BASEL AREA
MORE TO *DISCOVER*

R&D in the life sciences: discover your go-to destination in Switzerland

The Basel Area research institutes handbook

#1 European Cities and Regions of the Future 2022/23 Award
by Financial Times, fDi Intelligence

Executive Summary

Switzerland is one of the best countries in the world for anyone looking to start up or expand a life science company, having topped the Global Innovation Index now for several years. And when it comes to biotech and medtech, the Basel Area is arguably the go-to place in the whole country.

There are multiple factors that support this claim, but one of the most important is the fact that the region offers a world-class ecosystem that comprises not just access to top commercial talent, but also to research personnel, spaces and collaborations.

This handbook provides an overview of all the major research institutions based in the Basel Area that actively collaborate with commercial organizations to drive the ongoing innovation for which this area is known.

Specifically, we will cover:

- **What makes Switzerland a global hub of life science innovation**
- **Why the Basel Area is the epicenter of R&D in Switzerland**
- **16 of the top Basel Area-based research institutes you should know about.**

«The Basel Area is the best place in Europe and beyond to start and build a biotech or medtech business, especially those which involve putting together basic or clinical research with commercial excellence. This handbook lists the world-class research institutions open to collaborations in the life sciences, and my team and I look forward to being able to introduce you to any of them.»

Paul Eschmann
Head of International Markets and Business Affairs
Basel Area Business & Innovation

We thank all the research institutes featured in this handbook and the contributors for sharing their insights on the R&D landscape in Switzerland and the Basel Area.

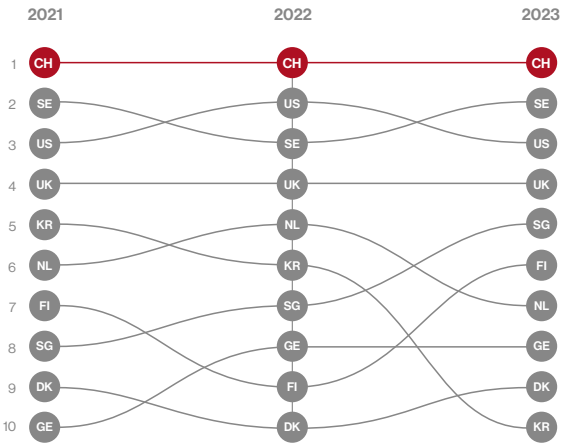
Edited by Basel Area Business & Innovation | September 2024

Switzerland's legacy in R&D – a pillar of life sciences innovation

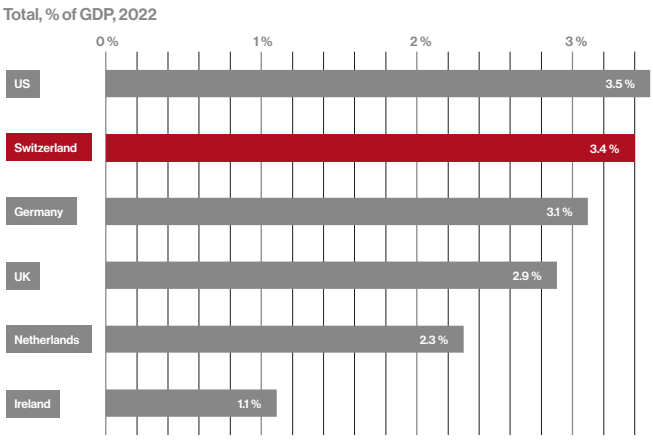
Switzerland is the uncontested innovation world champion

In 2023, the country ranked first in the Global Innovation Index for the 13th consecutive year,[1] based on a range of criteria from patent applications to R&D expenditure. Switzerland's dominance reflects its continued commitment to developing the novel tools and solutions of tomorrow, backed by its continued investment in R&D, which plays a vital role in fostering innovation and driving economic growth.

The top 10 innovators



Gross domestic spending on R&D



Figures 1 and 2: Switzerland is the world's most innovative country[1], and spends significantly more of its GDP on R&D than many other European countries.[2]

Switzerland also tops the charts globally in terms of patent submissions per capita, with more than 9,410 applications filed with the European Patent Office in 2023. Medtech was the most prominent industry, accounting for 10.7% of all applications, while pharma (5.7%) and biotech (4.7%) also featured high on the list.[3]

The 'Swiss patent box' is a fundamental driver of this success, designed to promote R&D by offering reduced tax rates on income derived from intellectual property.[4] This initiative incentivizes companies to invest more into their R&D activities, promoting innovation and making Switzerland an attractive location for technology-driven enterprises.

[1] Global Innovation Index 2023
[2] R&D expenditure 2022. Data extracted in March 2024
[3] European patent applications, Statistics & Trends in Switzerland
[4] Swiss Patent Box

Average European patent applications 2023

Switzerland scores high in publication performance

#1
In publications/ million inhabitants

#3
In publication impact

Figures 3 and 4: Switzerland filed more patents per capita than any other country in 2022 and 2023[3].

The private sector drives Swiss R&D

The private sector is the predominant contributor to R&D in Switzerland, investing CHF 15.5 billion in 2019 – 2.1% relative to GDP – with the large majority of this going to the pharmaceutical and chemical industries, followed by the metal industries, research laboratories and new technologies.[5]

In fact, a recent report by EY found that 14 Swiss corporations are ranked in the top 500 companies worldwide in R&D spending.[6] The two pharmaceutical giants Roche and Novartis – both based in Basel – are ranked in the top 20, making them important pillars of the Swiss economy and regional prosperity. These global pharmaceutical corporations, together with a plethora of smaller biotech and life sciences enterprises and startups, are shaping the Swiss life sciences sector, ensuring a drug and product pipeline filled with innovation.

Switzerland's contribution to the global biotech therapeutics pipeline is the highest in the world per capita;[7] there were around 190 molecules in active clinical trials in 2022 led by Swiss-based companies, mostly in oncology, neurology and gastroenterology.[7]

[5] Federal Department of Foreign Affairs of Switzerland. (2023) Research and Development.
[6] Research spending by corporations: 14 Swiss companies among the top 500 worldwide by EY (May 2023)
[7] How Switzerland is contributing to the commercial success of biotech companies worldwide by the Swiss Biotech Association (April 2023)

Switzerland Innovation Park Basel Area, Main Campus

Life sciences prosper in Switzerland

The variety of organizations already established in Switzerland demonstrates that it has proved itself as an attractive location for companies in the life sciences sector. The country is home to several regions rich in healthtech hubs, incubators, businesses and world-renowned universities – including the two federal institutes of technology **ETH Zurich** and **EPFL** – that combine to strengthen economic development and scientific progress.

Switzerland's central European location also fits well with global supply chains in the life sciences, while its political stability and the government's ongoing investment in both basic and applied research further fuels growth.

Key enablers of the Swiss life sciences ecosystem:

— **Switzerland Innovation**
This network of six science parks within the country aims to foster R&D collaborations between private companies, universities and other research partners.

— **Innosuisse**
This Swiss Innovation Agency provides support to R&D projects and helps the commercialization of novel ideas.

— **BaseLaunch**
This biotech accelerator program aims to speed up the development of startups in therapeutic innovation. Supporters of BaseLaunch include Novartis Venture Fund, Johnson & Johnson Innovation, Pfizer, Roche, and Roivant Sciences.

Basel – the epicenter of Swiss innovation in the life sciences

The Basel Area repeatedly features as one of the main hotspots for R&D in the life sciences arena in Switzerland, offering a dynamic business environment for startups and large multinational companies alike.

More than 700 companies in the sector have a base in the Basel Area, which is also home to 16 world-class universities and research institutes, and over 1,000 research groups. Over 33,000 people in the area were employed in life sciences, accounting for 7% of total regional employment, which is far higher than any other region in the world. The pharmaceutical industry is the main contributor to this, comprising 88% of all people employed in the sector in the Basel region.[8]

The life sciences are arguably one of the more difficult industries for which to find and retain personnel, making the sheer number of personnel it employs in the region particularly impressive. The Basel Area especially has a celebrated reputation in this sector, and is an appealing choice for a wide range of individuals, from young scientists to experienced professors.

«Basel is unique, notably for the many different layers of expertise found in the area – from industry and academia to the clinic – making it an attractive place for the life sciences.

Basel is a great place to work and live and it has a great reputation. The city is appealing to students and professionals, not only for the research and job opportunities, but also for the international community found here.»

Prof. Dr. Nina Khanna
Head Division of Infectious Diseases & Clinical Infectious Diseases, University Hospital Basel

[8] Interpharma – Pharmaceutical Hub Switzerland 2022: Basel Region

Deep academic research in the Basel Area

The importance of the region to the life sciences industry as a whole is highlighted by its continued expansion and rise in economic returns, which grew by an average of 9.3% each year between 2010 and 2020, and generated over CHF 25 billion in 2020 alone.[9] The sector also generated CHF 494 per hour worked in that year in just the Basel Area, considerably higher than that in other regions in Switzerland and in similar clusters around the world.[9] Overall, the Basel Area offers a fertile and productive environment to help companies thrive and prosper.

«Life sciences, especially biotech, is an extremely specialized area, requiring a unique set of skills that can be hard to find. Places such as Basel have excellent universities and a scientifically diverse ecosystem, which help to develop the skills needed in this field.

Taking D-BSSE as an example, around 20 professors and 400 personnel work in the labs here, and they are developing skills that feed back into the local biotech and pharma sectors.

Basel is also extremely attractive because of its competitive salaries and high standard of living, which helps retain talent as well as attracting people from around Europe and further afield. This is especially true in biotech, a field in which the region draws many parallels with North America, with its clusters in Boston and the San Francisco Bay area.»

Prof. Dr. Sai Reddy
Associate Professor, the Department of Biosystems Science and Engineering, ETH Zurich

[9] Interpharma – Pharmaceutical Hub Switzerland 2022: Basel Region

FHNW School of Life Sciences

A collaborative ecosystem: how applied sciences drive partnerships with industry

Basel's reputation for a focus on applied sciences helps to bolster this collaborative approach between industry and academia, accelerating the translation of research into commercial products.

Companies turn to research institutes to solve practical problems which, in turn, benefit from access to the latest technologies and real-world challenges, helping them to develop more relevant and impactful research programs.

Perhaps few institutes in the world exemplify this philosophy so well as the Basel-based University of Applied Sciences and Arts Northwestern Switzerland (FHNW School of Life Sciences). This self-proclaimed atypical university is much more than an academic institute, boasting an approximate 50/50 split of its activities between research and education, with an application-orientated approach and a focus on industry collaboration.

Institutes such as FHNW School of Life Sciences that focus on applied sciences are vital for fostering regional prosperity, as collaboration is at the core of their curriculum and they have the resources to open doors to companies of all sizes.

«We have an industrial mindset at FHNW School of Life Sciences, maybe more so than an academic one. We currently have around 240 research projects underway, the majority of which are in close cooperation with industry. This is made possible by the fact that most of our employees, and the professors heading these projects, have had positions in industry before, meaning they have both specialized know-how of the research field they are in as well as a good idea of the industry mindset. This is an important balance, and it's what sets us apart from other universities.

Our infrastructure is well beyond the needs of basic science, and is more targeted to those of our industrial partners, as well as what is required to transfer technologies into commercial products. This is important for small and midsized companies – as well as startups.»

Prof. Dr. Falko Schlottig
Director FHNW School of Life Sciences

D-BSSE in Basel
© ETH Zurich / Alessandro Della Bella

Building strategic collaborations between academia and industry for R&D and commercialization

The Basel Area is also the birthplace of countless strategic partnerships between academia and industry, which foster mutual growth, improve staff development and enhance the reach of R&D coming out of the labs. These collaborations allow corporations to harness existing lab spaces and advanced research capabilities without necessarily needing their own expensive, custom-built facilities. In return, research groups get the support and resources they need throughout the long path to commercialization.

«In most circumstances there's a limit to how far you can take academic research, especially in medical applications such as immunology and immunotherapy. In traditional academia, research will take you as far as a published paper, and that is sometimes the end of the story. In most cases, if your research is related to medicine, then you really must partner with industry in some capacity to unlock downstream possibilities.»

Prof. Dr. Sai Reddy
Associate Professor, the Department of Biosystems Science and Engineering, ETH Zurich

«The extensive facilities at the University of Basel really strengthen our research, and having access to labs and equipment in neighboring institutions – including the Biozentrum and D-BSSE – enhances this further. The proximity of the hospital to the lab allows our team to work closely with patients, meaning we can quickly translate our findings from the bed to the bench, and then from the bench back to the patient. Furthermore, we have opportunities to collaborate with the wider industry, gaining access to the latest instruments and techniques to help further our research.»

Prof. Dr. Nina Khanna
Head Division of Infectious Diseases & Clinical Infectious Diseases, University Hospital Basel


CSEM

4 reasons why the Basel Area is THE life science R&D destination in Switzerland

A future-oriented outlook with continuous transformation marks the Basel Area as Switzerland's life science innovation center. The region flourishes as a hub of ideas, research, culture and business acumen. Access to knowledge, highly qualified and international talent, and a supportive government have turned the Basel Area into Switzerland's leading innovation hub and the European leader in the life sciences.

The Basel Area is home to experienced leaders and innovators in the most advanced groundbreaking technologies across industries.

700+
life science companies

33,000+
talents in the life sciences

1,000+
research groups

16+
research institutes within a 60-minute drive

→ Discover the research institutes handbook
More about the major innovation centers that call the Basel Area home.

BASEL AREA

Discovering the Basel Area life sciences hub

The research institutes handbook

Biozentrum building , University of Basel

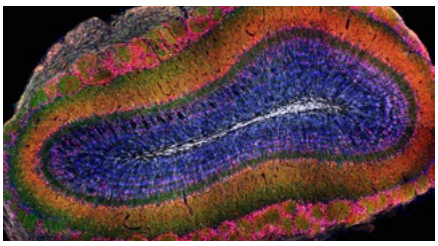
Biozentrum – University of Basel

The Biozentrum of the University of Basel is one of the leading life sciences institutes in the world. It consists of 31 groups and more than 500 employees researching how molecules and cells create life, spanning the scale from atom to organism. Founded in 1971, the Biozentrum has been the birthplace of many fundamental discoveries in biology and medicine, spawning several Nobel Laureates.

BIOZENTRUM
University of Basel
The Center for
Molecular Life Sciences

Key competences

- Molecular and biomedical research and teaching
- Computational and Theoretical Biology
- Developmental, Regenerative and Stem Cell Biology
- Evolution and Ecology
- Genetics and Genomics
- Microbiology, Infection Biology and Immunology
- Molecular and Cellular Biology
- Molecular Medicine, Physiology, Metabolism and Aging
- Multicellular Dynamics
- Neuroscience
- Physics of Life
- Signaling and Gene Regulation
- Structural Biology, Biochemistry and Biophysics
- Systems and Synthetic Biology



[1] Intestinal bacterium Escherichia coli. © Research Group Urs Jenal, Biozentrum University of Basel.

[2] New neurons (white) enter the olfactory bulb, a part of the brain that processes odor signals. © Research Group Fiona Doetsch, Biozentrum University of Basel.

Research cooperation with companies

ARTIDIS, Basilea Pharmaceuticals, BioVersys, Novartis, Polyphor, Santhera Pharmaceuticals, Roche.

Key facts

FTE	537
Founded in	1971
Nationalities	40
Master students	42
PhD students	137
Postdocs	112
Professors	32
Spin offs	6
Research groups	1,212

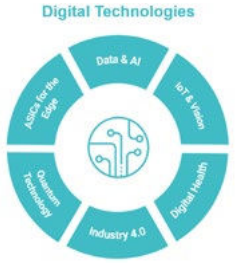
More information
www.biozentrum.unibas.ch

Source: Biozentrum – University of Basel

CSEM

CSEM is a Swiss technology innovation center developing advanced technologies with a high impact, which it then transfers to industry to strengthen the economy. The non-profit orientated, public-private organization is internationally recognized, and works to support the disruptive activities of companies in Switzerland and abroad. CSEM operates in the domains of precision manufacturing, digitalization, and sustainable energy. To accomplish its mission as a gateway between research and economy, CSEM's more than 600 employees collaborate with leading universities, scientific institutions, research institutes, and industrial partners. With its six sites in Allschwil, Alpnach, Bern, Landquart, Neuchâtel and Zurich, CSEM is active all over Switzerland.

csem
FACING THE CHALLENGES OF OUR TIME



Key competences

- Automated sample handling
- Biomaterials
- Biosensors
- Artificial Intelligence
- Microsystems
- Microfluidics
- Robotics & Automation
- System-on-chip

Research cooperation with companies

Following its mission, CSEM is not only collaborating with companies from any type of size (from startups to multinationals) but also with academia in the Basel Area and abroad.

Key facts

FTE	603
Founded in	1984
Nationalities	46
Bachelor students	8
Master students	25
PhD students	20
Postdocs	5
Spin offs	29
Patents	236
More relevent facts	A Public-Private Partnership

With our Tools for Life Sciences activities, we aim to contribute to the lasting success of the life sciences ecosystem, by providing it with the elements needed for efficient developments.

Christoph Joder
Senior Business Development Manager CSEM

More information
www.csem.ch

Source: CSEM

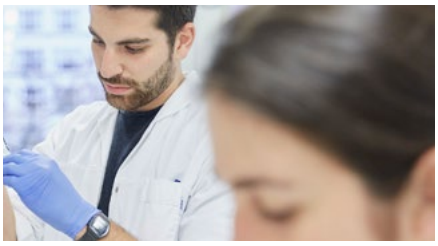
Department of Biomedicine
DBM

As a joint venture of the University of Basel and the University Hospitals Basel, the Department of Biomedicine (DBM) brings together basic and clinical research scientists to advance our understanding of health and disease. The DBM promotes scientific excellence in translational research and trains the next generation of biomedical scientists. The vibrant interdisciplinary culture and cutting-edge technical infrastructures nurture a spirit of innovation, towards scientific discovery and development of pioneering therapies in areas of unmet need.

DBM Basel
Department of Biomedicine

Key competences

- Immunology and Infectious Diseases
- Neurosciences
- Cancer Biology
- Tissue Development and Regeneration
- Scientific core facilities with cutting edge technology and dedicated professionals
- Accredited GMP facilities for the delivery of advanced therapy medicinal products
- Academic programs to integrate clinical and fundamental scientists
- Translation of fundamental discoveries into clinical innovation
- Training of scientific profiles for academia, clinical and industry



Research cooperation with companies

The Department of Biomedicine works closely with most of the key players in Basel's life sciences industry. Out of DBM research endeavors, several biotech and medtech companies have been established (e.g. Bottneuro, Cellec Biotec, Cimeo Therapeutics, Gene Guide and Hornet Therapeutics).

[1] Laboratory work at the DBM
[2] Manufacturing work in the GMP Core Facility
[3] New DBM Building by 2031

Key facts*

FTE	812
Founded in	2000
Nationalities	54
Research groups	72
Master students	67
PhD and MD PhD students	185
Postdocs	198
Technicians	104
Publications (Ø / year)	750

*as of 2023

At the DBM, we foster a translational environment in all areas of biomedical research and promote excellence in the connection of basic research with preclinical and clinical sciences.

Prof. Dr. Ivan Matin
Head of Department of Biomedicine

More information
www.biomedizin.unibas.ch

Source: Department of Biomedicine

Department of Biosystems Science and Engineering – ETH Zurich
D-BSSE

D-BSSE focusses on the understanding, rational design and programming of complex biological systems from the nanoscale up to whole organisms. As an engineering department of ETH Zurich, D-BSSE advances basic and applied biological sciences with the overall goal of translating its research into biomedical and industrial applications, and promoting the development of new processes and products in the biotech, pharmaceutical and chemical industries. To maximize the impact of this ambitious endeavour, the department was founded in 2007 in Basel, Europe's life science capital. In collaboration with partners from industry, hospitals and other academic institutions, the Basel location facilitates research applications in the emerging fields of precision medicine and personalized health, molecular systems engineering and data science. In 2023, D-BSSE moved into a new research and laboratory building on campus Schällemätteli in close vicinity to the University of Basel, the University Hospital, and the Children's Hospital Basel.

ETH zürich

Department of Biosystems Science and Engineering

The modern research building of the ETH-Department of Biosystems Science and Engineering (D-BSSE) offers lab and office space for up to 600 users.

Key competences

- Analysis of molecular processes in cells and organisms
- Development of strategies and techniques for programming and rational design of cell functions, and their implementation in complex biological systems
- Translational research to address unmet societal needs in medicine
- Education and training for students in biotechnology and computational biology/bioinformatics
- Technology transfer, entrepreneurship and spinoff creation

Research cooperation with companies

D-BSSE is part of a strong research network with academic, clinical and industrial partners in Basel and worldwide. Companies play a pivotal role in some of the consortia co-led by D-BSSE, including the Next-gen Bioengineers Partnership of ETH Zurich and Roche, and the Engineering Translational Medicine (ETM) initiative.

Key facts*

FTE	323
Founded in	2007
Nationalities	> 40
Master students	180
PhD students	180
Scientists (incl. 68 Postdocs)	100
Professors	22
Spin offs	19
Publications (Ø / year)	265
Patents filings	3

*as of 2023

ETH Zurich's location in Basel is extremely valuable for advancing research on the fundamental processes in biological systems. The proximity of D-BSSE to academic and clinical partners as well as strong collaborations with industry facilitate the translation of research findings into applications that address the great biomedical and environmental challenges of modern times.

Prof. Dr. Sven Panke
Head of D-BSSE, Professor of Bioprocess Engineering

More information
www.bsse.ethz.ch

Source: Department of Biosystems Science and Engineering, ETH Zurich

Department of Clinical Research – University of Basel
DKF

Universität Basel
Departement Klinische Forschung

The Department of Clinical Research (Departement Klinische Forschung, DKF) promotes high-quality patient-oriented research preferably performed in an academic setting. Located at the University Hospital Basel, it counts more than 130 research groups from all medical disciplines and 18 regional health care institutions. An interdisciplinary team of 60 experts offers consulting and services for the planning and conduct of clinical trials, cohort and registry studies and further data-driven research projects. An Outpatient Study Centre provides premises and infrastructure for the conduct of Phase I to III clinical trials. The education portfolio consists of over 20 different training offers suitable for all professions within patient-oriented research. The DKF also continuously contributes to regional and national innovation projects to further improve research infrastructures and innovative research methodology.

[1] The DKF Outpatient Study Center provides premises and infrastructure for the conduct of Phase I to III clinical trials.

[2] DKF scientific services offer support for the planning and conduct of clinical trials, cohort and registry studies and further data-driven research projects.

Key competences

- Acquisition, planning and conduct of investigator-initiated clinical trials
- Set-up, maintenance and research use of cohorts and registries
- Ethical, legal and technical governance of research with sensitive data and samples
- Patient and public involvement
- Outpatient and inpatient care for clinical study participants
- Training and education
- Meta research, including health economic evaluations

Research cooperation with companies

Several national and international pharmaceutical and biotech companies based on collaborations at the level of individual clinical trials and other research projects.

Key facts*

FTE	52
Founded in	2014
PhD students (Clinical Research)	90
Training certificates issued / year	1,120
Active databases per year	194
Publications (Ø / year)	1,090
Research projects per year	280
Clinical research groups	139

*as of 2023

More information
www.dkf.unibas.ch/en/

Source: Department of Clinical Research University of Basel

Department of Pharmaceutical Sciences – University of Basel
DPhS

The Department of Pharmaceutical Sciences (DPhS) at the University of Basel conducts internationally renowned research spanning the entire drug development process, from discovery to application. With a focus on translational science, it bridges basic research in the Faculty of Science with clinical disciplines in the Faculty of Medicine. Serving approximately 600 students, it remains a highly regarded university training center. The department's dedication to excellence is evident in its high-quality research and the unwavering commitment of its staff to achieving outstanding results in both teaching and research.

DEPARTMENT OF PHARMACEUTICAL SCIENCES

[1] Molecular Modeling Laboratory Course
[2] Pharmaceutical Sciences laboratory
[3] Virtual reality for drug development

Key competences

- 13 research groups
- Academic Drug Discovery & Development Center
- High-quality output in research
- Using artificial intelligence to discover new drugs
- DPhS study programs benefit from close proximity to university hospitals and the pharmaceutical industry
- 100-year-old pharmacy museum with one of the world's largest collection on the history of remedies and their production
- Discovery of the effectiveness of the hormone cortisone, leading to the receipt of the Nobel Prize in 1950 by then-institute director Tadeus Reichstein

Research cooperation with companies

In addition to collaborations with other institutions of the University of Basel and its hospitals, there are numerous research collaborations with many pharmaceutical companies and universities in Switzerland and abroad.

Key facts*

FTE	121.5
Founded in	1917
Nationalities	40
Bachelor students	311
Master students	217
PhD students	75
Postdocs	26
Professors	13
Spin offs	1
Publications (Ø / year)	100–120
Patents	2

*as of 2023

More information
www.pharma.unibas.ch

At the Department of Pharmaceutical Sciences, we pioneer transformative research at the intersection of chemistry, biology, and medicine, using state-of-the-art appraoches such as AI. With a commitment to innovation and excellence, we strive to develop novel therapies, advance drug delivery systems, and train future leaders in pharmaceutical sciences.

Binz Andrea
Executive Manager DPhS

Source: Department of Pharmaceutical Sciences

Department for Biomedical Engineering – University of Basel
DBE

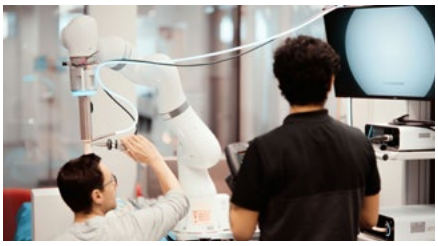
The Department of Biomedical Engineering (DBE) at the Medical Faculty of the University of Basel contributes to a better future in healthcare through innovative biomedical research and engineering solutions. The researchers at the DBE translate basic science and engineering into medical knowledge and healthcare innovations. We activate potential by offering unique career opportunities for students and researchers at all levels. The DBE drives translation in embedded research, education and advanced services. Our research aims to make high-tech treatments more available and speed up diagnosis, treatment, and recovery.

University of Basel
Department of Biomedical Engineering

Key competences

- Biomaterials Science & Regenerative Medicine
- Clinical Biomechanics
- Data Driven Modelling and Analysis
- Emerging Analytical and Forensic Technologies
- Surgical Lasers & Robotics
- Medical Imaging

Core facilities offering services:
- Micro- & Nanotomography
- Microcalorimetry
- 3D-Print Lab



[1] Developing modular surgical systems in the robotics lab
[2] Ultra-high resolution X-ray scanning services
[3] Translational basic research right from the start
All pictures DBE/R. Wendler

Research cooperation with companies

The Department of Biomedical Engineering (DBE) is a joint venture between the University Hospitals of Basel (USB, UKBB, UZB) and the Medical Faculty at the University of Basel and owes its existence to donations from several private foundations and sponsors who recognized the innovative potential of individual researchers and their research. We collaborate with many industrial partners as well as research institutions worldwide.

Key facts*

FTE	81
Founded in	2015
Nationalities	28
Master students	84
PhD students	65
Postdocs	14
Professors	18
Spin offs	12
Publications (Ø / year)	>200
Patents	27

*as of 2023

The Basel Area is a huge space of possibilities for us, where we can find the right partners for many ideas.

Prof. Philippe C. Cattin
Head of Department

More information
www. dbe.unibas.ch

Source: Department of Biomedical Engineering

Friedrich Miescher Institute for Biomedical Research
FMI

The Friedrich Miescher Institute for Biomedical Research (FMI), based in Basel, is a world-class biomedical research institute with a twofold mission – understanding the molecular mechanisms of health and disease, and training early-career scientists. The institute has an international staff of about 330 people from more than 40 countries, and 19 research groups whose main areas of focus are Neurobiology, Genome Regulation, and Multicellular Systems. The FMI is affiliated with the University of Basel and the Novartis Institutes for Biomedical Research.

[1] Friedrich Miescher Institute for Biomedical Research
[2] FMI laboratory

Key competences

19 research groups

Research areas
- Genome Regulation
- Multicellular Systems
- Neurobiology

Research themes
- RNA biology & development
- Chromatin structure & gene regulation
- Genome integrity & maintenance
- Mathematical & molecular modeling
- Stemness & organogenesis
- Neuronal circuits & behavior
- Learning & memory

Research cooperation with companies

No research cooperation but affiliated with Novartis.

Key facts*

FTE	330
Nationalities	40
Master students	12
PhD students	84
Postdocs	106
Professors	12
Publications	91
Patents in 2023 / in total since 1999	4/161

*as of 2023

More information
www.fmi.ch

Source: FMI

Haute Ecole Arc
HE-Arc

The Haute Ecole Arc has been the university of applied sciences of the cantons Jura, Neuchâtel and Berne (for the french part) since 2004. Each year, it trains nearly 3,000 students at Bachelor's, Master's, postgraduate and continuing education levels in 4 domains : Engineering, Health, Management and Conservation/Restoration. The HE-Arc is active, among other places, in the Switzerland Innovation Park Basel Area in Delémont.

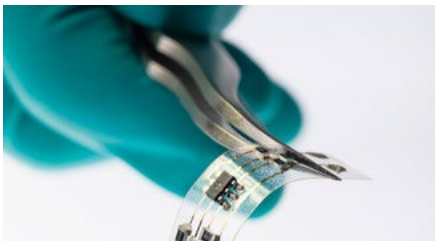
Key competences

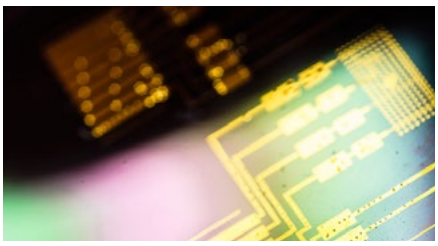
- Diagnostic and interventional medical devices; Bio-MEMS; Biosensors; Wearable devices, Surgical tools
- Biocompatible coatings
- Rapid and Point-of-Care diagnostic systems
- Organ-on-Chip microfluidic devicers
- AI-based applications for chronic diseases monitoring
- Gait analysis for fall risk prevention
- Respiratory physiotherapy, non-invasive ventilation
- Therapeutic Patient Education
- Clinical examination

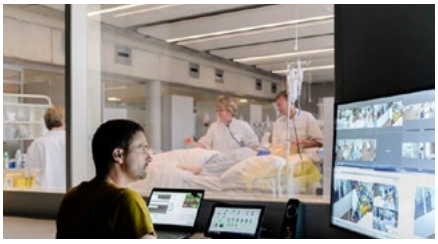
Research cooperation and partnerships

Hospital of Jura, Neuchâtel Hospital Network, University Hospital Centre of Canton Vaud, Switzerland Innovation Park Delémont

- CSEM
- CryoThermo
- Seyonic
- Melexis
- CNS Therapy
- Micro Precision System AG







[1] Flexible electronic circuit for wearables
[2] Biosensors for electronic circuit technology
[3] Simulation testing center

Key facts*

FTE	90
Founded in	2004
Nationalities	12
Bachelor students	400
PhD students	3
Professors	19
Spin offs	3
Publications (Ø / year)	25
Patents	5

*as of 2023

At HE-Arc you will find partners from all horizons to help you realise your projects.

Denis Prêtre
Deputy Director at HE-Arc

More information
www.he-arc.ch

Source: Haute-Ecole Arc

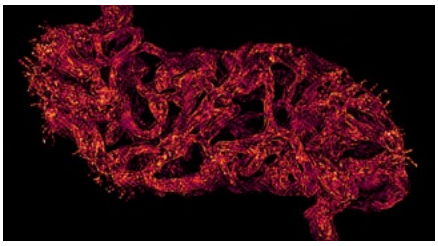
Roche Towers, Basel

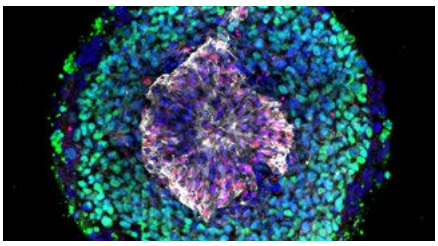
Institute of Human Biology – Roche

Launched in May 2023, the Institute of Human Biology (IHB) advances human model systems, including organoids, and related technologies to accelerate drug discovery and development, and precision medicine. To achieve this mission, IHB takes a collaborative approach and brings together under one roof multidisciplinary and innovative experts across basic biology, (bio)engineering, data and computation, and translational application. Part of Roche's Pharma Research & Early Development (pRED) innovation engine and located in Basel, IHB is equipped with cutting-edge infrastructure and actively pursues partnerships and collaborations with academia and industry on a local, regional and international scale.

Institute of Human Biology

Roche





[1] Bioengineered human model of micro-vasculature
[2] An IHB scientist runs an automated workflow
[3] Induced pluripotent stem cell derived neuroloid

Key competences

- In vitro human model systems (multi-tissue, single tissue)
- Developmental biology
- (Bio)engineering
- Microtechnologies
- Gene editing
- Phenotyping and automated screening
- Translational validation of preclinical and clinical assays
- Automation
- Biobanking
- Single cell genomics

Scientific Alliances

Bridging academia and industry, IHB currently has more than three dozen research projects active or in the pipeline in collaboration with leading scientific partners world-wide, taking part in training scientists and enabling fertile ground for discovery and exchange. Locally, IHB and ETH Zurich's Department of Biosystems Science and Engineering (D-BSSE) are partnering on a joint doctoral programme, the Next Generation Bioengineers, where students work on translational models and tools in gene-, cell- and organoid-based therapies to meet real-world challenges in translational medicine. Collaborations between IHB and external research institutions are a testament to the institute's commitment as an enabler of scientific advancement.

Key facts*

FTE	112+
Founded in	2023
Nationalities	35
PhD students	16
Principal Scientists	13
Professors	9
Publications (to date)	16
Patents	1 filed
Collaborations (active)	18

*as of 2023

> **Together with our collaborators, IHB is exceptionally equipped to conduct academic-type research and then turn discoveries into solutions for current and future pharmaceutical challenges.**

Prof. Dr. Hans Clevers
Director and Head of IHB *ad interim*

More information
www.institutehumanbiology.com

Source: Roche's Institute of Human Biology

Institute of Molecular and Clinical Ophthalmology Basel
IOB

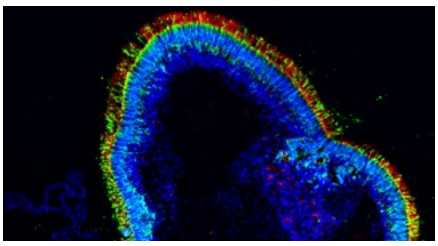
At the Institute of Molecular and Clinical Ophthalmology Basel (IOB), basic researchers and clinicians work hand in hand to advance the understanding of vision and its diseases, and to develop new therapies for vision loss. IOB started operations in 2018. The institute is constituted as a foundation, granting academic freedom to its scientists.

Key competences

- Comprehensive research portfolio to understand vision and its diseases and to develop therapy for vision loss
- Nine research groups, seven technology platforms, and a multidisciplinary research infrastructure
- Advanced biological and medical technologies
- Therapy development encompassing the entire value chain from molecules to patients
- Cutting-edge optogenetic approaches to restore vision

Research cooperation with companies

IOB is affiliated with the University of Basel and collaborates closely with the Eye Clinic of the University Hospital Basel. In addition, the institute maintains extensive research partnerships with a global network of academic institutions and industry leaders in ophthalmology and vision science. Recently, IOB launched its first spin-off company, RhyGaze AG, to advance groundbreaking gene therapy for treating blindness.



[1] Clinicians and Researchers at IOB
[2] Human Retinal Organoid
[3] Gene Therapy Vector Platform

Key facts

FTE	127
Founded in	2017
Nationalities	28
PhD students	22
Postdocs	20
Professors	9
Spin offs	1
Publications (in 2024)	79
Patents	3

IOB is privileged to collaborate with outstanding researchers and industry players in the Basel ecosystem. Our most precious collaborations include work with the DBM, the D-BSSE, departments of the University Hospital Basel, laboratories and the University of Basel, and the Novartis FastLab. We are eager to develop further engagements, particularly with local biotechs and investors.

Dr. Charles Gubser
IOB Co-Director

More information
www.iob.ch

Source: IOB

Paul Scherrer Institute
PSI

The Paul Scherrer Institute is the largest research institute for natural and engineering sciences in Switzerland, conducting cutting-edge research in four main fields: future technologies, energy and climate, health innovation and fundamentals of nature. PSI develops, builds and operates complex large research facilities. Every year, more than 2,500 scientists from Switzerland and around the world come to PSI to use their unique facilities to carry out experiments that are not possible anywhere else. PSI is committed to the training of future generations. Therefore about one quarter of their staff are apprentices, post-graduates or post-docs. For pupils it offers the school laboratory iLab.

PSI is located between Zurich and Basel

Key competences

Research areas
- Matter and Material: study of the internal structure of a wide range of different materials
- Energy and Environment: study to develop new technologies to facilitate the creation of a sustainable and secure supply of energy
- Human Health: searching for the causes of illnesses and exploring potential treatment methods

Research cooperation with companies

We have many national and international research collaborations ongoing with companies from various industries.

Key facts*

FTE	2,300
Nationalities	> 60
PhD students	330
Postdocs	190
Professors	45
Publications (Ø / year)	1,300
Patents (Ø per year / in total)	10/100
Spin offs	18

*as of 2023

More information
www.psi.ch

At PSI, we bridge the gap between science, innovation and application, offering a dynamic synthesis of cutting-edge technologies and groundbreaking research. Our diverse technical proficiency and globally unrivaled combination of large research facilities pave the way for transformative collaborations.

John Millard
Head of PSI Technology Transfer

Source: Paul Scherrer Institute

Swiss Institute of Bioinformatics
SIB

SIB is an internationally recognized non-profit organization, dedicated to biological and biomedical data science. Our data scientists are passionate about creating knowledge and solving complex questions in many fields, from biodiversity and evolution to medicine.
They provide essential databases and software platforms as well as bioinformatics expertise and services to academic, clinical, and industry groups. SIB federates the Swiss bioinformatics community of some 900 scientists, encouraging collaboration and knowledge sharing.
The institute contributes to keeping Switzerland at the forefront of innovation by fostering progress in biological research and enhancing health.

Key competences

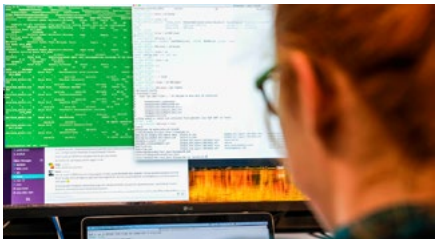
We provide sound, objective and result-oriented professional services and solutions to academics, clinical and industry partners in Switzerland and abroad:

- Biostatistics and bioinformatics analysis: integration and analysis of all kinds of life science data from different technologies
- Data stewardship and management: we organize biological and biomedical data for long-term reuse
- Sensitive data sharing: we enable the secure sharing of interoperable biomedical data
- Knowledge graphs: gain novel and faster insights from data and through intuitive queries across interconnected datasets
- Software development: we harmonize and optimize internal data handling processes through the customization and development of analysis pipelines or software tools
- Bioinformatics training for researchers and clinicians

Research cooperation with companies

We have over 25 years of experience in successfully delivering data science services to the academic and private sector, from collaborating in large European public-private partnerships to engaging in contracts or IMI / Innosuisse schemes with biotech/biomed start-ups, SMEs, large companies and hospitals. The companies we collaborate with include Amazentis, BASF, Lunaphore, Pierre Fabre; hospitals (incl. Universitätsspital Basel, CHUV, HUG) and international partners. Our solutions can be applied to any life science field, from agriculture and nutrition to environment and medicine.

SIB Swiss Institute of Bioinformatics



[1] We bring together key partners and data in large-scale projects
[2] The comprehensive bioinformatics services we offer
[3] Over 160 open tools and databases are developed by the SIB community

Key facts*

FTE	162
Incl. in Basel	22
Founded in	1998
Nationalities	22
Total members in network	900
Total research groups in network	88
Incl. in Basel	13
Publications (Ø / year)	527

*as of 2023

We assist academics, clinical and industry partners in maximizing their use of life science data to boost innovation across domains, from health to the environment. Our strengths lie in our 25 years of biological and biomedical data expertise, our national network and independent status, at the service of science.

Christophe Dessimoz
Executive Director

More information
www.sib.swiss

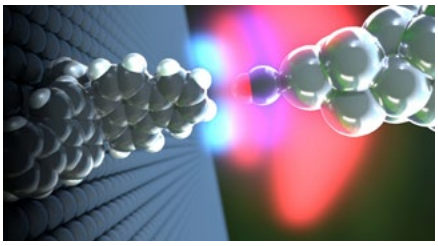
Source: SIB Swiss Institute of Bioinformatics

Swiss Nanoscience Institute – University of Basel
SNI

The Swiss Nanoscience Institute (SNI) at the University of Basel is a center of excellence for nanosciences and nanotechnology. It was founded in 2006 by the University of Basel and the Swiss Canton Aargau to support research, education, and technology transfer in nanosciences and in nanotechnology in Northwestern Switzerland.

The SNI is responsible for the bachelor's and master's program in nanosciences at the University of Basel and runs an interdisciplinary PhD School. It funds applied research projects by members of the network and industrial companies via the Nano-Argovia program. The SNI also offers services in nanoimaging and nanofabrication via its Nano Technology Center.

Swiss Nanoscience Institute
Center of Excellence supported by the University of Basel and the Canton of Aargau



[1] A hydrogen bond forms between a propellane (lower molecule) and the carbon monoxide functionalized tip of an atomic force microscope.
[2] SNI director Prof. Martino Poggio with his PhD student Simon Philipp.

Key competences

- Nanoimaging
- Nanofabrication

With applications in
- life science
- medicine
- quantum science
- environmental science
- material science

Cooperations in last 4 years

Acthera Therapeutics, Aigys, Camille Bauer Metrawatt, CIS Pharma, cryoWrite, Dectris, DSM Nutritional Products, Gemalto, Institute Straumann, Mems, Menhir Photonics, MOMM Diagnostics, NovoNexile, Qnami, Omya, Orchid Orthopedics, Orvinum, Palto Therapeutics, Perseo Pharma, SwissSEM, RadLab, Rolic Technologies, TargImmune Therapeutics, TLD Photonics, vVardis, XRnanotech.

Key facts*

FTE	167
Nationalities	16
Bachelor students	65
Master students	26
PhD students	40
Professors	6
Spin offs	4
Publications (Ø / year)	50
Patents	1–3

*as of 2023

More information
www.nanoscience.ch/en

Source: Swiss Nanoscience Institute

Swiss Tropical and Public Health Institute
Swiss TPH

The Swiss Tropical and Public Health Institute (Swiss TPH) is a world-leading institute in global health with a particular focus on low- and middle-income countries. Associated with the University of Basel, Swiss TPH combines research, education and services. 950 staff and students from 95 nations work at Swiss TPH focusing on climate change, environment and health; infectious and non-communicable diseases; societal and cultural context; and systems and policies. We cover the entire value chain from innovation and validation to application, pursuing a translational approach to improve the health and well-being of people in over 130 countries.

Key competences

- Cohorts and Biobanks
- Laboratory Sciences
- Epidemiological and Health Social Sciences
- Clinical Research and Medical Services
- Computational and Digital Health Sciences
- Capacity Strengthening and Learning
- Implementation Research and Practice
- Expert and Policy Advice

Research cooperation and partnerships

Swiss TPH forms partnerships with institutions from the public, private and non-governmental sectors at the local, national and international level. Funders and partners include the State Secretariat for Education, Research and Innovation, the Swiss Agency for Development and Cooperation, the Swiss National Science Foundation, the European Commission, Bayer, Bill & Melinda Gates Foundation, Drugs for Neglected Diseases Initiative, Fondation Botnar, Novartis, Merck, Medicines for Malaria Venture, the R. Geigy-Foundation, Roche, Unitaid, the World Health Organization, and many more.

[1] 950 staff and students from 95 nations work at Swiss TPH
[2] Headquarter building in Allschwil
[3] Swiss TPH works from inovation and validation to application

Key facts*

FTE	925
Founded in	1943
Nationalities	95
Master students	64
PhD students	186
Postdocs	25
Professors	49
Publications (Ø / year)	500
Patents	21
Current projects	385
Countries we work in	131

*as of 2023

Working in deeply rooted partnerships, we combine research, education and services to make a difference and improve people's health and wellbeing around the world.

Prof. Dr. Jürg Utzinger
Director Swiss TPH

More information
www.swisstph.ch

Source: Swiss TPH

University of Applied Sciences Northwestern Switzerland
FHNW

Study and research at the interface between nature, technology, medicine and the environment.

Based in Muttenz near Basel, the FHNW School of Life Sciences is part of Europe's largest life sciences center and lies at the heart of pharmaceutical and medical technology, the chemical industry and environmental and biotechnology. It is here that we train skilled specialists and come up with solutions to the social and economic challenges of tomorrow. We are committed to developing new preventive and therapeutic products and services, improving people's quality of life and promoting a sustainable attitude to the environment.

University of Applied Sciences and Arts Northwestern Switzerland
School of Life Sciences

[1] Students in laboratory at the School of Life Sciences
[2] View from above inside the spectacular FHNW Campus Muttenz
[3] Campus and Park FHNW Muttenz

Key competences

The FHNW School of Life Sciences consists of four institutes involved in research & innovation (R&I) and education. It cooperates closely with prominent national, EU and international organizations and industries.

The School has applied, industry-driven expertise in health & pharma technology, circular (bio)economy and environmental restoration, as well as biodiversity loss and climate change mitigation, in line with the European Green Deal priorities. The main research areas are Chemistry and Bioanalytics, Ecopreneurship, Medical Engineering and Medical Informatic and Pharma Technology.

Research cooperation with companies

Together with our partner companies, we conduct applied research on the most pressing issues facing the life sciences sector. The expertise and experience of our researchers, their extensive network and our state-of-the-art infrastructure have led to partnerships with PEARRL, PerTPV, INGREEN, InPharma, Nowelties, Future Enzyme and NextGen.

With our practice-orientated education and training and application-oriented research, our university makes a significant contribution to the further development of the life sciences region of Northwestern Switzerland.

Prof. Dr. Falko Schlottig
Director FHNW School of Life Sciences

More information
www.fhnw.ch/lifesciences

Source: FHNW School of Life Sciences

→ Learn more about the Basel Area as a research hub

www.investinbasel.com

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