

Pharmaceuticals
 Medical Engineering
 Medical Products

ulm
 Neu|Ulm



With friendly cooperation with:



between Stuttgart and Munich

Life Science

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Securing the Future through Innovation

Just as chemistry has influenced the industrial development of the 20th century, biotechnology will accelerate progress in the 21st century. The Ulm / Neu-Ulm region holds pole position. More than 40 companies with thousands of employees are working in the future fields of biotechnology, pharmacology and medical engineering. The portfolio reaches from multinational corporations all the way to highly specialized local small enterprises, including research and development as well as production and service.

The main influence upon this development of the region as a biotechnology location is held not so much by the communities but the companies themselves. Boehringer Ingelheim Pharma Ltd. (GmbH & Co. KG) in Biberach alone have created 400 new jobs for highly qualified personnel lately, establishing one of the world's largest locations for for development and production of bio pharmaceuticals. The number of employees is not the only category extinguishing the pharmaceutical industry.

At present, the largest contingent of pharmaceuticals in Germany by far is produced right here in the Ulm region. To name just one example, ratiopharm is the most applied and most prescribed pharmacy brand in Germany as well as European market leader in reasonably priced generic medication – thus ratiopharm has significantly contributed to cost reductions in the health care sector for 30 years.



No doubt, the hard and soft location criteria must be quite favorable here. To give sustained impulses to the dynamic development of biotechnology in the region and to give efficient support to companies with marketable new ideas the „BioRegioUlm“ was created in 1997. More information: www.bioregioulm.de

Next to University and Chamber of commerce, companies with global reputations as well as communities and banks are members of the association, actively promoting biotechnology. Concepts and objectives of the initiative:

Promotion of entrepreneurs in the field of biotechnology. The Ulm Biotechnology Center is an exemplary institution, offering favorable conditions and support to new companies.

Supporting cooperation projects between research facilities and companies with other bio regions.

Information and Public Relations, attending fairs, exhibitions and events such as BioRegio meetings.

Advancing the next generation, for instance the network University-Secondary School-Industry (NUGI) and the students' work center biotechnology.

Strengthening of key competences pharma production and environmental biotechnology (in cooperation with the environmental region Augsburg).

Know-how

in Development and Product

Life Science has many faces – this applies to the Ulm / Neu-Ulm region as well. Established pharmaceutical market leaders are surrounded by research intensive smaller and medium sized companies working on genetic engineering, proteomics, bio information technology, pharmaceutical testing, diagnostic development and bio compatible materials. 11 out of a total of 15 commercial genetic engineering facilities in Baden-Württemberg are located right here in the region.

Focus of future markets

The most significant biotechnology products created in the BioRegionUlm are the active ingredients of bio pharmaceutical drugs.

The only company in the world featuring the complete range of biotechnological process has its roots in the region. The whole spectrum reaches from process development through international licensing all the way to market distribution. In addition, Boehringer Ingelheim is operating one of the world's largest **cell culture production facilities** on its „research campus“ in Biberach.

The young company Binomed in Ulm is one of the up and coming **pharmaceutical developers**.

Further essential products coming out of the region are diagnostic respectively bio-analytical test systems.

Important contributions in these fields are made by start-up companies such as Thermo Bio Science or cabion Technologies in the Biotechnology Center (www.tfu.de) in Ulm, Sedanstrasse, building upon the latest revelations and research results in the laboratory. cabion Technologies for instance develop **new diagnostic tools** out of molecular biological and immunology research to optimize and individualize cancer therapy.

Neu-Ulm company Pythos, originally founded for **analysis of natural drugs**, is now busy giving service to the pharmaceutical industry and cosmetic manufacturers. They use **reference substances** by Phytochem, whose standards form the base of pharmaceutical quality control worldwide. Also employed is the **chemical analytical know how** respectively the **immunology development potential** of their partner companies Institute Dres. Bachus and colleagues as well as Cibitest Ltd.

The Laboratory of Dr. Merk & colleagues Ltd. in Ochsenhausen develops and produces **diagnostics** for infection serology and **research reagents** for diabetes recognition as well as conducting safety tests in the fields of microbiology, virology and cyto-toxicology for pharma and medical products.

lifeprint DNA Analysis in Illertissen is a **certified and accredited test laboratory**, honor bound to give high quality performance with tested competence in the field of nuclear acid analytic processes. This European as well as internationally accepted norm refers to food and feed.

AAI international with a branch in Neu Ulm is one of the world's largest service institutes for **pharmaceutical studies**.



For the progress of mankind

There are inventions half the world talks about. Then again some are hardly recognized by the public even if they are just as significant. This applies for instance to the field of **medical engineering, which has achieved numerous great breakthroughs for mankind in the past decades. Companies of the Ulm / Neu-Ulm region have contributed their share.**

Surgical microscopes play a decisive part for information certainty while operating tumors. They are manufactured by Carl Zeiss in Oberkochen. The company is a worldwide trademark for high performance opticals as well as medical apparatus and screening processes.

High-Resolution microscopes are a central factor for biotechnology. They are made by the companies WITec and omt, cooperating within the incubation association Ulm.

For instance, spectral **ellipsometers** by omt are used for high precision measurements of thin layers, fully automated video-microscopes serve bio technological routine and process controls.

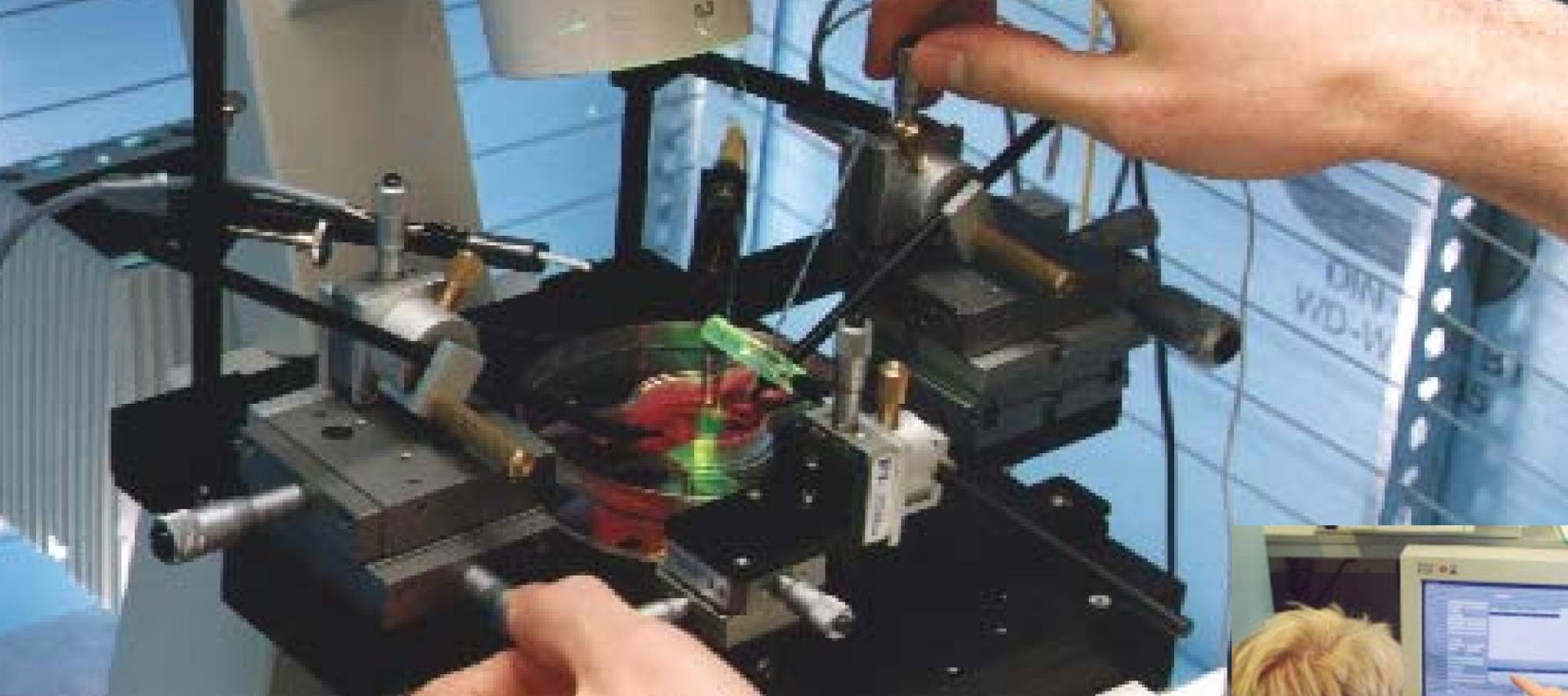
WITec has introduced a **screen probe microscope** capable of showing surface properties such as adhesion or density of a probe as well as high resolution topographic information. The modular structure allows for an easy adaptation of the microscope to serve as confocal raman microscope or near field optical microscope.

The Institute for laser technology in medicine and measuring engineering (ILM) at Ulm University develops and tests new methods and applications **in laser medicine**, dental engineering and laser measuring engineering. In cooperation with the Biberach company KaVo Dental Ltd. – one of the world market leaders in dental medicine and dental engineering instruments and appliances – a unique **caries diagnosis instrument** was developed, which utilizes laser induced fluorescence to detect initial lesions, demineralization, plaque changes and fissure caries at an early stage.

Colthene Whaledent Ltd. (GmbH & Co. KG) offers a new **self-corroding bonding system** for dentists.

Polyzenix in Ulm features as key competence the manufacture of high quality surfaces using inorganic special synthetics (**Poly-phosphacene**) of maximum purity for medical engineering purposes.





Knowledge creates Profile

Future challenge

Ulm University has enriched the field of Life Science in the region by adding the **research network ZytoOrganoPoese**. The state of Baden-Württemberg initiative „Future Challenge“ has provided a subsidy of 11,5 Million Euro towards this channeling of all research activities in the fields of stem cell biology and biotechnology. All funds are intended towards the construction of a Life Science Center, to be attached to the University complex on Oberer Eselsberg.

Methodical range of the research network

- application of growth factors and other biologically active molecules;
- transplantation of organic cells from cell cultures, adult or embryonic stem cells;
- artificially manufactured bio materials for implantation for support and integration into tissue;
- development of bio hybrid systems (micro- or macro encapsulated cells, biodegradable and biocompatible materials);
- creation of immune-neutral cells or organs for transplantation based on embryonic stem cells or therapeutic cloning.



Cooperation Association

- the work group „stem cell biology“ as a central research department;
- main feature regenerative cell therapy (neurology, stem cell therapy through genetic correction, altered organ stem cell therapy);
- replacement of organs or organ components, for instance artificial heart valves, „hard tissue engineering“ ;
- attached research associations:
 - four special research sectors (pancreas, heart/vessels, signal processing, nanosystems)
 - interdisciplinary center for clinical research (IZKF)
 - competence center for biomaterials with bone contact
 - neuroscience center
 - center for functional nanoscopy;
 - interdisciplinary work group bio informatics (DNA array chip technology and pattern recognition tools) as well as special research sector bio informatics (FBI);
 - work group ethics in medicine focusing on bio ethics;
 - center for information management

Research Network

A total of 35 departments and institutes at the Ulm University are part of the network. Main focus areas are medicine and natural sciences such as biology, chemistry and physics; however research groups in informatics and engineering sciences participate as well. The close physical proximity within the „one roof University“ advances interdisciplinary cooperation and accelerates research results. Research does hold the front position, but ethical aspects are also illuminated. All results flow into a Life Science Portal, available to the general public.

Innovative Ideas and interdisciplinary cooperation between stem cell biology and tissue engineering have led to a new and future oriented profile for Ulm University in the field of Life Science. This will further strengthen the University's potential and have a magnetic effect for many students and scientists from around the world.

