Market insights in the south west region of Germany with a focus on biotechnology

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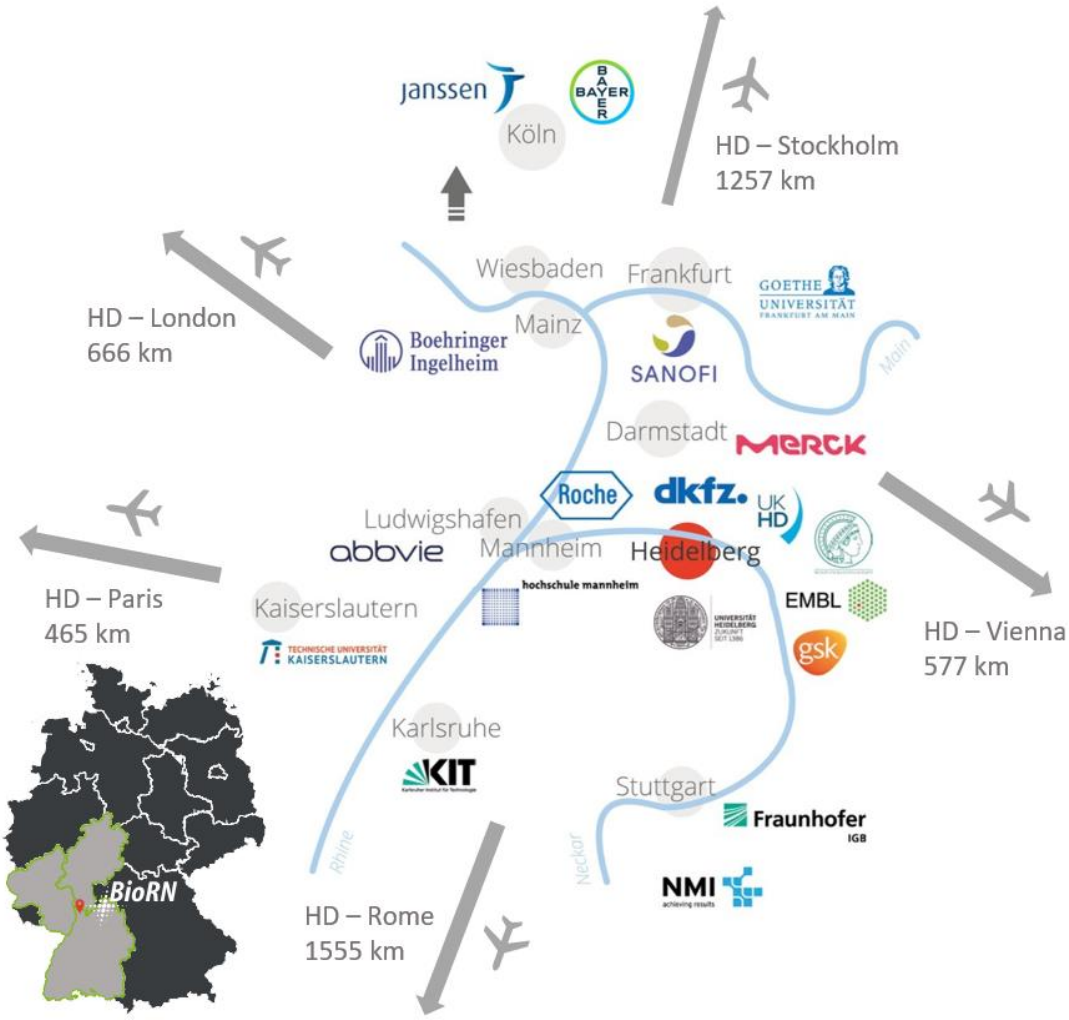
Content

Introduction

BioRN is the science and industry cluster of the Rhine-Main-Neckar region around Heidelberg, one of Germany's strongest biotech hubs. It is a non-profit network fostering health innovations and serving its members by creating a rich translational ecosystem as well as promoting, representing and connecting the regional innovation stakeholders.

Our mission is to develop the region into a world-leading life science cluster attracting international investments and top global talent.

BioRN has more than 100 institutional members, including the top academic and research institutions, 8 global pharmaceutical companies, a large range of small and medium-sized enterprises bolstering the life science ecosystem as well as local government organizations and interest groups.



Scope of the report

This report provides an overview of the economic activities and related market opportunities in the south west of Germany in the field of biotechnology in relation to health care. However, as BioRN Cluster is spanning over the three German States Baden-Württemberg, Hessen and Rhineland-Palatinate, market information is often not available on the level of our cluster only. Therefore, on some occasion data are referring to Baden-Württemberg as a whole only, instead of the cluster region.

For the analysis of the ecosystem, we specifically focused on companies. However, research institution and universities are essential part of the biotechnology ecosystem in our cluster.

Below you find the definitions of the sector and subsectors used in the description of the biotech ecosystem:

Biotechnology companies are those that employ living organisms or biological substances for the development of products and services with applications in numerous fields such as waste management, food processing, agriculture and pharmaceutics.

- Biotechnology / Therapeutics and Diagnostics: Companies categorized as Biotechnology-Therapeutics and Diagnostics are those whose core business is the application of biotechnology to the discovery and development of novel therapeutic compounds and probe molecules for applications in medicine.
- Biotechnology / R&D Services: Companies that fall under the Biotechnology / R&D Services category are those that provide support services such as product development services, analytical services, screening, contract manufacturing and contract R&D to the biotechnology industry.
- Biotechnology / Other - Companies that fall under the Biotechnology - Other category are all of those that apply the concepts of biotechnology (using living organisms or biological substances for the development of products and services) to areas other than drug development for medical use. Examples of areas covered under biotechnology - other are Agrobio companies, cosmetic companies, environmental companies, food technology companies, industrial biotechnology companies, nutraceutical companies and veterinary companies

The biotechnology ecosystem in the cluster

Research/Academia

Heidelberg University, founded in 1386, is Germany's oldest university and one of the strongest research universities in Europe. Its successes in both rounds of the Excellence Initiative, a competition to promote top-level research, and in international rankings prove Heidelberg's excellent reputation and leading role in the scientific community. In terms of educating students and promoting promising young academics, Heidelberg relies on research-based teaching and an outstanding, well-structured training for doctoral candidates. Heidelberg University is a comprehensive university, offering the full spectrum of disciplines in the humanities, law and the social sciences alongside the natural and life sciences, including medicine. It aims to strengthen the individual disciplines, to further interdisciplinary cooperation and to carry research results over into society and industry. Research at the university is focused on four interdisciplinary fields, the "molecular and cellular basis of life", "structure and pattern formation in the material world", "cultural dynamics in globalised worlds" and "self-regulation and regulation: individuals and organisations". Almost 20 percent of the university's students and a third of the enrolled doctoral candidates come from abroad, one in five researchers is of foreign origin.

http://www.uni-heidelberg.de

The **European Molecular Biology Laboratory (EMBL)** is one of the world's leading research institutions, and Europe's flagship laboratory for the life sciences.
EMBL is an intergovernmental organisation specialising in basic research in the life sciences, funded by public research monies from more than 20 member states, including much of Europe and Israel, and two associate members, Argentina and Australia. EMBL operates from six sites across Europe: Heidelberg, Germany - main laboratory; Hinxton, UK - European Bioinformatics Institute (EMBL-EBI); Grenoble, France - research and services for structural biology; Hamburg, Germany - research and services for structural biology; Rome, Italy - epigenetics and neurobiology and Barcelona, Spain - tissue biology and disease modelling
EMBL believes that excellent basic research requires continuous training and exchange with other experts, and actively engage in advanced training activities like conferences and hands-on courses that enable scientists to improve their skills and expand their horizons, both within and outside EMBL. The technology portfolio spans the life sciences in the broadest sense and includes enabling technologies, molecular tools, techniques, instruments and software programs and databases.
EMBL's mission is to be at the forefront of life sciences research, technology development and transfer, and to provide outstanding training and services to the scientific community in member states.

http://www.embl.de

The **German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ)** with its more than 3,000 employees is the largest biomedical research institute in Germany. At DKFZ, more than 1,000 scientists investigate how cancer develops, identify cancer risk factors and endeavor to find new strategies to prevent people from getting cancer. They develop novel approaches to make tumor diagnosis more precise and treatment of cancer patients more successful. The staff of the Cancer Information Service (KID) offers information about the widespread disease of cancer for patients, their families, and the general public. Jointly with Heidelberg University Hospital, DKFZ has established the National Center for Tumor Diseases (NCT) Heidelberg, where promising approaches from cancer research are translated into the clinic. In the German Consortium for Translational Cancer Research (DKTK), one of six German Centers for Health Research, DKFZ maintains translational centers at seven

university partnering sites. Combining excellent university hospitals with high-profile research at a Helmholtz Center is an important contribution to improving the chances of cancer patients. DKFZ is a member of the Helmholtz Association of National Research Centers, with ninety percent of its funding coming from the German Federal Ministry of Education and Research and the remaining ten percent from the State of Baden-Württemberg.

http://www.dkfz.de/en/index.html

Heidelberg University Hospital is one of the largest and most prestigious medical centers in Germany and the whole of Europe. The reputation of Heidelberg as a medical center is based on excellent patient care, research and teaching.
Patient Care - Heidelberg University Hospital offers inpatients and outpatients an innovative and effective diagnosis and therapy for all complex diseases. State-of-the-art equipment guarantees medical care at the highest international standards. Patients benefit from the proximity and interlinking of specialist departments, i.e. interdisciplinary cooperation ensures optimal treatment.
Research - Progress and innovation are essential for promising medical treatment. Medical practitioners and scientists at Heidelberg University Hospital and its partner research institutes pursue a common aim: the development of new forms of therapy and their quick implementation for the benefit of the patient.
Teaching & Training - The Medical Faculty and Heidelberg University Hospital work as a team to train outstanding doctors and dentists. Numerous doctors complete their post-graduate specialist training at a university level. Top-class care and attention to the patient have priority in nursing and other health profession programs. The high standard of training for junior employees and ongoing staff development are reflected in excellent patient care.

https://www.klinikum.uni-heidelberg.de/

The **Heidelberg Institute for Theoretical Studies (HITS)** was established in 2010 by the physicist and SAP co-founder Klaus Tschira (1940-2015) and the Klaus Tschira Foundation as a private, non-profit research institute. HITS conducts basic research in the natural sciences, mathematics and computer science, with a focus on the processing, structuring, and analyzing of large amounts of complex data and the development of computational methods and software. The research fields range from molecular biology to astrophysics.
The shareholders of HITS are the HITS Stiftung, Heidelberg University and the Karlsruhe Institute of Technology (KIT). HITS also cooperates with other universities and research institutes and with industrial partners. The base funding of HITS is provided by the HITS Stiftung with funds received from the Klaus Tschira Foundation. The primary external funding agencies are the Federal Ministry of Education and Research (BMBF), the German Research Foundation (DFG), and the European Union.

http://www.h-its.org

Research at the **Max Planck Institute for Medical Research** has, ever since its founding in 1927 benefited from the work of notable scientists and excellent science on the border between physiology, physics, chemistry and biology.
The current central topic of research is to observe in real time and manipulate the complex dynamics of the interactions between macromolecules in the living cell, in health and disease. The four departments contribute their unique expertise in complementary areas: the determination of atomic structures (Ilme Schlichting), optical nanoscopy (Stefan W. Hell), design of new reporter molecules (Kai Johnsson) and cellular material research and biophysics (Joachim Spatz). This involves developing tools for biomedical research, which could lead to new knowledge, insights and medical advances.

The MPI for Medical Research is one of 84 institutes of the Max Planck Society and one of four institutes in Heidelberg.

http://www.mpimf-heidelberg.mpg.de

The **Natural and Medical Sciences Institute (NMI) at the University of Tübingen** conducts application-oriented research at the interface of bio- and materials sciences. It has a unique, interdisciplinary competence spectrum for R&D and service offers for regional and international companies active in the health care industry and industrial sectors with material-related and quality-oriented questions such as vehicle, machine and tool construction.
In the Pharma and Biotech Business Area, the NMI supports the development of new drugs with biochemical, molecular and cell biological methods. The Biomedicine and Materials Sciences area focuses on future technologies such as personalized medicine and micro engineering for new diagnostic and therapeutic solutions. The services offered focus on the structuring and functionalization of materials and their surfaces. The Analytics and Electron Microscopy Business Area focuses on analytical issues. Companies from the health care industry and industrial sectors with material-related and quality-oriented questions such as automotive, machine and tool construction profit from the results."
The NMI is known beyond Germany's borders for its incubator concept for start-ups with a background in biotechnology and materials science.

https://www.nmi.de/en/

Hochschule Mannheim – Mannheim University of Applied Sciences sees its primary mission as the training of highly-qualified, responsible, independently-minded and critical graduates who are able to present, discuss and implement solutions. To ensure this objective, the University maintains a close dialogue with business and society. Through the practical orientation of its programmes and through its activities in applied research, Hochschule Mannheim can guarantee the quality of up-to-date degree programmes. The University's outlook is global, and Hochschule Mannheim actively promotes international, scientific and cultural exchange between students. Hochschule Mannheim's degree programmes increasingly focus on the demands and opportunities of the international community. For more than 100 years, the Hochschule Mannheim – Mannheim University of Applied Sciences has been anticipating future educational demands. Hochschule Mannheim can look back on a dynamic tradition and commitment to meeting future challenges with innovative educational concepts. To attain its ambitious goals, the University strives to create a work atmosphere between students, employees and professors which is characterised by mutual respect and open dialogue.

http://www.hs-mannheim.de

Founded in 1970 as a technical and scientific university, the **University of Kaiserslautern** is today the only university of engineering and engineering in Rhineland-Palatinate. As a campus university with around 14,200 students, the TU Kaiserslautern offers innovative and future-oriented study programs in twelve departments. With a wide variety of courses - from biophysics, biochemistry and chemical engineering to food chemistry and socio-informatics - the TU has a wide range of courses to offer its students. The TU Kaiserslautern enjoys an international reputation in research and teaching. In addition, students and (young) scientists benefit from the numerous internationally renowned research institutions, including two Fraunhofer Institutes, a Max Planck Institute, the German Research Center for Artificial Intelligence and the Institute for Composite Materials, which are closely involved in applied research cooperate with the TU.

http://www.uni-kl.de

The **Fraunhofer IGB** develops and optimizes processes, plants, products, and technologies in the fields of health, chemistry and the process industry as well as environment and energy. IGB always strives for the highest level of scientific excellence – combining it with broad, practice-oriented technical know-how. The company's strength lies in its proven ability to integrate a wide range of technical disciplines to deliver new, economic, efficient, and sustainable solutions for customers and partners. IGB's research fields include medical devices, food processing, water technologies, and biobased chemicals – to name only a few. Working closely with partners from universities and industry, IGB covers the entire innovation chain from fundamental research to industrial implementation. IGB offers complete solutions from laboratory to pilot plant scale. Customers and partners benefit from the cooperation between IGB's R&D departments in Stuttgart and institute branches located in Leuna and Straubing.

Fraunhofer IGB is one of 72 institutes and independent research units of the Fraunhofer-Gesellschaft, Europe's leading organization for applied research.

http://www.igb.fraunhofer.de

Being "The Research University in the Helmholtz Association", **KIT** creates and imparts knowledge for the society and the environment. It is the objective to make significant contributions to the global challenges in the fields of energy, mobility, and information.
For this, about 9,300 employees cooperate in a broad range of disciplines in natural sciences, engineering sciences, economics, and the humanities and social sciences. KIT prepares its 25,100 students for responsible tasks in society, industry, and science by offering research-based study programs. Innovation efforts at KIT build a bridge between important scientific findings and their application for the benefit of society, economic prosperity, and the preservation of our natural basis of life.

http://www.itg.kit.edu

Biotechnology Companies

Biotechnology companies are those that employ living organisms or biological substances for the development of products and services with applications in numerous fields such as waste management, food processing, agriculture and pharmaceutics.

Biotechnology - Therapeutics and Diagnostics	37
Biotechnology / R&D Services	146
Biotechnology - other	29
Total Biotech companies	**212**

Biotechnology / Therapeutics and Diagnostics

Companies categorized as Biotechnology-Therapeutics and Diagnostics are those whose core business is the application of biotechnology to the discovery and development of novel therapeutic compounds and probe molecules for applications in medicine.

Company Name	City	State	website	Founded in
ABNOBA GmbH	Pforzheim	Baden-Württemberg	www.abnoba.de	1971

Aeterna Zentaris GmbH	Frankfurt	Hessen	www.aezsinc.com	2002
Affimed GmbH	Heidelberg	Baden-Württemberg	www.affimed.com	2000
Akesion GmbH	Schriesheim	Baden-Württemberg	www.akesion.com	2014
amcure GmbH	Eggenstein-Leopoldshafen	Baden-Württemberg	amcure.com	2012
Apogenix AG	Heidelberg	Baden-Württemberg	www.apogenix.com	2005
Ascendis Pharma GmbH	Heidelberg	Baden-Württemberg	www.ascendispharma.com	2007
BioNTech SE	Mainz	Rhineland-Palatinate	biontech.de	2008
BioSphings Aktiengesellschaft i.L.	Frankfurt am Main	Hessen	www.biosphings.com	2001
Breath Therapeutics BV	Frankfurt	Hessen	breath-therapeutics.com	
CytoTools AG	Darmstadt	Hessen	www.cytotools.de	2000
EpimAb Biotherapeutics Inc.	Warmsroth	Rhineland-Palatinate	www.epimab.com	
Evotec SE	Hamburg	Hamburg	www.evotec.com	1993
FBM-PHARMA Gesellschaft für biologische Medizin mbH	Ludwigshafen	Rhineland-Palatinate	www.fbm-pharma.de	1995
Genome Biologics	Frankfurt am Main	Hessen	genomebiologics.com	2016
Heidelberg Pharma Research GmbH	Ladenburg	Baden-Württemberg	www.heidelberg-pharma.com	
Hummingbird Diagnostics GmbH	Heidelberg	Baden-Württemberg	www.hummingbird-diagnostics.com	1998
LIPID THERAPEUTICS GmbH	Heidelberg	Baden-Württemberg	www.lipid-therapeutics.com	2008
Lumobiotics GmbH	Karlsruhe	Baden-Württemberg	lumobiotics.com	2015
MalVa GmbH	Heidelberg	Baden-Württemberg	www.malvacompany.com	2011
Mika Pharma GmbH	Speyer	Saarland	www.mika-pharma.de	1994
MODAG GmbH	Wendelsheim	Rhineland-Palatinate	www.modag.net	2013
MYR Pharmaceuticals	Bad Homburg	Saarland	www.myr-pharma.com	2011
Novaliq GmbH	Heidelberg	Baden-Württemberg	www.novaliq.com	2007
Octapharma Biopharmaceuticals GmbH	Heidelberg	Baden-Württemberg	www.octapharma-biopharmaceuticals.com	1997
PEKKIP Oncology Alliance AG	Heidelberg	Baden-Württemberg	pekkip-oncology.com	2014
Pharma Schwörer GmbH	Wiesenbach	Baden-Württemberg	www.pharma-schwoerer.de	1948
Phenex Pharmaceuticals AG	Heidelberg	Baden-Württemberg	www.phenex-pharma.com	2002
Rheacell GmbH & Co. KG	Heidelberg	Baden-Württemberg	www.rheacell.com	2012
Sumaya Biotech GmbH & Co. KG	Heidelberg	Baden-Württemberg	www.sumaya-biotech.com	2015
t2cure GmbH	Frankfurt am Main	Hessen	www.t2cure.com	2006
TIGO GmbH	Wiesbaden	Hessen	www.tigo-gamma.eu	2007
TolerogenixX GmbH	Heidelberg	Baden-Württemberg	www.tolerogenixx.com	2016

Vaximm GmbH	Mannheim	Baden-Württemberg	www.vaximm.com	
Velabs Therapeutics GmbH	Heidelberg	Baden-Württemberg	www.velabs-therapeutics.com	2017
VIROSCREEN & VIROFEM diagnostics GmbH	Wiesbaden	Hessen	www.virofem.de	
ZEDIRA GmbH	Darmstadt	Hessen	zedira.com	2007

Biotechnology / R&D Services

Companies that fall under the Biotechnology / R&D Services category are those that provide support services such as product development services, analytical services, screening, contract manufacturing and contract R&D to the biotechnology industry.

Company Name	City	State	website	Founded in
4basebio AG	Heidelberg	Baden-Württemberg	investors.4basebio.com	1997
Abnova GmbH	Heidelberg	Baden-Württemberg	www.abnova.com/de	
Accugenix GmbH	Manheim	Baden-Württemberg	www.criver.com/products-services/rapid-micro/accugenix	
ACROSS BARRIERS GmbH	Saarbrücken	Saarland	www.acrossbarriers.de	1998
Advanced Analytical Technologies, GmbH	Heidelberg	Baden-Württemberg	www.aati-de.com	
AESKU.Diagnostics GmbH & Co. KG	Wendelsheim	Rhineland-Palatinate	www.aesku.com	2000
AGC Biologics ? Heidelberg	Heidelberg	Baden-Württemberg	www.agcbio.com	
AMS Advanced Medical Services GmbH	Mannheim	Baden-Württemberg	www.ams-europe.com	1997
AnDiaTec Division Quidel Germany GmbH	Kornwestheim	Baden-Württemberg	www.andiatec.com	2003
Antitoxin GmbH	Bammental	Baden-Württemberg	www.antitoxin-gmbh.de	1982
AQUANOVA AG	Darmstadt	-- select --	www.aquanova.de	1995
ARCONS Applied Research	Bad Nauheim	Hessen	www.arcons-research.de	
Armbuster Biotechnology GmbH (ABT)	Bensheim	Hessen	www.armbruster-biotechnology.com	2001
AtoZ-CRO GmbH	Overath	North Rhine-Westphalia	atoz-cro.de	1984
axiom insights GmbH	Hamburg	Hamburg	axiom-insights.com	
AXIOM Society for Diagnostica & Biochemica	Bürstadt	Hessen	www.axiom-solutions.de	
BD Biosciences	Heidelberg	Baden-Württemberg	www.bdbiosciences.com	
Bio DeTek GmbH	Griesheim	Hessen	www.biodetek.de	1996
bio.logis Center for Human Genetics	Frankfurt am Main	Hessen	www.bio.logis.de	2009
Bioassay GmbH	Heidelberg	Baden-Württemberg	www.bioassay-online.de	2002
biobyte solutions GmbH	Heidelberg	Baden-Württemberg	www.biobyte.de	2008
BioCat GmbH	Heidelberg	Baden-Württemberg	www.biocat.com	2000
BIOCHEM GMBH	Karlsruhe	Baden-Württemberg	www.biochem.de	1973
Biocrates Life Sciences AG	Innsbruck		www.biocrates.com	2002
BioMed X Institute	Heidelberg	Baden-Württemberg	bio.mx/	2013
BioNTech IMFS GmbH	Idar-Oberstein	Rhineland-Palatinate	www.biontech-imfs.de	1997
BIOREF GmbH	Moembris	Bavaria	www.bioref.de	1983
BioRépair GmbH	Sinsheim	Baden-Württemberg	www.biorepair.com	1997
BIORON Diagnostics GmbH	Ludwigshafen	Rhineland-Palatinate	www.bioron.de	
Bioscientia	Ingelheim	Rhineland-Palatinate	www.bioscientia.de	1970
BIOSPRING GMBH	Frankfurt am Main	Hessen	www.biospring.de	1997
BIOTASK AG	Esslingen	Baden-Württemberg	www.biotask.de	2000
BioTeSys GmbH	Esslingen	Baden-Württemberg	www.biotesys.de	1999
BIT Analytical Instruments GmbH	Schwalbach am Taunus	Hessen	www.bit-group.com	1976

BMI Biomedical Informatics	Heidelberg	Baden-Württemberg	www.bmi-heidelberg.com	1998
Brückner Labor	Mannheim	Baden-Württemberg	www.brueckner-m.de	
Cambrex IEP GmbH	Wiesbaden	Hessen	www.cambrex.com	1999
candidum GmbH	Stuttgart	Baden-Württemberg	www.candidum.bio	
Catalent Germany Schorndorf GmbH	Schorndorf	Baden-Württemberg	www.catalent.com/index.php/about-us/Our-Locations/EUROPE/Schorndorf-Germany	1961
CE-Immundiagnostika GmbH	Eschelbronn	Baden-Württemberg	www.ce-immundiagnostika.com	1979
Celonic Deutschland GmbH & Co. KG	Heidelberg	Baden-Württemberg	www.celonic.com/about-celonic/facilities/	2001
Clinipace Worldwide	Eschborn	Hessen	www.clinipace.com	
CLINLOGIX EUROPE GMBH	Mainz	Rhineland-Palatinate	www.clinlogix.com	1998
CLS Cell Lines Service GmbH	Eppelheim	Baden-Württemberg	clsgmbh.de	1998
CordenPharma International	Plankstadt	Baden-Württemberg	www.cordenpharma.com	2006
CRS Clinical Research Services Mannheim GmbH	Mannheim	Baden-Württemberg	www.crs-group.de	
Curetis GmbH	Holzgerlingen	Baden-Württemberg	www.curetis.com	2007
Cytel Inc.	Cambridge	Massachusetts	www.cytel.com	1987
DiaSorin Deutschland GmbH	Dietzenbach	Hessen	www.diasorin.com	1967
Efficient Robotics GmbH	Kornwestheim	Baden-Württemberg	www.efficient-robotics.com	2012
ElexoPharm GmbH	Saarbrücken	Saarland	www.elexopharm.de	2005
ENDOTHERM GmbH	Saarbrücken	Saarland	endotherm-lsm.com	1999
EnFin GmbH	Heidelberg	Baden-Württemberg	www.enfin-labs.de	2017
eXcorLab GmbH	Obernburg	Bavaria	www.excorlab.de	1983
Fresenius Kabi Contract Manufacturing	Oberursel	Hessen	cmo.fresenius-kabi.com/	
Gene Bridges GmbH	Heidelberg	Baden-Württemberg	www.genebridges.com	2000
GeneArchitects AG	St. Leon-Rot	Baden-Württemberg	www.picture-pond.de/portfolio/web/genearchitects/index.html	2000
GeneWerk GmbH	Heidelberg	Baden-Württemberg	www.genewerk.com	2014
Genopath GbR	Saarbrücken	North Rhine-Westphalia	www.genopath.de	
Genosphere Biotechnologies	Stuttgart	Baden-Württemberg	www.biomodul.de	1997
GENOTYPE GMBH	Wilhelmsfeld	Baden-Württemberg	www.genotype.de	1987
GenXPro GmbH	Frankfurt am Main	Hessen	www.genxpro.de	2005
gerbion GmbH & Co. KG	Kornwestheim	Baden-Württemberg	www.gerbion.com	2003
German Cancer Research Center (DKFZ)	Heidelberg	Baden-Württemberg	www.dkfz.de	1964
GFE Blut mbH	Frankfurt am Main	Hessen	www.gfeblut.de	2005
groninger & co. gmbh	Crailsheim	Baden-Württemberg	www.groninger.de	1980
Health Research Services GmbH	Ubstadt-Weiher	Baden-Württemberg	www.h-r-s.biz	2008

Heidelberg Delivery Technologies GmbH	Heidelberg	Baden-Württemberg	www.heideltec.com	2017
HS Analysis GmbH	Karlsruhe	Baden-Württemberg	www.hs-analysis.com	
HUMAN Diagnostics	Wiesbaden	Hessen	www.human.de	1972
humatrix AG	Pfungstadt	Hessen	www.humatrix.de	2001
HWI pharma services GmbH	Ruelzheim	Rhineland-Palatinate	www.hwi-group.de	1991
IBFE GmbH	Kirkel-Limbach	Saarland	www.ibfe-biotech.de	2003
ID-Labor GmbH	Wiesbaden	Hessen	www.id-labor.de	1998
Immuchrom GmbH	Heppenheim	Hessen	www.immuchrom.de	
Immundiagnostik AG	Bensheim	Hessen	www.immundiagnostik.com	1986
Inno-Train Diagnostik GmbH	Kronberg	Hessen	www.inno-train.de	1998
Insilico Biotechnology AG	Stuttgart	Baden-Württemberg	www.insilico-biotechnology.com	2001
instrAction GmbH	Mannheim	Baden-Württemberg	instraction.de	1997
IoLiTec Ionic Liquids Technologies GmbH	Heilbronn	Baden-Württemberg	www.iolitec.com	2002
IST GmbH	Mannheim	Baden-Württemberg	www.istgmbh.com	
KLOCKE PHARMA-SERVICE GMBH	Weingarten	Baden-Württemberg	www.klocke.com	1992
Klocke Pharma-Service GmbH	Weingarten	Baden-Württemberg	www.klocke.com	1963
LINICAL EUROPE GMBH	Frankfurt	Hessen	www.linical.com	
LOXO GmbH	Dossenheim	Baden-Württemberg	www.loxo.de	1993
MEDICHEM GmbH	Steinenbronn	Baden-Württemberg	www.medichem.de	1986
mediri GmbH	Heidelberg	Baden-Württemberg	mediri.com	2004
MetaSystems GmbH	Altlussheim	Baden-Württemberg	metasystems-international.com	1986
mfd Diagnostics GmbH	Wendelsheim	Baden-Württemberg	www.mfd-diagnostics.com	2004
Midas Pharma GmbH	Ingelheim	Rhineland-Palatinate	midas-pharma.com	1988
MJR PharmJet GmbH	Überherrn	Saarland	www.mjr-pharmjet.de	
MVZ Labor Dr. Limbach & Kollegen GbR	Heidelberg	Baden-Württemberg	www.labor-limbach.de	1979
nadicom GmbH	Karlsruhe	Baden-Württemberg	www.nadicom.com	2002
NAMSA	Grosswallstadt	Bavaria	www.namsa.com	
Navitas Life Sciences GmbH	Frankfurt	Hessen	www.ecronacunova.com	1986
NEC Laboratories Europe GmbH	Heidelberg	Baden-Württemberg	uk.nec.com/en_GB/emea/about/neclab_eu/	1994
NMI Technologietransfer GmbH	Reutlingen	Baden-Württemberg	www.nmi-tt.de	2002
Novatec Immundiagnostica GmbH	Dietzenbach	Hessen	www.novatec-id.com	
ORGENTEC Diagnostika GmbH	Mainz	Rhineland-Palatinate	www.orgentec.com	1988
ORPEGEN Peptide Chemicals GmbH	Heidelberg	Baden-Württemberg	www.orpechem.com	1982
PEPperPRINT GmbH	Heidelberg	Baden-Württemberg	www.pepperprint.com	2001
Peptide Specialty Laboratories GmbH	Heidelberg	Baden-Württemberg	www.peptid.de	2000

Pharmacelsus GmbH	Saarbruecken	Saarland	www.pharmacelsus.de	2000
PharmGenomics GmbH	Mainz	Rhineland-Palatinate	www.pharmgenomics.com	2008
Pivotal S.L.	Frankfurt	Hessen	www.pivotal.es	
PixelBiotech GmbH	Schriesheim	Baden-Württemberg	www.pixelbiotech.com	2018
Polysciences Europe GmbH	Hirschberg an der Bergstrasse	Baden-Württemberg	www.polysciences.com	
PRA Health Sciences	Mannheim	Baden-Württemberg	prahs.com	
PROGEN Biotechnik GmbH	Heidelberg	Baden-Württemberg	company.progen.com	1983
Prolytic GmbH	Frankfurt am Main	Hessen	www.prolytic.de	2002
Protagen Protein Services GmbH	Heilbronn	Baden-Württemberg	www.protagenproteinservices.com	1997
Proteome Sciences R&D GmbH & Co. KG	Frankfurt am Main	Hessen	www.proteomics.com	
Proteona GmbH	Cologne	North Rhine-Westphalia	www.proteona.com	
Protrans Medical Diagnostic Products GmbH	Hockenheim	Baden-Württemberg	www.protrans.info	
Q-bios GmbH	Mannheim	Baden-Württemberg	www.q-bios.com	2009
R-Biopharm AG	Darmstadt	Hessen	www.r-biopharm.com	1988
Royal Biotech GmbH	Frankfurt am Main	Brandenburg	www.royalbiotech.com	
Santa Cruz Biotechnology, Inc.	Heidelberg	Baden-Württemberg	www.scbt.com	
Santec Medicalprodukte GmbH	Großostheim	Bavaria	www.santec-medical.de	2002
Schantl Pharma Service GmbH	Wiesbaden	Hessen	www.schantl-pharma-service.de/en/	1995
Schrödinger GmbH	Mannheim	Baden-Württemberg	www.Schrodinger.com	
Scientific Research and Development GmbH	Oberursel	Hessen	www.srd-biotec.de	1995
Sciomics GmbH	Neckargemünd	Baden-Württemberg	www.sciomics.de	2013
ScreenFect GmbH	Eggenstein-Leopoldshafen	Baden-Württemberg	www.screenfect.com	2012
SensScreen Technologies GmbH	Esslingen	Baden-Württemberg	www.sensscreen.com	2009
SGS Institut Fresenius GmbH	Taunusstein	Hessen	www.institut-fresenius.de	1972
SocraTec R&D GmbH	Oberursel	-- select --	www.socratec-pharma.de	
StarSEQ GmbH	Mainz	Rhineland-Palatinate	www.starseq.com	2008
Steinbeis Transfer Center for Applied Biological Chemistry	Mannheim	Baden-Württemberg	www.stz-frey.com	1997
STRATEC Biomedical AG	Birkenfeld	Baden-Württemberg	www.stratec.com	1979
Sulfotools GmbH	Darmstadt	Hessen	en.sulfotools.com	2016
SYMBIOSIS GmbH	Eppelheim	Baden-Württemberg	www.symbiosis.de	2011
SYNTHON Gmbh	Schriesheim	Baden-Württemberg	www.synthon-analytics.de	
TentaMedix GmbH	Karlsruhe	Baden-Württemberg	www.tentamus.com/	1996
TET SYSTEMS GMBH & CO. KG	Heidelberg	Baden-Württemberg	www.tet-systems.com	2004
tgcBIOMICS GmbH	Bingen	Rhineland-Palatinate	www.tgcbiomics.de	1999
The Binding Site GmbH	Schwetzingen	Baden-Württemberg	www.bindingsite.co.uk	

The Biosimilars Group GmbH	Mannheim	Baden-Württemberg	www.TheBiosimilarsGroup.com	2014
TheraGenesis GmbH	Oppenheim	Rhineland-Palatinate	theragenesis.com	1995
TherapySelect Dr. Frank Kischkel	Heidelberg	Baden-Württemberg	www.therapyselect.de	
Ticeba GmbH	Heidelberg	Baden-Württemberg	www.ticeba.com	2003
VectorBuilder GmbH	Neu-Isenburg	Hessen	en.vectorbuilder.com	
VIROTECH Diagnostics GmbH	Rüsselsheim	Hessen	www.virotechdiagnostics.com	1986
Vivlion GmbH	Frankfurt am Main	Hessen	www.vivlion.com	2018
Yumab GmbH	Braunschweig	Lower Saxony	www.yumab.com	2012
ZentriForce Pharma Research GmbH	Heidelberg	Baden-Württemberg	zentriforce.com	

Biotechnology / Other

Companies that fall under the Biotechnology - Other category are all of those that apply the concepts of biotechnology (using living organisms or biological substances for the development of products and services) to areas other than drug development for medical use. Examples of areas covered under biotechnology - other are Agrobio companies, cosmetic companies, environmental companies, food technology companies, industrial biotechnology companies, nutraceutical companies and veterinary companies

Company Name	City	State	website	Founded in
AB Enzymes GmbH	Darmstadt	Hessen	www.abenzymes.com	1907
B.R.A.I.N. Biotechnology Research and Information Network AG	Zwingenberg	Hessen	www.brain-biotech.de	1993
BAYER GEMüSE- UND FRUCHTSAFT GMBH	Ditzingen-Heimerdingen	Baden-Württemberg	www.fruchtsaft-bayer.de	1928
BIODEGMA GmbH	Ludwigsburg	Baden-Württemberg	www.biodegma.de	1992
Biologische Heilmittel Heel GmbH	Baden-Baden	Baden-Württemberg	www.heel.de	1936
Birken AG	Niefern-Öschelbronn	Baden-Württemberg	www.birken.eu/en/home.html	2000
Boehringer-Ingelheim Vetmedica GmbH	Ingelheim Am Rhein	Rhineland-Palatinate	www.vetmedica.de	1978
CROPENERGIES AG	Mannheim	Baden-Württemberg	www.cropenergies.com	2006
Danico GmbH	Kelkheim	Hessen	danico-biotech.de	2001
Dr. Willmar Schwabe GmbH & Co. KG	Karlsruhe	Baden-Württemberg	www.schwabe.de	1866
ECT Oekotoxikologie GmbH	Flörsheim am Main	Hessen	ect.de	1993
GELITA Health GmbH	Eberbach	Baden-Württemberg	www.gelitahealth.com	1931
Generatio Sol GmbH	Heidelberg	Baden-Württemberg	www.generatio.de	
German Homeopathy Union DHU-Arzneimittel GmbH & Co. KG	Karlsruhe	Baden-Württemberg	www.dhu.de	1866
IDENTXX GmbH	Stuttgart	Baden-Württemberg	www.identxx.com	2009

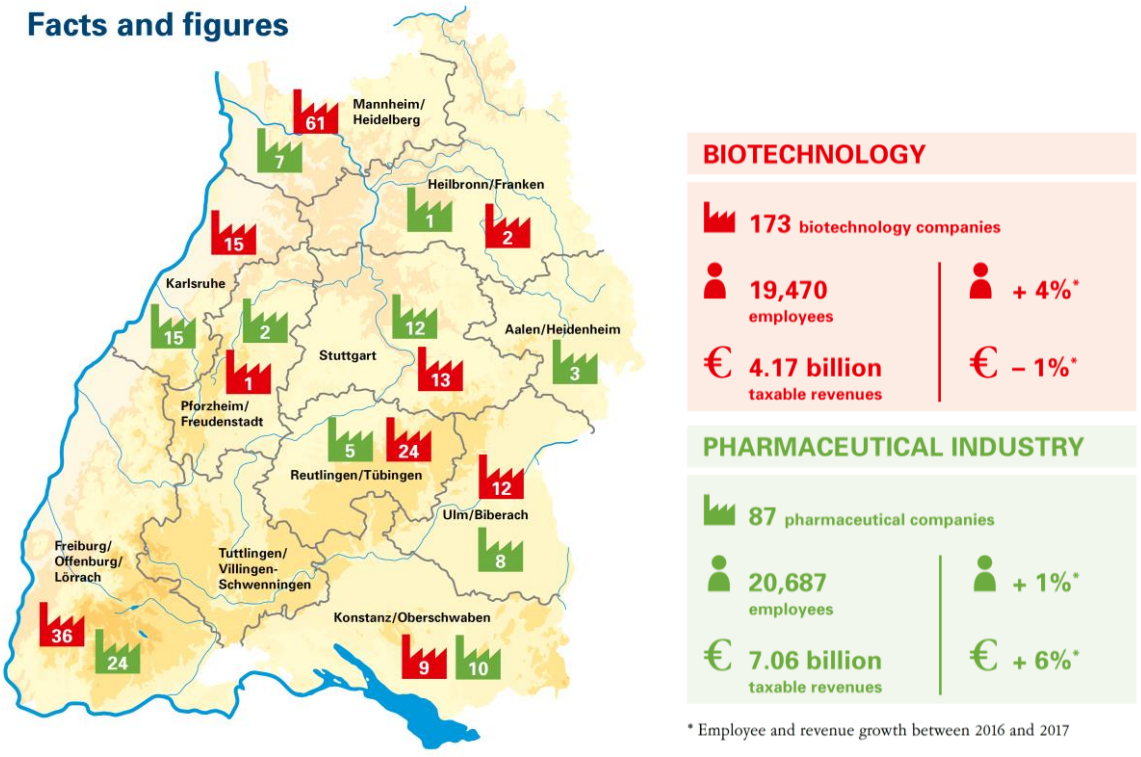
IMA Umwelttechnik GmbH & Co KG	Bohl-Iggelheim	Rhineland-Palatinate	www.ima-umwelttechnik.de	1999
KD-Pharma Group	Bexbach	Saarland	www.kdpharmagroup.com	1988
Lipoid GmbH	Ludwigshafen	Rhineland-Palatinate	www.lipoid.com	1977
Mickan Arzneimittel GmbH	Karlsruhe	Baden-Württemberg	www.mickan.de	
MSD Animal Health Innovation GmbH	Schwabenheim	Rhineland-Palatinate	www.msd-tiergesundheit.de	
MSE Pharmazeutika GmbH	Bad Homburg	Baden-Württemberg	www.mse-pharma.de	1992
NanotecMARIN GmbH	Mainz	Rhineland-Palatinate	www.nanotecmarin.de	2007
NOVATECH GmbH	Wolpertshausen	Baden-Württemberg	www.novatechgmbh.com	1985
Pharmazeutische Fabrik Dr. Reckeweg & Co GmbH	Bensheim	Hessen	www.reckeweg.de	1947
PHYTOPLAN Diehm & und Neuberger GmbH	Heidelberg	Baden-Württemberg	www.phytoplan.de	
Receptura Pharmacy	Frankfurt am Main	Hessen	www.receptura.de	1968
STEIGERWALD Arzneimittelwerk GmbH	Darmstadt	Hessen	darmstadt.bayer.de	1951
Succinity GmbH	Ludwigshafen	Rhineland-Palatinate	www.succinity.com	2013
Südzucker AG	Mannheim	Baden-Württemberg	www.suedzucker.de	1926

Economic impact of the biotechnology sector in Baden-Württemberg

With 174 biotechnology companies, Baden-Württemberg is home to a strong and diverse biotechnology landscape. Baden-Württemberg ranks second among German states in terms of the number of companies. In 2016, the biotech companies and their 18,751 employees generated taxable revenues of 4.2 billion euros. This corresponds to a revenue increase of 8% compared to the previous year. The revenue increase of medium-sized companies was particularly notable.

The biotech sector is dominated by micro and small enterprises. Around 96% of companies have less than 250 employees. The Mannheim/ Heidelberg region has the highest number of biotech companies, while the region with the highest revenues is Donau-Iller, followed by the Rhine-Neckar. The Donau-Iller region accounts for more than half of total revenues. With its unique concentration of companies in the towns of Laupheim, Ulm and Biberach, the state is also excellently positioned in biopharmaceutical production.

However, biotechnology is often characterised by very long development times compared to other high-tech industries. Biotech companies have high capital requirements due to high R&D expenditures. Therefore, stable framework conditions for innovation and the availability of funds are indispensable. While the USA has a broad venture capital market, the acquisition of financial resources still remains challenging in Germany. Additional incentives to improve access to capital are desirable. However, a number of companies in Baden-Württemberg such as CureVac, Immatics Biotechnologies, Phenex Pharmaceuticals or HepaRegeniX, to name a few, can look back on a large number of successful financing rounds, cooperation agreements and milestone payments in the past four years, Curetis even completed a successful stock market launch.



Source: Biotechnology and Pharmaceutical Industry 2019, BIOPRO Baden-Württemberg GmbH

Opportunities for the Biotechnology Research Community during Covid-19 Pandemic

The healthcare industry in general and the biotech companies in particular are currently experiencing a massive image change. For years, the industry has been accused of price gouging and threatened with stronger regulation. The accusation was often made that research-based drug manufacturers were allowing the breakthroughs in pharmacological research to be paid for (too) expensively via drug prices.

In the current year a completely opposite picture emerges: the collected hopes of the world community seem to weigh on the pharmaceutical companies. Therapeutic approaches for corona patients and vaccines are undergoing development and will reach (hopefully) approval in record time.

With around 700 companies, biotechnology is a major industry in Germany. Almost 34,000 employees were working there in 2019 and generated a total turnover of around 4.9 billion euros - 10% more than in the previous year. This shows the growing importance of biotechnology in Germany. How the corona crisis will affect the industry cannot yet be estimated. However we expect a positive effect. Hopefully the crisis will lead to more funding flowing into the biotechnology sector in 2020. A development that is considered urgently necessary. After all, research on new therapeutics and vaccines is extremely expensive."[1]

1 Biotech in Deutschland – Deutsche Unternehmen gegen SARS CoV-2, Labor Praxis

The future of Life Sciences and Health Care in Asia Pacific – the biotech boom

Asia is in the midst of rapid economic growth and now offers exciting possibilities in research, particularly in the area of biotechnology. Just two decades ago, advanced biotechnology research was centered primarily in the U.S. and Europe, and many researchers and students from Asia went there to pursue postgraduate studies.

With the booming Asian economy and increasingly vibrant research climate, many of those researchers have now returned and brought their expertise with them. They have gone on to establish biotech forces in both academia and industry, as well as form a large network of connections between researchers in Asia and around the world.

Demographic Trends in Asia Pacific	
Life expectancy	73.7 years (2015)[2]
Chronic diseases - Diabetes[3]	
China	114 million
India	69 million
Ageing populations - % of over 60 years[4]	
Australia	18.5%
Japan	31.4%
South Korea	17.1%
Electronic Health Records (EHR)[5]	forecasted annual growth rate (CAGR) of 5.7% until 2023

Exponential Changes in Asia Pacific - Technologies[6]	
3D printing	The promise of a greater opportunity to customise patient treatment. In biologics, 3D printing is being explored as a new way of manufacturing cell and tissue products.
Artificial intelligence (AI)	AI algorithms can analyse large data sets from clinical trials, health records, genetic profiles, and pre-clinical studies.
Blockchain	Blockchain, a shared, immutable record of peer-to-peer transactions built from linked transaction blocks stored on a digital transaction, enables each patient data source to act

[2] "Health at a Glance Asia/Pacific 2016". OECD. 2016. https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-asiapacific-2016/life-expectancy-at-birth_health_glance_ap-2016-5-en

[3] "2018 Global health care outlook". Deloitte. 2018. https://www2.deloitte.com/uk/en/pages/life-sciences-and-healthcare/articles/globalhealth-care-sector-outlook.html

[4] Economist Intelligence Unit Data Tool.

[5] "Global electronic health record market is projected to attain a size of $30.4 billion by 2023". PR Newswire. 11 October 2018. https://www.prnewswire.com/news-releases/global-electronic-health-record-market-is-projected-to-attain-a-size-of-30-4-billion-by-2023--300729892.html

[6] The future of Life Sciences and Health Care in Asia Pacific | Embrace, Build and Grow, Deloitte

	as a “block” of a complete, unalterable patient data profile that can then be shared securely with health care providers or other research organisations.
Gene Therapy	Gene therapy offers the potential for customised, targeted patient treatment, such as new CAR-T therapies.

China’s great leap into biotechnology

China has been heavily investing in biotech R&D of late, with the most recent stats showing a hefty USD 291 billion invested by China’s government, suggesting the nation is set to experience a swell in biotech activity in coming years. This expectation is supported by the volume of patent applications made by Chinese companies in 2019, with Chinese authorities receiving twice as many patent applications than the US.
In 2019, Chinese issuers raised USD 16.5 billion across 90 equity and debt offerings, a 17% increase in volume and 13% increase in value from 2018.
With the rise in China's patent application activity, the recent changes in legislation across Asia to encourage biotech offerings, AI developments, and the launch of Shanghai’s Science and Technology Innovation Board or ‘STAR Market’, biopharma activity in Asia looks set to grow as the region looks to build their profile as a strong alternative listing location for biotech companies in particular.[7]
China is pursuing a “very aggressive strategy” to become the world leader in biotechnology thanks to rapid innovation in computer sciences
It’s not just investment, talent, openness to data and AI that have made places like Singapore and Hong Kong hotspots for the biotech industry
Exposure to diseases like Sars and the coronavirus have made them quicker to react and more resilient, too.

Support for internationalisation towards Asia within the cluster

Asia is one of the most interesting international markets for the biotech field. As Cluster organisation, BioRN acts as soft-landing platform and “connector” for international regions for its members.

We identified two partners that could concretely support BioRN companies (and beyond) to enter the Asian market:

- Sino German Hi-Tech Park GmbH (https://sghtp.de/)
- Baden-Württemberg International (https://www.bw-i.de/en/start-page.html)

Sino German Hi-Tech Park GmbH

Sino German Hi Tech Park is located in Heidelberg Germany and is the premium starting point for German and Chinese cooperation and partnering. The company is developing more than 60.000 sqm of business space in Heidelberg for offshore centers, startups and industry and is also delivering value

7 (US Continues to Lead in Biopharma Activity, China’s Rapid Pace of Innovation Ramps Up and Europe Continues as Solid Breeding Ground for Biopharma, Baker McKenzie, https://www.bakermckenzie.com/en/newsroom/2020/02/capital-raising-in-biopharma)

added services to their partners such as: conference or event management, consulting, sales support, HR services and venture capital funding.

For companies in the Biotech field the Sino German Hi-Tech Park offers direct access to Huangpu (aka Guangzhou Development District). Huangpou is located right on the top of the Chinese Greater Bay Area, one of the four largest bay areas in the world comparable to the bay areas of UK, US and Japan.

The table here under includes in numbers the advantages that Huangpou is offering in the biotech/health field.

Huangpou Bioindustry Advantages	
6 Top ranking medical science universities of China	3 provincial key labs
20 well-known universities	44 Provincial and above Engineering and Technology Research Centers
30,000 teachers and students	6 Academic Workstations
6 National Labs in Frontier Field of Bio-pharma	615 medical health service companies
38 Grade-A Tertiary Hospital, 7 hospitals surgery volume enter top 100 in China	Bio-pharma industry

In the middle of Huangpou there is the so-called “Bio Island”, where scientific companies and research institutions are concentrated. The Sino German Hi Tech Park is not only a soft landing solution to enter the Chinese market, but offers concrete support for setting up a Chinese company, for settling in the Bio Island and acquire investment. Detailed can shared with interested companies.

A more detailed overview on the Huangpou ecosystem is available as Annex 1.

Baden-Württemberg International

Baden-Württemberg International (BW-i) is the competence centre for the internationalisation of business, science and research. Baden-Württemberg International lends support to domestic and foreign companies, research institutions and universities by serving as the central first point-of-contact in all questions relating to internationalisation.

Opening up foreign markets for Baden-Württemberg companies and profiling the state globally as an ideal location for industry, business and science are core aspects of BW-i’s mission. The aim is to securing and strengthening the position of Baden-Württemberg over the long term – by helping companies to settle here and promoting cooperative ventures between companies and institutions. We also help businesses to recruit the qualified staff they need.

At the same time BW-i supports clusters and regional networks with their internationalization processes with comprehensive services that help them to develop international markets and initiate relationships and cooperative ventures with potential contacts abroad. These programs are offered by the state in order to promote the initiation of international cooperation and the development of foreign markets abroad. Supporting the state’s cluster initiatives and networks in their processes of internationalization helps to increase the global competitiveness and the innovative strength of Baden-Württemberg and of its companies, universities and research institutions.

Concrete opportunities offered by BW-i in 2021 for biotech and life science companies with focus on foreign trade
Asia (location tba), Q3/Q4 2021: Business initiation trip (incl. matchmaking/presentation event); industries: Automotive, mechanical engineering, medical technology (to be decided, depending on demand)
China, Shanghai (conference) + one more location (Shenzhen or Beijing), July/August 2021: Market exploration trip within the framework of the World Artificial Intelligence Conference in Shanghai: Cross-industry with clear AI reference or application of AI, presentation of competence of the AI location BW, networking within China as well as bringing the areas of business and research.
China, Shanghai, April 2021: Joint company stand at trade fairs: CMEF Spring
United Arab Emirates, Dubai, 01.-04.02.2021, joint company stand at Arab Health (medical technology, health-related services, pharmaceuticals)
Brazil, Curitiba, Campinas, Rio de Janeiro, 3rd / 4th quarter 2021: Business initiation trip (incl. matchmaking/presentation event) for automation and intralogistics or medical technology, health, pharmacy (topic also depends on demand)
Brazil, Sao Paolo, May 2021: Joint company stand at the "Hospitalar" (health industry / medical technology)

Conclusion

With around 700 companies, biotechnology is a major industry in Germany. Almost 34,000 employees were working there in 2019 and generated a total turnover of around 4.9 billion euros - 10% more than in the previous year. BioRN Cluster is the management structure of an academic & industry network in south-west of Germany, spanning over the three German States Baden-Württemberg, Hessen and Rhineland-Palatinate. BioRN is the unique combination of top academic and research institutions, global pharmaceutical companies, a large range of small and medium-sized enterprises bolstering the life science ecosystem.

Asia is one of the most interesting international markets for the biotech field. As Cluster organisation, BioRN acts as soft-landing platform and “connector” for international regions for its members.