

# Life Sciences.

Thriving industry in Germany's heartland.



Thuringia has always been at the forefront of the life sciences. It brought forth the mercury-free thermometer, X-ray tube and microscope. More recently, Jena scientists were involved in sequencing human chromosomes 8, 21 and X.

#### Life sciences in Thuringia at a glance:

- › 420 companies
- › 17,000 employees
- › 6,200 students at 3 universities
- › 2 technology centers and incubators
- › 45 hospitals
- › 10 research institutions and development service providers

#### Core competencies in the Life Sciences sector:

##### Medical technology

- › Minimally invasive technology
- › Medical laser applications
- › Medical systems in ophthalmology and endoprosthesis
- › Implants and biomaterials
- › Medical measurement and sensor technology

##### Biotechnology

- › Functional genome research
- › Diagnostics
- › Functionalization of interfaces
- › Miniaturized and highly parallelized analysis systems
- › Food technology
- › Red and green biotechnology


##### Pharmaceuticals

- › Development and production of innovative therapeutic agents
- › Development and production of dressing materials
- › Production of sterile pharmaceuticals
- › Production of solid and liquid pharmaceuticals

#### Seize the opportunities our region offers.

Benefit from a world-class research infrastructure, highly skilled workers and a prime location in Europe's heartland.

We provide full-service support for any investment project – from site search to project implementation and future expansions. Please contact us.

 [www.invest-in-thuringia.de/en/top-industries/life-sciences](http://www.invest-in-thuringia.de/en/top-industries/life-sciences)





# Sought-after specialists with great ideas.

Life science specialists work hard and research harder in Thuringia. Their profound expertise is a big reason why the state's industry players are so enormously competitive.

## Academic training

Around than 7,000 students are enrolled in study courses closely tied to life sciences, including:

### Friedrich Schiller University Jena

- › Biology (B.Sc.)
- › Biochemistry/Molecular Chemistry (B.Sc.)
- › Biochemistry (M.Sc.)
- › Bioinformatics (B.Sc./M.Sc.)
- › Chemical Biology (M.Sc.)
- › Microbiology (M.Sc.)
- › Molecular Nutrition (M.Sc.)
- › Molecular Medicine (M.Sc.)
- › Molecular Life Sciences (M.Sc.)
- › Nutritional Sciences (B.Sc.)
- › Psychology (B.Sc./M.Sc.)
- › Pharmacy (State examination)
- › Medicine (State examination)
- › Dentistry (State examination)

### Jena University of Applied Sciences

- › Biotechnology (B.Eng.)
- › Health Care Management (M.Sc.)
- › Laser and Optotechnologies (B.Eng./M.Eng.)
- › Medical Engineering (B.Eng./M.Eng.)
- › Miniaturized Biotechnology (M.Sc.)
- › Ophthalmic Optics/Optomety (B.Sc.)
- › Optometry/Vision Science (M.Sc.)
- › Pharmaceutical Biotechnology (M.Sc.)
- › Scientific Instrumentation (M.Sc.)

### Ilmenau University of Technology

- › Biomedical Technology (B.Sc./M.Sc.)
- › Miniaturized Biotechnology (M.Sc.)

## Training, further education

Vocational and technical schools in Thuringia offer training for the following professions:

- › Biology/Physics/Chemistry laboratory technician
- › Medical laboratory assistant
- › Mechatronics technician
- › Microtechnologist
- › Precision optician
- › Industrial mechanic and industrial electrician

Moreover, workers in Thuringia benefit from a comprehensive range of further education and training opportunities in the life sciences sector. In addition to the "Jenaer Bildungszentrum" (training center of Schott, Carl Zeiss and JENOPTIK), the Ilmenau University of Technology and the Jena University of Applied Sciences offer various continuing education programs and science courses.

The Institute for Biomedical Engineering and Informatics at the Ilmenau University of Technology, for example, has been the organizer of the annual "International Summer School in Biomedical Engineering" for up and coming biomedical experts.



*"We rely fully on Germany and on Thuringia. Here, we can guarantee top quality. Skilled and dedicated workers plus technology and manufacturing knowhow gained over decades are the key to our success."*

**Prof. Hans B. Bauerfeind**  
CEO of Bauerfeind AG, Zeulenroda-Triebes

# Jena's Beutenberg campus.

In Thuringia's most internationally acclaimed location for research and development work 3,000 scientists under the motto: where life science meets physics.

At the Beutenberg campus in Jena scientists and experts in 10 university- and non-university-based institutes as well as in 50 young biotechnology and medical technology enterprises make discoveries and blast new trails.

Jena's Beutenberg campus is home to:

- › Fraunhofer Institute for Applied Optics and Precision Engineering
- › Leibniz Institute for Age Research – Fritz Lipmann Institute (FLI)
- › Leibniz Institute for Natural Product Research and Infection Biology – Hans Knöll Institute (HKI)
- › Leibniz Institute of Photonic Technology (IPHT)
- › Max Planck Institute for Biogeochemistry (MPBGC)
- › Max Planck Institute for Chemical Ecology (MPCE)
- › Friedrich Schiller University Jena – Institute of Applied Physics
- › Friedrich Schiller University Jena – Center for Molecular Biomedicine
- › Friedrich Schiller University Jena – Center for Innovation Competence (ZIK) Septomics
- › University Clinic Jena of the Friedrich Schiller University – Institute of Virology and Antiviral Therapy
- › BioInstrumentation Center
- › Technology and Innovation Park Jena

## Further research institutions in Thuringia

Reap the benefits of an environment that uniquely combines competencies in biology, chemistry, physics, medicine, biotechnology and microsystems technology.

- › Institute for Bioprocessing and Analytical Measurement Techniques (iba), Heilbad Heiligenstadt
- › Research Center for Medical Technology and Microbiology (fzmb), Bad Langensalza
- › Institute of Biomedical Engineering and Informatics (BMTI), Ilmenau University of Technology
- › Institute of Chemistry and Biotechnology, Ilmenau University of Technology

In addition, numerous competence clusters add their expertise to the life sciences sector, including OptoNet (optics industry) and medways (medical technology).

### *medways*

medways e. V. is a Jena-based association of leading German research institutions, manufacturers and universities that aims to develop new ophthalmological diagnostic and therapeutic techniques as well as medical devices for the global market. By connecting biotechnology and equipment design, for example, medways experts help to promote the development of bioinstruments.

Medways also advises companies on medical product certification, quality management and pre-launch market analyses, assists firms at trade shows and conferences and holds continuing education seminars and courses. Medways also offers end-to-end management of research projects – from identifying potential projects and applying for funding to coordinating and monitoring activities.





*“The scientific basis and the know-how needed for the industries of the future provide innovative momentum and potential for unique solutions here in Thuringia.”*

**Klaus Berka**, CEO and founder of Analytik Jena AG



## Successful in Thuringia.

Thuringia offers outstanding growth opportunities in medical devices, biotechnology and pharmaceuticals. It has attracted major market and technology leaders from around the globe.

### **ALERE Technologies GmbH**

ALERE Technologies GmbH (formerly CLONDIAG) designs and produces in-vitro diagnostics. The firm was founded by scientists from the Institute for Physical High Technology and the Hans Knöll Institute and has been part of the ALERE Group. It is a world leader in the Point-of-Care diagnostic market.

### **Analytik Jena AG**

Analytik Jena AG is a global system supplier of analytical and bioanalytical instrument solutions. In 2013 the corporation saw the acquisition of UVP, a US-based multinational provider of digital imaging systems for applications in proteomics, genomics and plant and animal research.

### **Carl Zeiss Meditec AG**

Carl Zeiss Meditec AG ranks among the world's leading providers of system solutions in the field of ophthalmology. For many years now the company has been able to rely on its outstanding technological competence for developing innovative ophthalmology products.

### **Bauerfeind AG**

Bauerfeind AG is a premier manufacturer of medical devices such as bandages, orthoses, compression stockings and orthopedic inlays. Material and design award winners many times over, Bauerfeind products make a significant contribution to maintaining and restoring health.

### **AEROPHARM GmbH**

AEROPHARM GmbH has more than 35 years of experience in developing and producing pharmaceutical aerosols and liquids. Within the Sandoz Group, AEROPHARM operates as the global development and production center for inhalation products and eye drops.

### **Wacker Biotech GmbH**

Jena-based Wacker Biotech GmbH has over 20 years of experience in biotechnology. Its cutting-edge site at the Beutenberg campus develops stable, highly efficient processes for the production of biotherapeutics and therapeutic proteins for customers under cGMP conditions.

### *Selected companies*

**AEROPHARM GmbH**, Rudolstadt  
**Aesculap Suhl GmbH**, Suhl  
**ALERE Technologies GmbH**, Jena  
**Analytik Jena AG**, Jena  
**Asclepion Laser Technologies GmbH**, Jena  
**Bauerfeind AG**, Zeulenroda  
**Bayer Weimar GmbH & Co. KG**, Weimar  
**biolitec AG**, Jena  
**Carl Zeiss Meditec AG**, Jena  
**EPSa Elektronik & Präzisionsbau Saalfeld GmbH**, Saalfeld  
**EVER Pharma Jena GmbH**, Jena  
**Geratherm Medical AG**, Geschwenda  
**Gothaplast Verbandpflasterfabrik GmbH**, Gotha  
**HPT Hochwertige Pharmatechnik GmbH & Co. KG**, Neuhaus am Rennweg  
**Jenapharm GmbH & Co. KG**, Jena  
**JENOPTIK AG**, Jena  
**Königsee Implantate GmbH**, Allendorf  
**microfluidic ChipShop GmbH**, Jena  
**NTI - Kahla GmbH Rotary Dental Instruments**, Kahla  
**Otto Bock Health Care GmbH**, Königsee  
**rmw Kabelsysteme GmbH**, Crossen an der Elster  
**Siemens Healthcare GmbH**, Röntgenwerk Rudolstadt, Rudolstadt  
**Trumpf Medizin Systeme GmbH & Co. KG**, Saalfeld  
**Wacker Biotech GmbH**, Jena

Picture credit: Analytik Jena, Bauerfeind, Carl Zeiss, Dyomics, JENOPTIK

### **Your LEG Service**

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### **State Development Corporation of Thuringia (LEG Thüringen)**

Dept. Investment, International Business and Cluster Promotion  
 Mainzerhofstrasse 12  
 99084 Erfurt / Germany

Phone +49 361 5603-450  
 Fax +49 361 5603-328  
 invest@leg-thuringen.de  
 www.invest-in-thuringia.de/en