics Software GmbH** Imatics offers the complete value-added chain for topics of Health-IT and Digital Health with a focus on non-imatics.de

clinical care. The business activities include consulting, conception and strategy to the development of indi-

vidual IT-solutions and continuous verification of project sustainability.

## **Imilia Interactive Mobile Application GmbH** Imilia goes beyond developing Software that meets your needs. We like to listen and learn and work with you imilia.com to create the best solution. Our extensive experience in building hi-tech modern software ensures a robust, reliable and scalable solution. **IMP Computersysteme AG** Software systems for Blood Donation, HLA, Tissue-Banking and Point of Care Testing. imp-ag.de INBITEC Institut für biologisch-medizinische Forschung und Technologie e.V. The Institute for Bio- medical research and Technology (INBITEC e.V. ) was founded with the aim to carry out inbitecev.de or encourage scientific research in the field of natural sciences / medicine and engineering developments. InnoRa GmbH Originators of drug-coated balloon therapy / stentless restenosis inhibition. InnoRa's activities focus on the innora.de organization and funding of complex research projects that require interdisciplinary cooperation involving companies, universities, hospitals and research organizations. intromed Medizintechnik GmbH Development, manufacture and marketing of implants and instruments for spine surgery. intromed.de IT Service Omikron GmbH A visit in the virtual operating theater: This vision comes true with X-Rooms, a system for interactive virtualreality environments. ITSO is a spin-off of the Fraunhofer Society and offers IT solutions with a passion for innovation **IUT Medical GmbH** IUT Medical is developer and manufacturer of trace gas analyzers for industrial- and environmental monitor- iut-medical.com ing and for solutions in the homeland security and building protection. The application which can be covered range from ambient air monitoring, process monitoring, stack monitoring to semiconductor and safety at work application to the detection of Chemical Warfare Agents (CWA) in homeland security. ixellence GmbH ixellence GmbH is an internationally operating provider of telematics solutions and services in the sectors of ixellence.com image processing, medicine, security and facility management. She successfully plans, develops and supervises since 2004 f.e. software projects in the medical telematics. The customers are hospitals and universities worldwide, who use the software for clinical studies. Japan Stent Technology Europe GmbH Japan Stent Technology harnesses ist advanced expertise and state-of-the-art technology to serve society jstentech.com and improve quality of life by developing globally competitive medical devices in an economically viable way. Jon F. Systeme GmbH Jon F. Systems GmbH was founded in November 2002 by Mr Jon F. Friedlander. The company's headquarters jonf.de is Berlin. The company's aim is to act in the field of sleep apnea as the optimal missing link between patients, sleep labs, the attending general practitioners and health insurance / insurance. Jonas - ganzheitliche Zahntechnik GmbH & Co. KG Development and marketing of the patient positioning system OrthaS®, core activities in artifi cial dentition zahntechnikjonas.de for allergy sufferers, chronic pain patients with CMD, reconstruction of lost optical dental harmony after facial analysis. Jonas & Redmann Group GmbH Jonas & Redmann offers innovative, high-performance industrial equipment for automating production pro- jonas-redmann.com cesses. KARL FALK Medizintechnik Founded in 1932, planning, trade, complete services in the area of medical technology. Representation of renowned manufacturers such as MAQUET, clinical partner for surgery and intensive care; nationwide customer support; 24/7 workflow analysis; custom designs and products, and capital goods. KARL STORZ Endoskope Berlin GmbH KARL STORZ-Solutions offers a tailored, complete product and service portfolio for the OR and doctor's karlstorz.com practice. It includes a full range of services, training and innovative customized financ-ing concepts as well as

## Karlheinz Gutsche GmbH

advice on cost efficiencies for practices and hospitals.

Gutsche has a long tradition in the manufacture of achromatic objectives, rod lenses and compact object- gutsche-feinoptik.de tives as prototypes, in small or large batches. Since 1959, our production processes have been continually improved and further developed and are therefore always state-of-the-art.

## **KD Medical GmbH** KD Medical GmbH Hospital Products (KDM®) is a German manufacturer based in Berlin. KDM® focuses on kdm-berlin.de disposable medical devices and has developed a leading position in needle technology. With products that are sold in more than 60 countries and its wide product range, that is constantly being expanded and improved, KDM® has gained an excellent worldwide reputation regarding quality and reliability. **KOG Krankenhaus-Organisation GmbH** Your reliable and competent partner when it comes to the following points. Quick and easy storage and easy kog-berlin.de retrieval of transactions in the registry / in the archives, optimally designed registries and shelves for the particular application. Krankenhaus-Service-Zentrum für Medizintechnik Hadert GmbH Trade, inspection and repair of medical devices and systems from all major manufacturers. ksz-hadert.de Kreisz Medizin Technik GmbH Sale of high frequency units (MEK 4) for the application in minimal invasive aestetic medicine. kreisz-medizintechnik.de Laser- und Medizin-Technologie GmbH The Laser- und Medizin-Technologie GmbH, Berlin (LMTB) is a non-profit research transfer organisation for LMTB.de Biomedical Optics and Applied Laser Technology. Its intent is to transfer concepts and technologies from these areas to industry. Laserneedle GmbH LASERNEEDLE is a manufacturer of medical devices for low level laser therapy (LLLT) and the pioneer of the laserneedle.eu unique 'High Power Density' technology. The innovative and technically sophisticated products are primarily focused on the application in orthopedics, sports medicine and physiotherapy. **LAUER-FISCHER GmbH** Create new things with continuity: innovation, market proximity, service and reliability have made the LAUER- lauer-fischer.de FISCHER GmbH an innovation leader in the pharmacy IT. Leisegang Feinmechanik - Optik GmbH Colposcopes have been made by Leisegang Feinmechanik-Optik GmbH since 1948 and over the years the leisegang.de company has become one of the market leaders in the field of colposcope production. LensWista AG LensWista's core business is the production and distribution of silicone contact lenses (monthly contact lenses lenswista com and continuous wear contacts) and bandage lenses after eye surgery or to treat eye traumata. In addition, we intend to transfer our coating for improving of hydrophility to other medical products. **Leoni Fiber Optics GmbH** Manufacture and sale of quartz and quartz/quartz fibers for industrial and medical applications. Medical fibers leoni-fiber-optics.com for diagnostics and therapy as sterile one-way products for surgical, ophthalmological and endovascular applications as well as special sensors. **Leufen Medical GmbH** Since 2003 Leufen Medical has been offering selfexpanding stents for Pulmonology (aerstent®) and Gastro- leufen-medical.eu enterology (aixstent®). Our high demands on quality and functionality have earned us the trust of doctors and patients and have made us market leaders in Germany for self-expanding nitinol tracheobronchial stents. A bess group company, Leufen Medical GmbH is also the exclusive German distributor of Novatech S.A. (GSS™/DUMON® silicone tracheo-bronchial stents / STERITALC®). Inspiring Solutions. Convincing quality. Advice that leave no question unanswered. **Lewin Industries GmbH** Provider of development services for products and processes, manufacturer and marketing partner in the fi lewin-industries.de elds of medicine, plastics technology and refrigeration technology. Limmer Laser is a family business, specializing in the design, manufacture and sale of medical lasers and ac-limmerlaser.de cessories. Our products cover all major disciplines of human, dental and veterinary medicine.

MULTILINE™ is a unique laser system with an integrated universal power and control system featuring exter- linline.com

nal, compact laser emitters. User's options for MULTILINE range from one to seven (and even more) emitters

per system.

## LISCHKA GmbH

Planning and delivery of unclean work rooms with cleaning and disinfection automats, sterilization and water made-by-lischka.de preparation systems; manufacture of medical furniture; DIN EN ISO 9001:2000 quality certified.

#### **LMI Technologies GmbH**

3D scanning and inspection is our passion. Increased productivity and profitability is our commitment to you. Imi3d.com At LMI, we are dedicated to helping our customers realize the advantages of the most innovative 3D vision technologies. Our high-performance, easily implemented, and cost-effective solutions are trusted throughout the world in even the most unforgiving applications. Our unique solutions not only enhance profitability and minimize time-to-market, they also help our customers stay ahead of their competition.

## LMT - Leschke Messtechnik GmbH

Cleanroom technology and occupational medicine: maintenance, repair and calibration of measuring devices leschke-messtechnik.de as well as cleanroom controlling.

#### Locke Dentaltechnik GmbH & Co. KG

Craniofacial Rehabilitation - Anaplastology

locke-dentaltechnik.de

#### LoeScap Technology GmbH

Development and operation of a modular digital DICOM picture archive for clinics, hospitals and radiology loescap.de practices

## **LOGARIS Software Entwicklungs-GmbH**

Solutions and services in the field of software applications and business process optimizations; software for logaris-software.de dental and orthodontic practices focusing on hotline, support and training. Linkup of medical administration software with the document management system ELO.

## Lohmann & Birkner Health Care Consulting GmbH

We provide software solutions, from DRG tools to mobile services, project and case.

lohmann-birkner.de

#### Loptek Glasfasertechnik GmbH & Co. KG

Management and business consulting in the fields of medical controlling and budgeting.

loptek.de

## Löser Messtechnik

Development, manufacturing and supplying of Osmometer and Cryometer for medical, biological and chemiloeser-osmometer.de cal laboratories.

## LTB Lasertechnik Berlin GmbH

LTB Lasertechnik Berlin GmbH is an innovative developer and manufacturer of short-pulse lasers in the whole optical spectral range, and of different spectrometers and laser-based measuring technique, marketing its products world-wide.

Itb-berlin.de

## **MagForce AG**

MagForce AG is a leading medical device company focusing on nanomedicine in oncology. The company's magforce.com proprietary NanoTherm® therapy enables the focal treatment of solid tumors through intratumoral generation of heat via activation of instilled superparamagnetic nanoparticles. NanoTherm®, NanoPlan®, and NanoActivator® are components of the therapy and have received EU-wide certification (CE mark) as medical devices for the treatment of brain tumors. NanoTherm® therapy is currently available to national and foreign patients in five world-class hospitals in Germany.

## **Magnettech GmbH**

Magnettech is manufacturer and supplier of electron paramagnetic resonance (EPR) spectrometers. One of magnettech.de the most important applications is the detection and quantification of nitric oxide (NO) and superoxide respectively reactive oxygen species (ROS).

## **MAICO Diagnostic GmbH**

MAICO develops, produces, distributes intruments for hearing testing, especially audiometer, tympanometer, maico-diagnostic.de OAE and ABR Testsystems, as well as corresponding software.

## Marabu EDV-Beratung und -Service GmbH

Marabu is a software development and consulting company specialising in record management, digital ar- marabu-edv.de chiving, document and process management with many years of experience in the healthcare market.

as well as bone replacement materials.

## **MaTec Gummiwerk GmbH** MaTec Gummiwerk - the Caputh rubber factory stands for 55 years of experience, innovation and quality. gummiwerk.de We offer you "Full-Service" and individual high tech products in the field of technical rubber parts. "Rubber is everywhere" - so we as an independent supplier are active in all sectors of trade and industry. Highly qualified staff and our state of the art machinery are our response to the great challenges of the global market. The combination of technological innovation, flexible manufacturing and continuous quality are given top priority. matino medical devices Gmbh & Co. KG Production and sale of metal components and related products, in particular in the field of medical technology for cardiac pacemakers and defibrillators, as well as metal components for picture tube and electrical technology. mdc medical device certification GmbH As notified body and registrar for QM systems we offer comprehensive certification services in the area of medical devices, in-vitro diagnostic devices and health care. In seminars we provide information about current requirements. MED G & K GmbH MED G & K GmbH is since the nineties your reliable partner in the field of services in diagnostic imaging. medak.com MED Medizinische Entsorgungs- und Dienstleistungs GmbH Disposal of medical and special wastes; supply of medical and hygiene products. medgmbh.com medatixx GmbH & Co. KG As a provider of ambulance Software, MVZ software and practice management software for physicians, we medatixx.de want to help our customers to better organize their practice schedule and to cope with the bureaucracy as efficiently as possible. We develop software solutions for efficient practice management, - flanked by our services and add-on products - are tailored to the needs of medical practice, the MVZ or the ambulance. **MEDICAR GmbH & Co KG** Repairs of every kind, incl. hospital wheelchair service, wheelchair hire, installation and maintenance of reha-medicar.de bilitation technology systems. medi-relation GmbH endoportal E. G. (registered cooperative) is a voluntary association of orthopedic and trauma surgery special-endoportal.de ists in Berlin. In the associated practices specialists work with great operational experience, gained in their many years of clinic appointment and continuing occupation as staff or consulting physician in hospitals. Medizinisches Kompetenzzentrum c/o HCx Consulting GmbH Supported by the state of Brandenburg, Germany, "Medizin im Grünen" maintains a modern, interdisciplinary medizin-im-gruenen.de medical training, research and development centre close to Berlin in Wendisch Rietz, providing all important functional units of a hospital like generous operating theatres, intensive care units as well an emergency ambulance. **Medizintechnik Rostock GmbH** Provider for medical supplies, rental and sale of devices for electrical stimulation of nerves and muscles, bio- medizintechnik-rostock.de feedback, continuous passive motion, erectile disfunction and compression therapy. medneo GmbH medneo GmbH is an international service- and technology-provider specialized in "Radiology as a Service" medneo.de with own highly efficient operated diagnostic- and teleradiology-centers. medneo offers radiologists and hospitals pay-per-use-solutions for the utilization of high-end diagnostic imaging modalities – without any investment-, technology- and utilization-risk. **MEDNOVO Medical Software Solutions GmbH** Development and marketing of customized software solutions for hospitals and medical technology providers - mednovo.de high-performing, user-friendly and time-saving. **MELAG oHG Medizintechnik** MELAG is an owner operated family business that has consistently focused its efforts on products for practice melag.de hygiene since the company was first founded in 1951. **Merete Medical GmbH** Merete Medical GmbH is a high-tech medical technology company specialized in the research, development merete.de and manufacture of medical products used in orthopedics and bone surgery. Merete's comprehensive product portfolio includes implants and instruments made of metal, resorbable and non-resorbable synthetic materials

## Merope SoftOrthopaedics GmbH

Our parent company, Merete Medical GmbH, has one of the most modern manufacturing plants for orthopaedic and traumatological implants. As a subsidiary, Merope SoftOrthopaedics produces and distributes medical disposables for surgical use, while SoftOrthopaedics specialises in the production and distribution of orthopaedic devices designed for orthopaedic and traumatological applications.

#### **Merosystems Merete Medical GmbH**

MEROSYSTEMS™, a division of Merete Medical GmbH, is specialized in the distribution of high quality medical merosystems.de single-use products.

## **MEYTEC GmbH Informationssysteme**

The MEYTEC GmbH information systems develops products, systems, solutions and services for tele-medimeytec.com cine and eHealth. Distribution and service are realized worldwide directly or with partners.

#### MGB Endoskopische Geräte GmbH

MGB Endoskopische Geräte GmbH Berlin, one of the oldest German manufacturers of rigid telescopes with mgb-berlin.de an over 100 year old tradition, manufactures, develops and distributes complete solutions for Minimal Invasive Surgery.

#### Michels Klinik Service GmbH

In our rehabilitation clinics in the area of Saxony, Berlin-Brandenburg and Lower Saxony, we offer rehabilita- michelskliniken.de tion services in the fields of neurology, orthopedic, cardiology and psychosomatics.

#### Micon Medizintechnik GmbH

Micon Medizintechnik GmbH is an oem manufacturer in the medical field of endoscopy.

micon info

#### Mindfield Biosystems Ltd.

Mindfield® Biosystems Ltd. is a young, dynamic enterprise which focuses on the development of medical mindfield.de technology and software. Since the year of 2003, we devise products for healthcare-therapy and the Wellness market. Our area of expertise lies in bio- and neurofeedback, an enhanced method of behavioral medical treatment of diverse clinical pictures. Our profile is supplemented by long-term experience in the development of audio-visual stimulation (so called mind machines / mental-trainers).

## Mirow Systemtechnik GmbH

Custom specific development and fabrication of flex sensor- and actuator- systems, based on PVDF and EAE mirow.de plastic film material.

## **MOVEO Software GmbH**

Integrated software solutions for institutions and companies in the Health Care technology providers - high- moveo-software.com performing, user-friendly and time-saving.

## MTR+ Vertriebs GmbH

MTR+ Vertriebs GmbH is an ISO 13485-certified company that has specialized in development, manufactur- mtrplus.com ing and sale of medical devices for electric stimulation, (pain therapy, muscle rehabilitation, paresis stimulation, incontinence therapy) or EMG-biofeedback & EMG-triggered stimulation.

## **Natural Dental Implants AG**

Natural Dental Implants™ AG is a dental technology and services company with a disruptive technology – the \_\_natural-dental-implants.com fully customized dental implant, called Replicate™ Non-Surgical Tooth Replacement System – that allows for immediately functional and esthetic replacement of a non-functional tooth directly after its extraction.

## NIRx Medizintechnik GmbH

Optical Tomography (OT)

nirx net

## NoemaLife GmbH

NoemaLife GmbH is offering innovative IT solutions to the healthcare sector since more than 12 years, e.g. noemalife.de Pathology-software and EMRs. The NoemaLife GmbH is part of the international NoemaLife Group.

## **NORDPRAX IT-Service GmbH**

Professional IT solutions, in particular for doctors, company physicians and freelance professionals.

nordprax.de

## **Obrira Optik Brillen GmbH Rathenow**

Manufactures binocular and other magnifying glasses.

obrira.de

## **Oculentis GmbH**

Competency in intraocular surgery - for mor then 15 years: Oculentis develops innovative products in the field oculentis.com of intraocular surgery. We strive to find the optimum eye care solution for surgeon and patient.

#### **OD-OS GmbH**

As the pioneer of Retina Navigation, OD-OS is setting new standards of care for retina treatment. Its Navilas® Laser System is an advanced laser photocoagulation device revolutionizing the treatment of vision-threaten-

## **OHST Medizintechnik AG**

#### Orthopedic Devices Made in Germany.

As a leading contract manufacturer, OHST will provide you with a wide range of customised solutions and services in the field of endoprosthetics - from concept and design to the finished product. We are committed to meeting the requirements of our customers very flexibly and with outstanding innovation capacities. Quality, cost-efficiency and reliability form the basis for continuous and successful partnerships.

ohst.de

## **Olympus Soft Imaging Solutions GmbH**

Development, production, distribution, support and service of imaging software and hardware systems for all soft-imaging.net microscopic applications.

## **Olympus Surgical Technologies Europe**

Within the Olympus Corporation, Olympus Surgical Technologies Europe in Teltow is a worldwide competence olympus-oste.eu centre for medical radio-frequency technologies - especially high frequency generators. With more than 100 employees, Olympus develops and manufactures cutting-edge medical technology in Teltow. The success is based on many years of in-depth experience in the field of minimally invasive surgery (former Celon AG).

## **OPTIMAL SYSTEMS GmbH**

OPTIMAL SYSTEMS ranks among the leading German providers of individually configurable solutions for optimal-systems.de enterprise content management (ECM). OPTIMAL SYSTEMS Vertriebsgesellschaft mbH Berlin (OSVB) is a company of the OPTIMAL SYSTEMS group. It develops and distributes software solutions in the health sector, which are being used by over 100 clinics, university hospitals and rehabilitation facilities.

#### **OraMetrix GmbH**

Computer-aided orthodontics Products: 3D intra-oral cameras, 3D printed dental models, 3D printed Indirect orametrix.com Bonding Trays for orthodontics, 3D software for treatment planning and simulation, robotic bending and measurement technology for manufacturing and quality control of custom-made orthodontic archwires.

## **Orgapunkt GmbH**

We support you in setting up and using your computer system. One of our priorities is to patient management orgapunkt.de in medical practices / dental offices. For this we offer you a wide range of products from the house of Frey ADV GmbH and help you in the realization of your project in your practice.

## **Orpedo Orthopedics Company KG**

We develop, produce and market supports, orthoses and various orthopedic aids for the prevention and orpedo.com rehabilitation of various diseases and injuries. Through our product range all the regions of the body are covered. Our production sites are located exclusively in Europe and using only tested, certified and skin-friendly materials.

## **ORTEC medical GmbH**

ORTEC develops innovative software solutions for clinics, focusing on the development of products and pro- ortec-medical.org cesses to support effective use of clinical data based on semantic and knowledge management technologies.

## Ortho-Ped Dittmer GmbH & Co. KG

Founded in 1947 in Berlin-Wilmersdorf, this master enterprise for technical orthopaedics and medical equip-ortho-ped-dittmer.de ment store provides braces, prostheses and complicated wheelchair adjustments as well as bandages, compression stockings, pads, breast epitheses and patient care products.

## **Ortmaier GmbH**

The range of services is concerned with the everyday problems and illnesses that age brings (Toiletries, compression stockings, wheelchairs walkers...). and as well as the compensation and relief from difficult diseases e.g.orthotics, prosthetics... . Ortmaier is a certified company (according to DIN EN ISO 1348) with integrated quality management.

## Osypka Medical GmbH

Develops, manufactures and markets medical diagnosis and therapy systems for cardiac and vascular func- osypkamed.com tions, in particular temporary cardiac pacemakers and haemodynamic monitor systems; OEM for renowned international medical technology companies.

## OTB GmbH & Co. KG

OTB – The modern medical supply store with more than 50 branches for the following segments: orthopaedic otb.info technology, rehabilitation systems, orthopaedic shoe technology, medical supply store, home care.

#### Otto Bock HealthCare GmbH

Med-tech products and fitting solutions for people with limited mobility in the areas of prosthetics, orthotics, ottobock-group.com mobility solutions (wheelchairs, rehab solutions), neurostimulation, and medical care. Subsidiaries in 55 countries offer 'Made in Germany' quality all over the world, and are supported by more than 7,000 employees. Open Innovation Space was created in cooperation with FabLab Berlin at the Bötzow compound in May 2015, additional Ottobock location for sales and marketing, strategy and R&D. Since its founding in 1919 Ottobock has been a family enterprise, and since 1988 Ottobock has supported the Paralympic Games with its technical know-how.

## Palladium-med GmbH

Palladium-med is the connecting chain between digital pathology and pathology information systems. palladium-med.de Palladium-med offers integrated solutions, meaning slide scanner hardware and digital pathology software suites (like from VMscope GmbH) deeply integrated into pathology information or biobanking systems.

#### PAR Medizintechnik GmbH & Co. KG

Innovative technology and comprehensive know-how made in Germany. PAR Medizintechnik GmbH was par-berlin.com established in Berlin in 1988. Our purpose is to develop, manufacture and distribute electronic equipment for the measurement, storage and processing of various human vital signs.

## parelectrics UG

parelectrics develops and sells medical devices based on a non-invasive platform technology. The first products are a device for skin-cancer diagnostics and a measuring instrument for use in hemodialysis.

## patiodoc AG

The service companies patiodoc supports and develops innovative forms of medical cooperation, such as integrated care, doctors' networks or medical care centers, which ensure the medical autonomy and at the same time take into account the needs and concerns of physicians.

patiodoc.de

## **Personal MedSystems GmbH**

Personal MedSystems was founded to allow cardiovascular patients more certainty about their cardiac activity cardiosecur.com and a higher quality of life at any time. Now, 7 years later, Personal MedSystems is one of the pioneers at the area of mobile ECG devices.

## **Philips Deutschland GmbH**

Royal Philips employs globally 106,000 people with sales of EUR 21.4 billion in 2014. Philips is a diversified philips de health and well-being company, focused on improving people's lives through meaningful innovation in the areas of Healthcare, Consumer Lifestyle and Lighting.

## **PHOEBUS IT consulting GmbH**

Comprehensive controlling solutions for hospitals, manufacturers and service providers, transport and logistic phoebus.de companies, suppliers and disposal operators. Combinations of MIS with cost accounting and consulting tools; payer accounting, medical and operation controlling, budgeting/planning, fl exible evaluations, reporting.

## **Physiomatic GmbH**

With a wide range of medical indications has Physio Matic GmbH high-quality solutions for ergonomic chairs physiomatic.de and sleeping. Its products developed Physio Matic based cutting-edge technologies by the latest scientific findinas.

## Pilot Blankenfelde medizinisch elektronische Geräte GmbH

Development, manufacture and sale of electronic medical technology products, focusing on objective measur- pilot-blankenfelde.de ing systems for diagnostics in otorhinolaryngology and neurology.

## **Pioneer Medical Devices AG**

The Pioneer Group is the leading high-end specialist in cost savings in medical care providers, while improv- pioneer-med.de ing performance. Our objective is to contribute with intelligent solutions to the fact that medical progress can continue to be implemented - and at affordable costs.

## **Piramal Imaging GmbH**

Piramal Imaging GmbH is the German-based R&D arm of Piramal Imaging S.A., which develops novel PET tracers for molecular imaging to improve early detection of chronic diseases. Our portfolio consists of promising molecular imaging agents for dementia, oncology & cardiovascular indications.

piramal.com/imaging

## **Pneumatik Berlin GmbH PTM**

Convincing solutions, products & services which meet the highest demands required by modern medical pneumatik-berlin.de practices determine the way in which our employees operate. Our product range includes: Medical ceilingmounted supply units, energy bridge systems, OR Wall systems & doors, Central medical gas supply systems and a broad range of medical accessories.

Primax Berlin GmbH	
Offers under Primax® brand Medical X-ray films/Dental X-ray films, film processing chemistry, X-ray cassettes and screens, X-ray protective clothing, Ultrasound gel/other gel products, all CE certified. Company ISO 13485 certified.	primax-berlin.de
Projektron GmbH	
With the clinical version of Projektro BCS, the company provides a web based software for project and contract management that covers the full range of health sector requirements.	projektron.de
PROMOTEC-Medizintechnik	
Research and development, manufacturing, packaging and distribution of medical instruments for minimally invasive surgery and neonatology.	promotec-medizintechnik.de
PSH Perfecta Soft & Hardware GmbH	
A provider of medical system solutions. We equip medical practices with hard- and software.	psh-perfecta.de
Questmed GmbH	
The Questmed GmbH offers scientific and technological laboratory services for medical device manufacturers in the areas of arthroplasty and internal fixation.	questmed.de
RBB Rehabund Berlin GmbH	
Service association of the medical supply stores Pfau, Paul Schulze, Uwe Telschow and for small and large orthopedics and specialised dealers for technical aids.	rehabund-berlin.de
Reha center Steffan OHG	
Specialized company for rehabilitation technology and daily living aids.	rehatechnik-steffan.de
Rehabtech Research Lab GmbH	
Research, development, further education and training in the field of medical engineering. Rehabtech Research Lab cooperates closely with other research facilities and is a recognised "Institute at TU Berlin". We focus on orthopedic and rehabilitation technologies, in particular by basic biomechanics research, the continuing development of measuring and test processes in prosthetics and orthetics and research into other application fields. Open Innovation Space was created in cooperation with FabLab Berlin at the Bötzow compound in May 2015, additional Ottobock location for sales and marketing, strategy and R&D.	rehab-lab.com
Reha-Stim Medtec GmbH & Co. KG	
Manufacturer and distributor of medical devices for neurological rehabilitation.	reha-stim.de
Robert Helwig GmbH	
Manufacture of syringes and cannules for human and veterinary medicine and technical applications.	hero-berlin.de
Robert Riele GmbH & Co. KG	
Development, production and sale of photometers, in particular for clinical chemistry, water analyses, industrial applications and for training purposes; OEM	riele.de
Roland Consult Stasche & Finger GmbH	
Production of medical diagnostic instruments in Ophthalmology:  • Darkadaptation Test Instruments  • Electrophysiology ERG,VEP, mf ERG, mf VEP, EOG  • Optical coherence topography OCT  • Angiography AF  • Autofluorescens  • Green Fluorecin Protein GFP  • Infrared Laser Scanning Ophthalmoskop SLO instruments	roland-consult.com; roland-instruments.com
Röntgen + Medizintechnik WABU GmbH	
Project planning, servicing and marketing of x-ray and medical technology appliances.	roentgen-wabu.de
Rösch Medizintechnik GmbH	
R-MT is a registered service provider and distributes and repairs audiometer and other medical devices in accordance with their certified quality management system.	r-mt.de
S-CAPE® Berlin	
Founded in 1991 in Germany, S·CAPE® GmbH has a unique track record of solving digital integration needs of the world's most reputable hospitals. Exclusive focus on making operating theatres and other acute care areas more efficient through information technology enabled us to become the frontrunner with technological knowhow to yield bigger benefits, and the reliable partner of choice for almost 1,000 hospitals around the world.	s-cape.com

#### Safe4Net GmbH

Development of innovative health care software systems. Our focus is on trans sectoral collaboration, data security and data evaluation:

- · Quality assurance systems for integrated health care processes (oncology, orthopedy, ophthalmology, etc.).
- Documentation and evaluation Systems e.g. for population based and hospital registry.
- Patient reported outcome measurement (PROMs) Systems.

#### **SANAMOND UG**

Sanamond offers its partners from the healthcare sector and here in particular hospitals support in optimizing sanamond.com their resources and increasing their efficiencies. On the basis of highly qualified expertise Sanamond supports hospitals from planning to realization of new processes in various areas.

## Schade & Gebauer Sanitätshaus Orthopädietechnik GmbH

Schade & Gebauer covers all lines of orthopedic technology.

schade-gebauer.de

#### **Schallware GmbH**

Schallware ultrasound simulator, patient simulator for ultrasound diagnosis case database of pathologies: schallware.de abdomen, emergency, heart, gynecology.

#### Schiller Medizintechnik GmbH

We are an internationally leading manufacturer and supplier of medical technology solutions, focusing on schillermed.de cardiopulmonary diagnostics and therapy. Our products save lives and provide physicians and nurses with professional support.

## Schlegel Medizintechnik GmbH

Distribution of medical equipment and software.

schlegel-medtec.de

## Schnorrenberg Chirurgiemechanik GmbH

Repairs of surgical, microsurgical and minimal invasive instruments, endoscopes, motor systems and containers, including accessories; customized products with documentation and conformity declarations.

#### Schröter Medizintechnik GmbH

Planning, project implementation, servicing and assembly of medical gas supply systems for hospitals and schroeter-medizintechnik.de medical practices; compressed air, vacuum, oxygen and anaesthetic supply, including the associated wall and ceiling supply units, OP tables and OP light systems.

## **Scopis GmbH**

Research, development and marketing of high-precision laser-based endoscopic and microscopic measuring scopis.com systems for different application of minimal invasive surgery

## SensoMotoric Instruments GmbH

SensoMotoric Instruments (SMI) is a world leader in dedicated computer vision applications, developing and smivision.com marketing eye & gaze tracking systems, OEM and medical solutions for a wide range of applications.

## sepp.med Gmbh

sepp.med GmbH is a service provider with more than three decades experience in development, quality and seppmed.de process management as well as integration of medical hard- and software. As a developer of innovative strategies and methods it supports manufacturers in all stages of the product life cycle. Based on new approaches to system integration in clinical environments sepp.med advocates user workflow based system design, validation and integration. Beyond that, sepp.med is a training provider offering a wide range of seminars regarding quality and management topics and consults in process- and quality-management areas (FDA 21, Gamp, MPG...) as well as product definition, product development and market introduction.

## Servolab Medizin Software GmbH

Language independent supported languages German, English, Spanish, Catalan, Purtugese, Brazilian, Turk-servolab.de ish. Operationg big european laboratories. Complete solution from order to billing, unit graphical interface for all modules of standard lab, microbiology. ISO\_certified since 2004.

## Shiva Medicare GmbH

Shiva Medicare GmbH established 2006 in Berlin, Germany and in England, offers innovative high-tech prod-shivamed.com ucts and solution in Magnetic Resonance Imaging. Our mobile diagnostics truck is a modern high-tech medical unit with an extremity Open MRI system, ultrasound, ECG and a blood test lab on board. An open scanner is used to avoid the problem of claustrophobia that some patients experience with a traditional enclosed MRI scanner.

## SiCo-Medical GmbH

Medical consultant focusing on medical and instrument technologies for surgery, surgical trial planning and sico-medical.de safety consulting. Oncological therapy consulting for gastrointestinal surgery.

Siemens AG, Siemens Deutschland	
Comprehensive solutions for the health care sector: in-vitro and in-vivo diagnostics, i.e. laboratory diagnostics and imaging systems for diagnosis and therapy, audiology, IT solutions for process management in prevention, therapy and care, management consulting.	healthcare.siemens.de
SOMATEX Medical Technologies GmbH	
SOMATEX Medical Technologies is a specialist in developing and manufacturing minimum invasive disposable instruments for diagnostic and therapy. SOMATEX develops innovative special products and new instruments in the fields of Vertebroplasty, breast care, tumour marking, tumour ablation, biopsy, gynaecology and antenatal diagnostics.	somatex.com
SpaceBit GmbH	
The main goal of company SpaceBit GmbH, founded in 1995, is to develop and provide software for the purpose of physiological measurements and psychophysiologic studies. Primarily PC- and $\mu$ C-Software is applied in combination with the modular system "Healthlab".	spacebit.de
SPRINGER AKTIV AG	
Manufacturer of high-tech shoe inlays for children, sportsmen and -women and diabetics; supply of measuring shafts and devices for measuring foot pressure.	springer-berlin.de
Swisslab GmbH	
Swisslab GmbH, which developed the SWISSLAB system, has been in business since 1979. Since then, we have continuously perfected our system solutions and adapted them to meet the needs of large-scale modern medical laboratories. Today, SWISSLAB is a leading laboratory information system with a growing number of satisfied customers across Europe.	swisslab.de
T&T medilogic Medizintechnik GmbH	
Development and marketing of system solutions for measuring the biomechanics of the human skeletal and motor system.	medilogic.com
Technologiezentrum für minimalinvasive Zahnheilkunde und Prothetik KG	
Research and development of minimal-invasive prosthetics systems of the tooth-medical use.	tmz-berlin.com
Technomed Elektromedizinischer Apparatebau GmbH	
Production and sale of electromedical apparatus, elektrophysical teaching materials and electromedical components, etc.	technomed.de
TEFRA-Hochfrequenz-Apparate Rudolf Messerschmidt GmbH	
TEFRA radiofrequency therapy - gentle naturopathic through the use of high-frequency currents to promote or trigger the self-healing of the body.	tefra-berlin.com
TELEMEDICAL GmbH	
TELEMEDICAL Berlin GmbH developed a new generation of equipment for the field of medical technology.	telemedical-berlin.de
Telschow Orthopädie-Technik OHG	
Telschow orthopedic technology has an extensive range of healthcare products.	telschow-ot.de
TEMBIT Software GmbH	
The area of health care is focused on the collection, evaluation and secure storage of patient data.	tembit.de
Thax Software GmbH	
Thax Software offers solutions for the management of patients, doctor's practices and hospitals. This includes techniques such as RFID for patient identification, for inventory or file management as wells as solutions for digital dictation and speech recognition especially for the health sector.	thax.de
TOPASS GmbH	
Development of nanotechnology products for medical applications in diagnostics and therapy.	topass.eu
Topsfield Medical GmbH	
Topsfield Medical GmbH is developing a next generation technology for total shoulder replacement surgery, aimed at extending the overall implant life.	topsfieldmedical.com
T-Systems International GmbH	
T-Systems offers a comprehensive portfolio of integrated ICT solutions for the healthcare sector. These include the basis infrastructure, industry-specific system components, applications and the right software modules for every application, in addition to a wide range of services.	t-systems.de
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T.B. Büntaratarlağı Carlell	
TuR - Röntgentechnik GmbH	
TuR X-Ray Systems offers conventional as well as digital x-ray and PACS systems (both also as veterinary solution), x-ray therapy, ultrasonic diagnostics, x-ray tubes and a diverse range of expendable materials, accessories.	tur-x-ray.com
ukb-AESCULAP InstrumentenManagement GmbH	
Common Service Company of ukb Holding GmbH and SteriLog GmbH.	uaimg.de
Uniphy Elektromedizin GmbH & Co.KG	
Small company, mainly present in R&D and production of medical therapy units for physiotherapists and units for wellness and beauty.	uniphy-elmed.com
UPCOM AG	
Specialist for dental services.	upcom-ag.com
Vacucast Feinguß GmbH & Co. Metall KG	
As one of the leading investment foundries in Europe in the field of vacuum casting technology be VACU-CAST® has specialized since the 70 years in the manufacture of implants and instruments for medical applications.	vacucast.de
VAMED Management und Service GmbH Deutschland	
VAMED is a leading partner for planning, creating, financing and operating of hospital buildings including their complete technical infrastructure.	vamed.de
VAMED Health Project GmbH	
VAMED is a leading partner for planning, creating, financing and operating of hospital buildings including their complete technical infrastructure.	vamed.de
VANGUARD AG	
VANGUARD is an internationally operating group of companies that specialises in providing high-tech services to the health care sector. As an innovative technology partner, VANGUARD supports hospitals in achieving a sustained increase in quality and efficiency in and around the operating theatre. Based on a comprehensive approach, VANGUARD offers modular and customised solutions on the highest technical level. We develop strategies to raise economic efficiency, implement effective, quality-assured processes and optimally use resources through integrated high-tech supply structures.	vanguard-healthcare.com
Visage Imaging GmbH	
Development and distribution of a comprehensive suite of visualization and imaging products designed to meet unique customer needs.	visageimaging.com
VISTAC GmbH für optische Messsysteme und taktile Information	
Development and production of the Laser Long Cane, the long cane for the blind, with an integrated obstacle detector for protection of the head and upper body.	vistac.de
VitalAire Niederlassung Berlin	
The VitalAire GmbH is a nationwide service provider, which specializes in respiratory homecare.	vitalaire.de
VMscope GmbH	
VMscope is developer and distributor in the field of digital pathology. VMscope offers:  • image analysis software suites for Ki67 and other tumor marker quantification.  • integration into major pathology information systems.  • virtual microscopy web portals.  • slide scanning and hosting services.	vmscope.de
W.O.M. WORLD OF MEDICINE GmbH	
WOM is a pioneer and world leader in the field of Minimally Invasive Medicine. As a medical device company with an international focus, we have been developing and producing innovative products for over 40 years, that make surgeries as easy as possible on patients.	world-of-medicine.com
wamega GmbH	
wamega is an independent service provider in the fields of inspection, maintenance and repairs of medical gas systems and a provider of ward appliances and the associated maintenance services.	wamega.de
WeWoThom GmbH	
Development and production from device against pain in the bones and the back for the patients.	wewothom.de

WISE Srl - German Branch c/o Westphal und Partner	
WISE Srl is a Milan- and Berlin-based medical device company developing the new generation of implantable electrodes for Neuromodulation and Neuromonitoring for the treatment of Chronic Pain and and for presurgical Epilepsy monitoring.	wiseneuro.com
WITMED GmbH	
Maintenance, repair and safety technology inspections of dialysis devices; work safety consulting; tests of electrical systems; inspections and safety technology controls of medical technology systems; calibration; training and further education.	witmed.de
XION GmbH	
Since 1991 XION develops, manufactures and markets medical instruments and IT solutions for endoscopic/minimally invasive surgical applications. Besides arthroscopy, laparoscopy, hysteroscopy, product development focuses on ENT endoscopy and phoniatrics, from portable solutions to navigation systems.	xion-medical.com
Zapfe Orthopädie-Technik GmbH	
Manufacture and adaptation of prostheses and ortheses; specialist for leg prostheses.	zapfe.de
Zenicor Medical Systems AB	
Zenicor Medical Systems AB has grown to become one of Sweden's leading medtech companies in the fields of remote cardiology diagnostics and stroke prevention. Zenicor has developed a unique system, Zenicor-ECG, to detect and diagnose atrial fibrillation and other arrhythmias simply and cost-effectively.	zenicor.de
ZeoSys GmbH	
Research and development enterprises in the areas of long term thermal energy storage, medical technology, environment protection and air conditioning.	ZeoSys.de
Zimmer Biomet	

Zimmer Biomet is a global leader in musculoskeletal healthcare. We design, manufacture and market or-

thopaedic reconstructive products; sports medicine, biologics, extremities and trauma products; spine, bone

healing, craniomaxillofacial and thoracic products; dental implants; and related surgical products.

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Berlin Partner für Wirtschaft und Technologie GmbH Fasanenstraße 85 10623 Berlin Germany Phone +49 30 46302-500 info@healthcapital.de www.healthcapital.de

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## Authors:

Page 3: Stefan Oelrich

Page 28: Sven René Friedel

Page 32: Stefan Kürbis

Page 36: Prof. Dr. med. Carsten Perka

Page 40: Prof. Dr. med. Matthias Taupitz

Page 44: Dr. med. Felix Diekmann

others: Berlin Partner/ZAB

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# Our aim: your success!

Berlin and Brandenburg support research and development in the life sciences with an economic policy developed across state borders in the Healthcare Industries cluster. The cluster is managed under the aegis of Berlin Partner for Business and Technology and the Brandenburg Economic Development Board (ZAB).

Our aim is to provide comprehensive support to companies and scientific institutions interested in inward investment or further development in the capital region.

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## Berlin Partner für Wirtschaft und Technologie GmbH Fasanenstraße 85

10623 Berlin Germany

Tel +49 30 46302-500 info@berlin-partner.de www.berlin-partner.de Twitter: @BerlinPartner



## ZAB ZukunftsAgentur Brandenburg GmbH

Steinstraße 104-106 14480 Potsdam Germany

Tel +49 331 660-3000 info@zab-brandenburg.de www.zab-brandenburg.de



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