

Zurich: a Life Sciences Hotspot



Thanks to its combination of academic excellence, entrepreneurship and innovation, financial strength, outstanding accessibility, and a healthy economy, Zurich is one of the leading centers of life sciences in Europe

Notable academic achievements, high profile education programs, and the above-average quality of life render Zurich not only very competitive in the global market for talent, from students to professors, but also at the entrepreneurial level.

Outstanding academic success in the biomedical sciences serve as a motor for innovation in the biotech and medtech sectors. Joint activities of universities and private companies provide favorable conditions for young start-up companies. Synergies between academic institutions, industry, and the public sector in the Zurich area resulted in the foundation of the Life Science Zurich Business Network in 2011.

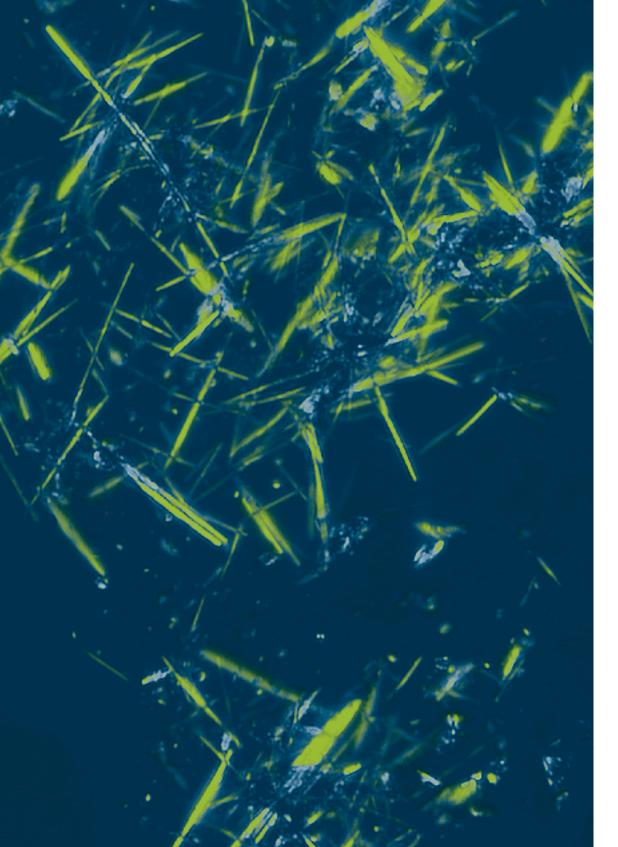
This booklet summarizes the joint activities of the academic institutions, business incubators, tech transfer offices, economic development offices, and private companies in the life sciences field in and around Zurich.

Prof. Wilhelm Gruissem Plant Biotechnology ETH Zurich Prof. Thierry Hennet Institute of Physiology University of Zurich

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Life Science Zurich (LSZ)

The ETH Zurich and the University of Zurich founded Life Science Zurich in 2001 as a joint communication platform for addressing the general public. Since then, three additional units have evolved. Each unit focusses on a specific target audience and contributes to promoting Zurich as an international center for cutting-edge research, first-class education, and economic innovation in the life sciences field.

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LSZ communication and events

Communicates the importance and impact of ongoing life sciences research at the ETH and the UZH to the general public. Life sciences themes are presented in panel discussions, science slams, science festivals, and exhibitions.

LSZ graduate school

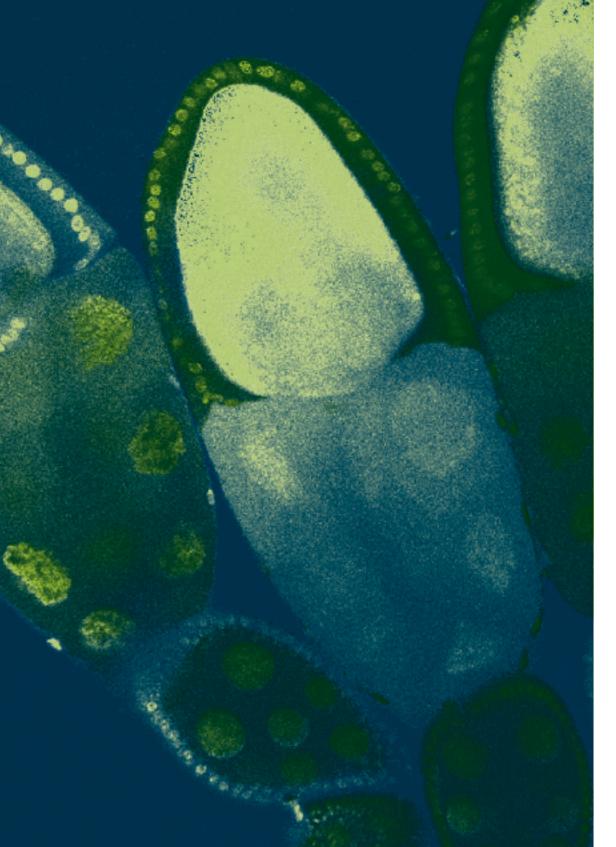
Consists of sixteen highly competitive PhD programs that attract the best students worldwide by offering them a strong teaching curriculum and a clear mentoring system. The programs are run jointly by the ETH Zurich and the University of Zurich.

LSZ learning center

Offers a wide range of events and activities, such as lab practices for school students and training and further education for teachers and selected professionals. The learning center operates at the intersection between academic research, practical scientific education, and the public.

LSZ young scientist network

Strives to reduce the gap between academic research and the life sciences industry by hosting events for young academics and by stimulating interactions between people from various life sciences sectors.



Academic Institutions

As well as the ETH and the UZH, the University Hospital Zurich, a number of other university hospitals, and the Zurich University of Applied Sciences (ZHAW) are important academic institutions supportive of LSZ.

ETH Zurich

Founded in 1855



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ETH Zurich (Swiss Federal Institute of Technology Zurich) is one of the leading international universities for technology and the natural sciences. It is well known for its excellent education, groundbreaking fundamental research and for implementing its results directly into practice. Founded in 1855, it today offers an inspiring working environment to researchers and an outstanding education to students.

ETH Zurich has more than 18,500 students from over 110 countries, including 4,000 doctoral students. About 500 professors currently teach and conduct research in engineering, architecture, mathematics, natural sciences, systemoriented sciences, and management and social sciences. ETH regularly appears at the top of international rankings as one of the best universities in the world. Twenty-one Nobel Laureates have studied, taught, or conducted research at ETH, underlining the excellent reputation of the university.

Facts 2014*

Head count (FTE): 1,956 | 37% female Total annual budget: CHF 285,573 million Students: 4,216, of whom 1,959 bachelor and 958 master students PhD students: 1,056 * referring only to the departments & faculties listed below

Department of Biology (D-BIOL)

- Genomic, cellular, and phenotypic heterogeneity and its consequences in biology and medicine - Structural, biophysical, and mechanistic bases of cellular processes and disease mechanisms - Quantitative and digital biology - Personalized medicine and technology

Research cooperation with companies

The D-BIOL maintains a rich network of interactions with national and international life sciences and technology companies and has generated several spin-off companies.

Number of life sciences patents filed in 2014:5

Department of Biosystems Science and Engineering (D-BSSE)

- One of the youngest ETH departments, founded in 2007
- The only ETH department located in Basel, Europe's life sciences hub
- Seventeen highly interdisciplinary research groups, more than 300 employees, 134 PhD students
- Co-leader of the NCCR in Molecular Systems Engineering
- Successful spin-offs

Research cooperation with companies Novartis, Roche, IBM

Number of life sciences patents filed in 2014:4

Department of Chemistry and Applied Biosciences (D-CHAB)

- Investigation of molecular aspects of life, health, and environment
- Development of new approaches to synthesize biologically active systems, to understand their physico-chemical properties, to implement developments in health care and to design optimized, ecologically justifiable, and industrially applicable production processes

Research cooperation with companies numerous interactions

Number of life sciences patents filed in 2014: 17

Department of Health Sciences and Technology (D-HEST)

The Department of Health Sciences and Technology represents four research areas: Movement Sciences and Sport, Food Sciences and Nutrition, Medical Engineering, and Neurosciences. This research is of ever-increasing societal and economic importance.

The aims of the Department are 1) to create the foundations for sustaining and improving the quality of life, 2) to accelerate the transfer of knowledge and technology in clinics, industry, and society, and 3) to educate a new generation of specialists and leaders at the interface of science and technology.

Research cooperation with companies numerous interactions with large companies and SME

Number of life sciences patents filed in 2014:7

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Dr. Andrea Huber Brösamle

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ETH Zurich

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Department of Environmental Systems Science (D-USYS)

- Climate change

Contact

D-USYS

ETH Zurich

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www.usys.ethz.ch

- Ecosystem processes and services
- Food security
- Sustainable resource use
- Biological diversity and adaptation

secretariat@usys.ethz.ch Research cooperation with companies

Qualitas AG, Syngenta Crop Protection, DLR, International Tropical Timber Organization, BASF SE, Axpo Trading AG, Bühler AG



University of Zurich (UZH)

Founded in 1833



Contact

University of Zurich Rämistrasse 71 CH-8006 Zurich +41 44 634 11 11 www.uzh.ch

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The University of Zurich (UZH) is Switzerland's largest university, with seven faculties and a current enrolment of over 26,000 students. More than 5,000 highly qualified members of the teaching staff, including some 580 professors, teach and conduct research at the 150 University institutes.

The University of Zurich has earned international distinction through outstanding research work and research-based teaching, highlighted by the University's membership in the League of European Research Universities, an association of Europe's most prestigious research universities. Over the years, the Nobel Prize has been conferred upon twelve UZH scholars, underlining the University's excellent reputation. In the field of life sciences, the University of Zurich is well known for its groundbreaking research in medicine, immunology, neuroscience, and structural biology.

In the interest of serving the community, the University of Zurich promotes the transfer of research-based knowledge to private enterprise, and our spin-off ventures and business partnerships regularly lead to the creation of attractive jobs in innovative fields.

Facts 2014*

Head count (FTE): 3,460 | 52% female Total annual budget: CHF 591,726 million Third-party funding: CHF 194,185 million Students: 8,639, of whom 3,907 bachelor and 1,744 master students PhD students: 2,985 * referring only to the departments & faculties listed below

Faculty of Medicine

- Largest of Switzerland's six medical schools
- 3,000 students: 270 degrees in human medicine, dentistry, and chiropractic medicine yearly
- More than 700 qualified instructors actively involved in teaching activities
- Four university hospitals with over 40 clinics and institutes
- Around 20 research priority programs in basic and clinical research and transversal research areas

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Faculty of Science

- Combination of 2/3 core research and 1/3 research in specific fields
- Focus of core research: themes relevant to society
- Focus of specialized research: preserving traditional research disciplines and enabling innovation in new areas.
- Important areas of life sciences research: structural biology, molecular and cell biology, developmental biology, neurosciences, synthetic biology, and plant sciences

Vetsuisse Faculty

- One of the leading veterinary medical university centers in Europe
- Fosters the health and well-being of animals through application of excellent preventive and curative measures
- Offers high-quality education in veterinary medicine and specialization
- Commitment to achieving excellence and ensuring basic and high-end veterinary medical care

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Contact

University of Zurich Vetsuisse Faculty Zurich Office of the Dean Winterthurerstrasse 204 CH-8057 Zurich dekanat@vetadm.uzh.ch www.vetsuisse.ch

University Hospitals

Contact

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A

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www.balgrist.ch

University Hospital Zurich Rämistrasse 100 CH-8091 Zurich www.usz.ch

University Hospital Zurich (USZ)

Founded in 1833

The University Hospital Zurich is one of Switzerland's largest hospitals and a pioneering institution in the field of clinical research. In its 40 departments and institutes, it assembles and practices all medical disciplines and enjoys an excellent reputation for state-of-the-art medicine, professional and compassionate patient care, and groundbreaking bench-to-bedside translational medical research.

Facts 2014

Head count (FTE): 5,655 | 72% female Total annual budget: CHF 1.233 million

Research cooperation with companies numerous interactions

Number of life sciences patents filed in 2014: numerous

Balgrist University Hospital

Founded in 1912

- Leading center of excellence for the investigation, treatment, and aftercare of damage to the musculoskeletal system
- Internationally acknowledged combination of state-of-the-art medical services
 - Excellence in research and education, setting new standards of modern orthopaedic care
- Interdisciplinary network combining specialized areas of orthopaedics, paraplegiology, radiology, anaesthesiology, rheumatology, rehabilitation, physical medicine, and chiropractic care

Facts 2014

Head count (FTE): 854 | 70% female Total annual budget: CHF 156.9 million Third-party funding: CHF 5.8 million

Research cooperation with companies amongst others Medacta, Siemens, Storz, Synthes, Zimmer

Number of life sciences patents filed in 2014:1

University Children's Hospital Zurich -The Hospital of the Eleonore Foundation

Founded in 1868 (foundation) 1874 (hospital)

- Leading high-quality medical care for children in Switzerland: listed as an official Canton of Zurich hospital for the entire range of paediatric and paediatric surgery treatments
- International interdisciplinary collaborations
- Highly specialized medicine
- Rehabilitation center
- Internationally acknowledged Center for Children's Research

Facts 2014

Head count (FTE): 1,406 (full time) | 78.2% female Total annual budget: CHF 269.6 million (Turnover Eleonore Foundation)

Research cooperation with companies

Third-party funding: CHF 11.4 million (donations)

numerous interactions

University Hospital of Psychiatry Zurich

Founded in 1870 The internationally connected University Hospital of Psychiatry Zurich (Burghölzli) is committed to teaching and research. It is divided into the following four departments:

- Psychiatry, Psychotherapy, and Psychosomatics
- Child and Adolescent Psychiatry and Psychotherapy
- Geriatric Psychiatry
- Forensic Psychiatry

Facts 2014 Head count (FTE): 1,713 | 61% female Total annual budget: CHF 188 million

Contact

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University Children's Hospital Zurich Steinwiesstrasse 75 CH-8032 Zurich + 41 44 266 71 11 www.kispi.uzh.ch www.kispi.uzh.ch/fzk www.kispi.uzh.ch/rza

Contact

Zurich University of Applied Sciences (ZHAW)



The ZHAW School of Life Sciences and Facility Management

Founded in 1942 since 2007 ZHAW

Contact

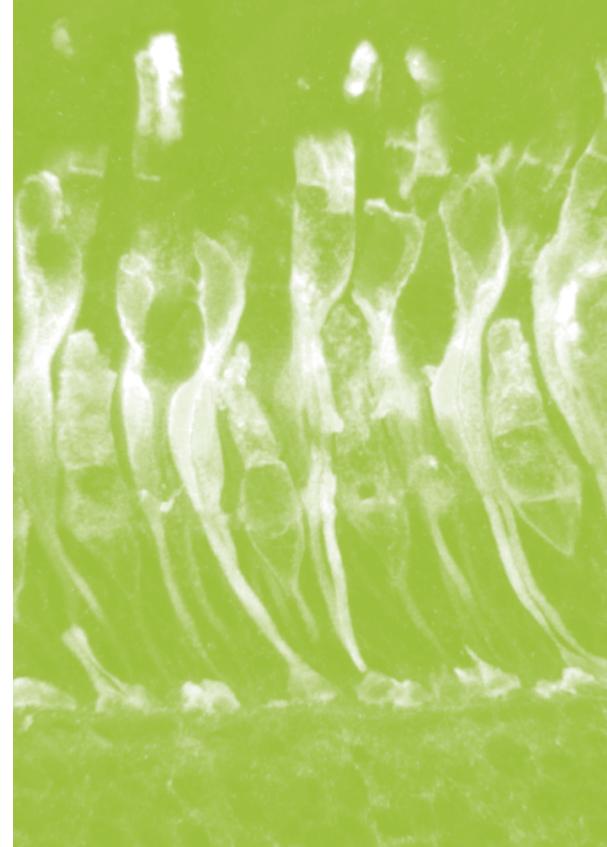
ZHAW School of Life Sciences and Facility Management Grüentalstrasse 14 CH-8820 Wädenswil +41 58 934 50 00 info.lsfm@zhaw.ch

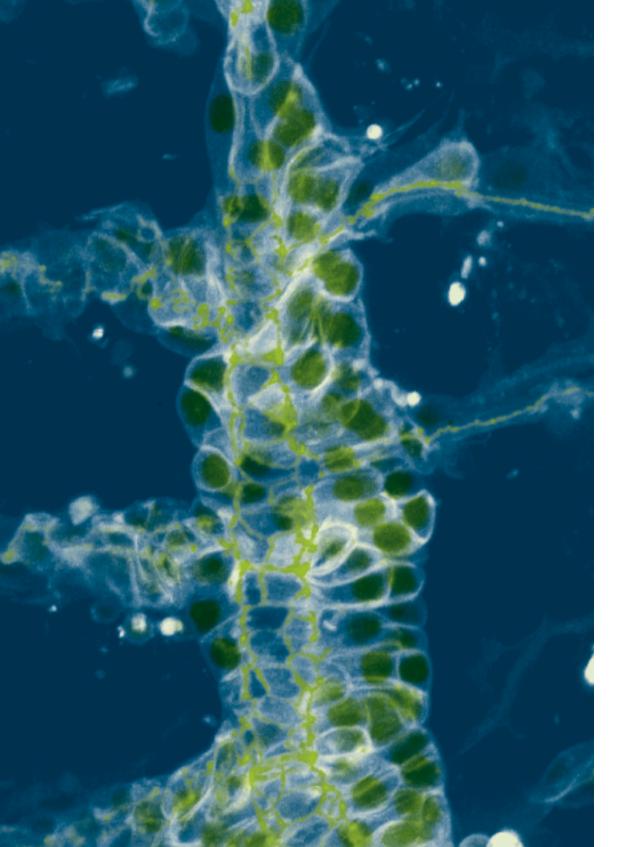
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The ZHAW School of Life Sciences and Facility Management is located in Wädenswil. Five institutes provide education, continuing education, and research expertise on issues relating to the environment, food, health, and society. The specialist knowledge offered by the institutes provides a sound basis for problem-solving with partners and clients. They adopt a highly practical and partner-oriented approach to implementing research proposals, whether in the form of individual undergraduate dissertations investigating specific topics or long-term interdisciplinary projects dealing with complex issues. The School is a valued research partner for national and international small, medium, and large enterprises and for public authorities, including communities, cantons, and the federation.

Facts 2014*

Head count (FTE): 621 | 53% female Total annual budget: CHF 82 million for research + education Third-party funding: CHF 16.2 million for research Students: 1,489, of whom 1,311 bachelor and 178 master students * referring only to the school of life sciences and facility management





Scientific (Competence) Centers

Scientific (competence) centers are networks coordinated according to strategic objectives of University and/or ETH institutes or parts of them. In many cases, they are joint crossdisciplinary centers of the University of Zurich and the ETH Zurich.

Scientific (competence) centers combine regional scientific know-how with business activities. They set milestones for the future and foster alliances between basic and applied research, so spurring innovation in business and society.

Cancer Center Zürich

Founded in 2013

Contact

Cancer Center Zürich USZ Rämistrasse 100 CH-8091 Zurich +41 44 255 11 11 tumorzentrum@usz.ch www.tumorzentrum.usz.ch

The Cancer Center Zürich connects areas of expertise at the organ level to establish individual care centers. Thanks to modern techniques, precise diagnosis can be made, and personalized therapies can be offered. Targeted drugs produce fewer side-effects. The Cancer Center Zürich guarantees excellent quality in prevention, diagnostics, treatment, aftercare, and genetic counselling.

Key competences

- Breast cancer, gynaecological cancer and prostate cancer
- Colorectal cancer - Skin cancer
- Brain tumors, head-neck tumors
- Lung cancer

Center for Gerontology (ZfG)

Founded in 1999

The Center for Gerontology is an interdisciplinary and inter-faculty center of Contact competence. Its focus is the scientific foundations of aging with good quality of life, and to this purpose it strives for interdisciplinary networking. The Center fosters collaboration among researchers, elderly people, and professionals from various fields.

Key competences

- The center examines conditions that promote and stabilize the quality of life in old age
- It facilitates the participation of elderly people in aging research
- It conceives and pilots innovative evaluation methods and counselling approaches for the application of gerontological knowledge
- It provides opportunities for collaboration between researchers

Research cooperation with companies

City of Zurich, Department for Health and Environment, Curaviva Switzerland

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Technologies (EXCITE) Zurich

Contact

G+

Prof. Sebastian Kozerke **EXCITE Zurich** c/o ETH Zurich Institute for Biomedical Engineering Gloriastrasse 35 CH-8092 Zurich kozerke@biomed.ee. ethz.ch www.excite.etzh.ch

Center for Experimental and Clinical Imaging Founded in 2014

The Center for Experimental and Clinical Imaging Technologies (EXCITE) Zurich

is a joint competence center of the ETH and the University of Zurich. It serves as

a platform for education and exchange of biological and biomedical imaging so-

lutions. The center facilitates multidisciplinary collaborations between scientists

Center of Excellence in Medicine – **Ethics – Rights Helvetiae**

Founded in 2010

The Center of Excellence in Medicine – Ethics – Rights Helvetiae (MERH) is an Contact established collaboration between the Faculty of Law and the Faculty of Medicine, with about 100 members. It leads, supports and organizes research projects, publications, and events in the fields of medicine, ethics, and law with a focus on interdisciplinary questions. In addition, it offers a certificate course (CAS) for practitioners.

Key competences

- Publications: Personalized Medicine, Nanomedicine, Federal Act on Research Involving Human Beings
- Interdisciplinary projects: The MERH supports excellent projects by building bridges and providing expertise
- Education of professionals: The MERH offers courses for a certificate of advanced studies (CAS MedLaw UZH) for professional practitioners

Prof. Brigitte Tag Center of Excellence in Medicine - Ethics -**Rights Helvetiae** UZH Freiestrasse 15 CH-8032 Zurich merh@merh.uzh.ch www.merh.uzh.ch

- Representing the biomedical imaging community of the Zurich area

- Establishing innovative projects in biomedical imaging

Research cooperation with companies

in academia and in industry.

academia and industry

Key competences

Philips Healthcare, Bruker Biospin, GE Healtcare, Scanco, Carl Zeiss

- Coordinating imaging technology resources and providing expert advice

- Offering educational training programs in biomedical imaging to

Center of Competence Multimorbidity

Founded in 2012

Contact

Dr. Barbara Holzer Center of Competence Multimorbidity c/o USZ Dept. of Internal Medicine Rämistrasse 100 CH-8091 Zurich +41 44 255 99 57 barbara.holzer@usz.ch www.multimorbidity.uzh.ch The Center of Competence Multimorbidity is an open interdisciplinary scientific network. Its aim is to develop a new conceptual framework with new approaches to understand multimorbidity and its management. The main focus lies in the development of evidence-based programs and the acceleration of translational science into clinical practice.

Key competences

- Drug-disease, disease-disease and drug-drug interactions in multimorbidity
- Clinical decision making in multimorbid patients
- Development of new methods and approaches to measure multimorbidity
- Clinical epidemiology of concurrent active and chronical conditions

- Medical adherence in multimorbidity
- Functional quality of life in multimorbid patients

Clinical Trials Center

Founded in 2008

The Clinical Trials Center (CTC) of the USZ supports the clinical research teams in the planning and realization of clinical trial projects. The CTC primarily supports academic investigator-initiated clinical research and collaborates with both clinicians and basic researchers. It is committed to supporting and conducting innovative clinical research projects.

Key competences

- Offers high-quality support for a broad range of clinical research projects
- Brings together expertise, quality, and dedication to promote clinical research
- Maintains close cooperation with local, national and international clinical trial units
- Trial management design: quality assurance structures, successful conduct, and study completion

Clinical Trials Center USZ Rämistrasse 100 CH-8091 Zurich www.ctc-zkf.usz.ch

Center for Applied Biotechnology and Molecular Medicine (CABMM) Founded in 2008

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Dr. Silke Kalchofner-Mark UZH Winterthurerstrasse 190 CH-8057 Zurich silke.mark@cabmm.uzh.ch www.cabmm.uzh.ch The Center for Applied Biotechnology and Molecular Medicine (CABMM) aims to promote interdisciplinary and translational research by fostering collaborations between basic researchers and clinicians from human and veterinary medicine in the fields of experimental medicine, regenerative medicine, molecular medicine, and applied biotechnology.

Key competences

- Promotion of scientific exchange and collaboration in translational and interdisciplinary research
- Network of more than 60 member groups
- Research platform through which basic researchers, clinicians, and veterinarians work closely together
- Funding program for cooperative projects (CABMM start-up grant)
- Organization of scientific symposia and events

Competence Center for Mental Health (CCMH)

The Competence Center for Mental Health was established at UZH with the aim of creating a multidisciplinary network of mental health experts equipped to respond to, and ultimately reduce, the increasing burden of mental health. The CCMH produces high-quality research and provides supervision for clinicians, postdoctoral fellows, and PhD students.

Key competences

- Research expertise from clinical to public health
- Clinical expertise from children to elderly
- Potential for translational research with links from early-stage research to implementation

Contact

Founded in 2014

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Competence Center Personalized Medicine (CC-PM)

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With the Competence Center Personalized Medicine (CC-PM), the ETH and UZH aim to build and provide a framework for generating and integrating multidimensional genomic and (epi)genetic datasets. The center operates at the interface of life sciences, medicine, and technology. Members find an ideal environment to address interdisciplinary research projects involving basic and clinical researchers.

Key competences

- Biomedical research, translational research, MTB PhD program, bench-to-bedside approach
- DNA sequencing, genetic disposition of individuals
- Connection of (epi)genetic information with clinical data, genome-guided diagnosis, and therapy
- Two technology platforms: Nexus (ETH) | Tissue, Serum and Cell Banking Unit (USZ)

International Normal Aging and Plasticity Imaging Center (INAPIC) Founded in 2009

The key objective of the INAPIC is to facilitate research on normal healthy behavioral and neural development and aging to explore the potential for plasticity and compensation across the lifespan and the mechanisms of stabilization of life quality and health during adulthood. The INAPIC has been involved in the UZH's "Dynamics of Healthy Aging" University Research Priority Program since 2013.

Key competences

- Neural plasticity

- Behavioral (cognitive and motor) plasticity
- Training studies
- Longitudinal research methodology
- Neuroscientific imaging methodology

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Functional Genomics Center Zurich (FGCZ)

Founded in 2002

Founded in 2014

Contact Prof. Ralph Schlapbach Functional Genomics **Center Zurich** c/o UZH Winterthurerstrasse 190 CH-8057 Zurich ralph.schlapbach@fgcz. ethz.ch www.fgcz.ch

The Functional Genomics Center Zurich (FGCZ) is a joint state-of-the-art research and training facility of the ETH Zurich and the University of Zurich. With the latest technologies and key expertise for omics research, the FGCZ carries out research projects and technology development in collaboration with the Zurich life sciences research community.

Key competences

- Genome, epigenome, and transcriptome analysis by latest NGS and single-molecule sequencing
- Quantitative proteome and post-translational modification analysis using high-end mass spectrometry
- Metabolome and lipidome analysis by mass spectrometry
- Bioinformatics support for study design, data processing, and interpretation of complex molecular data

Research cooperation with companies research contracts based on non-disclosure agreements

Neuroscience Center Zurich (ZNZ) Founded in 1998

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The ZNZ is a joint competence center of the ETH Zurich and the University of Contact Zurich creating synergies between its 1,000 neuroscientists in research and education. Our network includes research groups from the UZH, ETH, and the four university hospitals and clinics in Zurich.

Key competences

- Neural plasticity and repair
- Neurorehabilitation
- Neurodegeneration
- Neuroinformatics
- Neuroimaging

Research cooperation with companies various interactions

Dr. Wolfgang Knecht Neuroscience Center Zurich c/o UZH Winterthurerstrasse 190 CH-8057 Zurich wknecht@neuroscience. uzh.ch www.neuroscience.uzh.ch

Stroke Center

Founded in 2014

Contact

Prof. Dr. med. Andreas Luft Stroke Center Dept. of Neurology USZ Frauenklinikstrasse 26 CH-8091 Zurich andreas.luft@uzh.ch www.stroke.usz.ch The Stroke Center is a competence center of highly specialized medicine (HSM, certified by SFCNS) offering optimal care to patients with ischemic and hemorrhagic stroke. It is characterized by interdisciplinary collaboration between neurology, neuroradiology, and neurosurgery. It organized the Zurich Stroke Network of regional hospitals.

Key competences

- Interdisciplinary stroke care with evidence-based treatment pathways
- Organization of a regional stroke network consisting of partner hospitals (Zurich and adjacent cantons)
- Research activity in acute stroke care, prevention and rehabilitation from animal models to clinical studies
- Organization of education in vascular neurosciences

Research cooperation with companies Boehringer-Ingelheim and Astra Zeneca

University Hospital Zurich Transplant Center

Founded in 2007

Founded in 1998

The Center is a collaborative platform for all interdisciplinary issues related to transplantation. It hosts the largest transplant program in Switzerland, including hematopoietic stem cells, kidney, pancreas, liver, heart, lung, small bowel, islet cells, and composite tissues (build-up phase). Research activities are embedded in specific transplant programs and within the SNSF-sponsored Swiss Transplant Cohort Study.

Key competences

- Comprehensive clinical care of the donor and the recipient
- Innovative research in the laboratory and translational setting, including clinical trials
- Multidisciplinary approach

Research cooperation with companies all pharmaceutical companies involved in transplantation MD Nicolas Mueller USZ Transplant Center Division of Infectious Diseases and Hospital Epidemiology Rämistrasse 100 CH-8091 Zurich transplantationszentrum@ usz.ch nicolas.mueller@usz.ch www.transplantation.usz.ch

Contact

SystemsX.ch - The Swiss Initiative for Systems Biology

Founded in 2007

Contact Dr. Daniel Vonder Mühll c/o ETH Zurich Clausiusstrasse 45 CH-8092 Zurich www.systemsx.ch To establish and sustain systems biology research in Switzerland at an internationally competitive level, SystemsX.ch funds systems biology in Switzerland by 1. supporting interdisciplinary research projects, 2. educating the next generation of systems biologists, 3. supporting private-public partnerships, and 4. participating in international systems biology programs. SystemsX.ch consists of 15 partner institutions, involving 400 research groups in 250 projects.

Key competences

- Interdisciplinary and inter-institutional systems approach
- in life sciences research across Switzerland
- Review procedure in cooperation with the SNSF
- Specific support for interdisciplinary PhD students and postdocs
- Establishing Swiss systems biology community

Research cooperation with companies

Hoffmann-LaRoche, Novartis, IBM ZRL, BioVersys, Basilea Pharmaceutica

Zurich-Basel Plant Science Center (PSC)

The PSC is a competence center linking and supporting the plant science research community of the UZH, ETH Zurich, and the University of Basel. We promote fundamental and applied research, innovation, and targeted outreach in the plant sciences. We provide platforms for interactions with peers, policy makers, industry, and stakeholders and offer funding for fellowships.

Key competences

- Collaborative research
- Policy dialogue and societal relevance
- Stakeholder and public engagement
- Fellowship and education programs
- Innovative core content and skills training for PhDs and postdocs

Research cooperation with companies

Syngenta International AG, Bayer Crop Science, Photon Systems Instruments

Contact Zurich-Basel Plant Science Center c/o ETH Zurich Universitätstrasse 2 CH-8092 Zurich info-plantscience@ethz.ch www.plantsciences.uzh.ch

Zurich Center for Interdisciplinary Sleep Research (ZiS)

Founded in 2014

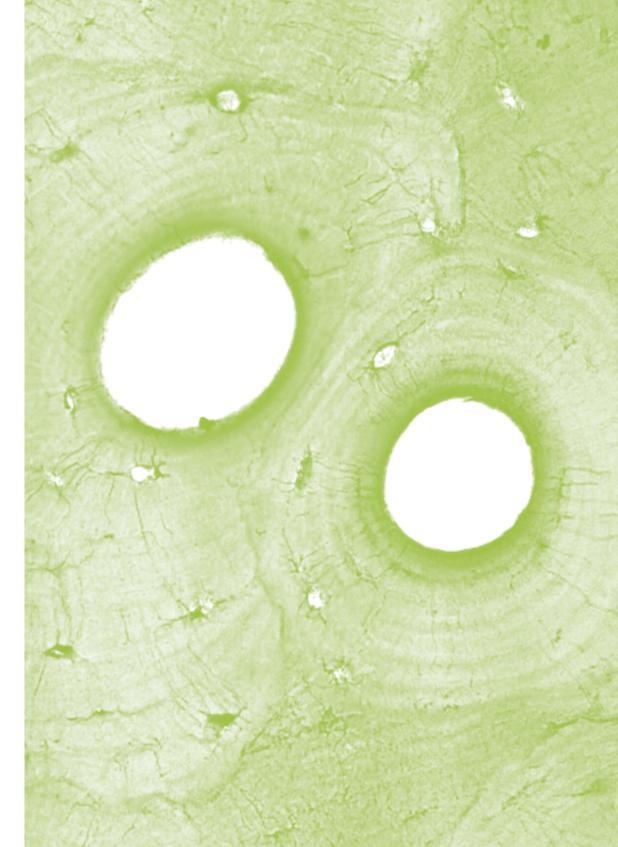
Contact

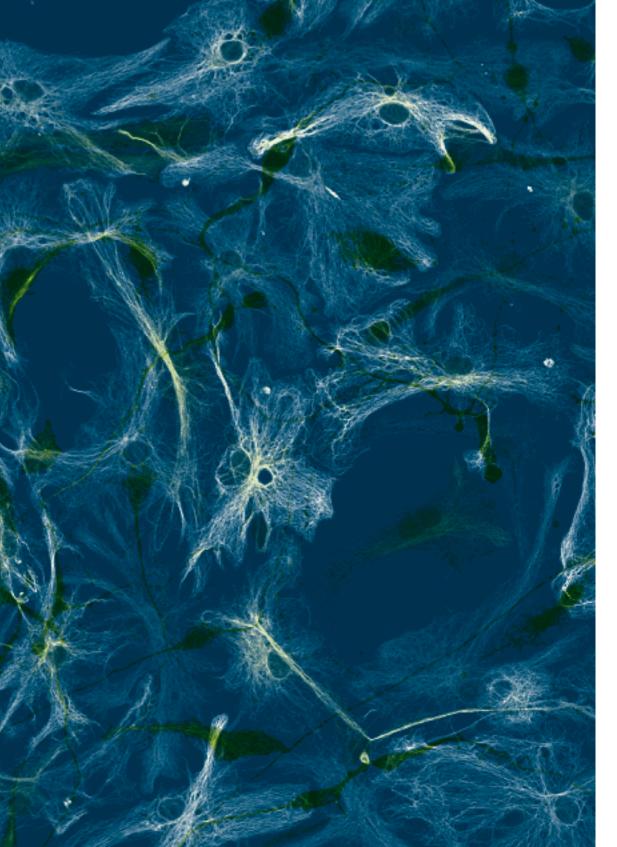
Manuela Steinauer c/o USZ Department of Neurology Frauenklinikstrasse 26 CH-8091 Zurich manuela.steinauer@usz.ch www.zis.uzh.ch The Zurich Center for Interdisciplinary Sleep Research (ZiS) was established as a network of excellence in sleep medicine, sleep research, and chronobiology. It unifies 15 active research groups. The mission of the ZiS is to foster and integrate new knowledge about sleep-associated functions as a promising medical field and to secure Zurich's position as an international leader in this innovative and highly competitive area of neuroscience.

Key competences

 Highly interdisciplinary approach employing state-of-the-art techniques and analysis tools of basic sleep and chronobiology research, pharmacology, neurology, pneumology, psychiatry, psychology, and pediatrics

- Translation of basic research findings into clinical application
- Making novel research findings available to patients and the public





Academic Networks and Initiatives

Academic networks and initiatives have been established to generate synergies, facilitate the exchange of ideas and know-how, and stimulate the interactions between basic science and clinical applications.

Cancer Network Zurich (CNZ)

Founded in 2001

Contact

Dr. Eveline Bergmüller c/o UZH Institute of Molecular Cancer Research Winterthurerstrasse 190 CH-8057 Zurich bergmueller@imcr.uzh.ch www.cnz.uzh The Cancer Network Zurich (CNZ) was initiated to generate synergies, to encourage collaborations, and to facilitate communication between clinicians, research scientists, and the public at large in matters concerning the diagnosis, prognosis, therapy, and prevention of cancer. The CNZ offers ambitious and talented students an international PhD program in cancer biology.

Key competences

- Represents areas of basic, clinical, and translational cancer research
 Facilitates communication and collaborations between basic cancer researchers and clinicians
- Includes more than 80 faculty members of the UZH, ETH Zurich, USZ, Children's Hospital Zurich, Balgrist University Hospital, and PSI
- Provides an international PhD program in cancer biology with over 130 students

Clinical Telemedicine

Founded in 1999

Clinical Telemedicine consists of services, teaching, and research. The online counselling system of the University Hospital Zurich offers the general public a professional "doc2patient" service. Since 1999 more than 55,000 questions have been answered. In 2008, the University of Zurich implemented clinical telemedicine and ehealth training as part of the study of human medicine.

Key competences

- Academic services: medical online counselling in all disciplines (book series: "Health by mouse click")
- Clinical telemedicine/ehealth teaching: training for human medicine students and further education
- Research: evaluation of online services and implementation of telemonitoring (CTI Project)

Research cooperation with companies emineo AG PD Dr. med. Christiane Brockes Clinical Telemedicine USZ Rämistrasse100 CH-8091 Zurich www.telemedizin.usz.ch

www.blog.usz.ch

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Contact

Contact

Prof. Michel Arand UZH Institute of Pharmacology and Toxicology Winterthurerstrasse 190 CH-8057 Zurich +41 44 635 59 77 arand@pharma.uzh.ch www.hochschulmedizin. uzh.ch/de/Netzwerke/ ddnz.html

Drug Discovery Network Zurich (DDNZ)

Founded in 2015

The DDNZ is a platform for the exchange of ideas and know-how with a focus on drug discovery. It initiates transdisciplinary communication and collaboration between research teams, triggers the conception and implementation of large-scale projects, and coordinates academic educational programs. The main goal is the translation of groundbreaking research discoveries into clinical applications for the benefit of patients.

Key competences

- Target identification and validation
- Analytical platforms
- Animal models
- Medicinal chemistry
- Clinical trials

Hochschulmedizin Zürich (HMZ) Fo

Founded in 2011

Hochschulmedizin Zürich is a platform to foster interinstitutional collaborations in research and education at the interface of life sciences, engineering, and clinical research. Its main focus is to promote large interdisciplinary research projects of high relevance for the medical hub of Zurich.

Key competences

- Coordination of collaborations between University of Zurich, ETH Zurich, University Hospital Zurich, Balgrist University Hospital, Psychiatric University Hospital Zurich, and University Children's Hospital Zurich
- Initiation and support of flagship projects
- Point of contact for researchers looking for particular expertise

Dr. Corina Schütt Hochschulmedizin Zurich c/o UZH Künstlergasse 15 CH-8001 Zurich corina.schuett@ hochschulmedizin.uzh.ch www.hochschulmedizin.ch

Academic Networks and Initiatives 35

Infection and Immunity Zurich

Founded in 2012

Contact

Prof. Annette Oxenius Institute for Microbiology ETH Zurich Vladimir-Prelog-Weg 4 CH-8093 Zurich www.infectionandimmunity. uzh.ch

Infectious diseases remain a challenge for human health. In many cases, neither vaccines nor curative or preventive therapeutics are available, or drug resistance reduces the efficacy of existing medication. The members of the Infection and Immunity Zurich network strive to acquire a better understanding of host pathogen interactions with the aim of developing new therapeutic interventions.

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Key competences

- Basic research in microbiology, virology, cell biology, immunology, organic chemistry, systems biology, structural biology, engineering, and mathematics
- Translational research in immunology, infectious diseases, vaccines, and antimicrobial substances
- Clinical studies in the fields of epidemiology, diagnostics, and prophylaxis
- Education of Master and PhD students, MD-PhD students, medical students, and physicians with specialization in infectious diseases

Research cooperation with companies Roche, Novartis, Miltenyi Biotec, Numab, Biogen

Institute for Regenerative Medicine (IREM) Fo

Founded in 2016

Contact

Prof. Simon P. Hoerstrup UZH Campus Schlieren Wagistrasse 12 CH-8952 Schlieren <u>simon.hoerstrup@</u> <u>irem.uzh.ch</u> www.irem.uzh.ch The IREM focuses on various aspects of therapeutic regeneration by combining knowledge in the fields of cell and systems biology, cell and tissue engineering, organoid technologies, antibody and protein engineering, and imaging. A particular focus is on efficient clinical translation and a novel bio-entrepreneurship program.

Key competences

- Cell and systems biology
- Cell-based therapies and organoid technologies
- Antibody-based regenerative therapies
- Biomarkers and imaging
- First-in-man trials (GMP, GLP, GCP)

Research cooperation with companies Neurimmune, Memocare, Mabimmune, etc.

RITZ Rehabilitation Initiative and Technology Platform Zurich Four

Founded in 2009

The RITZ is the Zurich-wide network of basic science laboratories, hospitals and institutions with an interest in neurorehabilitation, neural plasticity, and recovery after brain lesions.

Our mission is to find and exploit synergies, optimize knowledge transfer, and stimulate the interaction of basic neuroscience, engineering, and clinical sciences in research, education, and patient care.

Key competences

- Offering brain and spinal cord injury patients access to novel therapies and techniques
- Providing an environment of continuous long-term neurorehabilitive care
- Establishing a networking platform for clinical research in neurorehabilitation
- Enabling bench to bedside knowledge transfer between biological, engineering, and clinical sciences

Research cooperation with companies Hocoma AG, DynamicDevices AG, YouRehab AG

SIB Swiss Institute of Bioinformatics

Founded in 1998

The SIB Swiss Institute of Bioinformatics is an independent, non-profit foundation that includes some 60 bioinformatics research and service groups and some 750 scientists from the major Swiss schools of higher education and research institutes. SIB provides world-class bioinformatics.

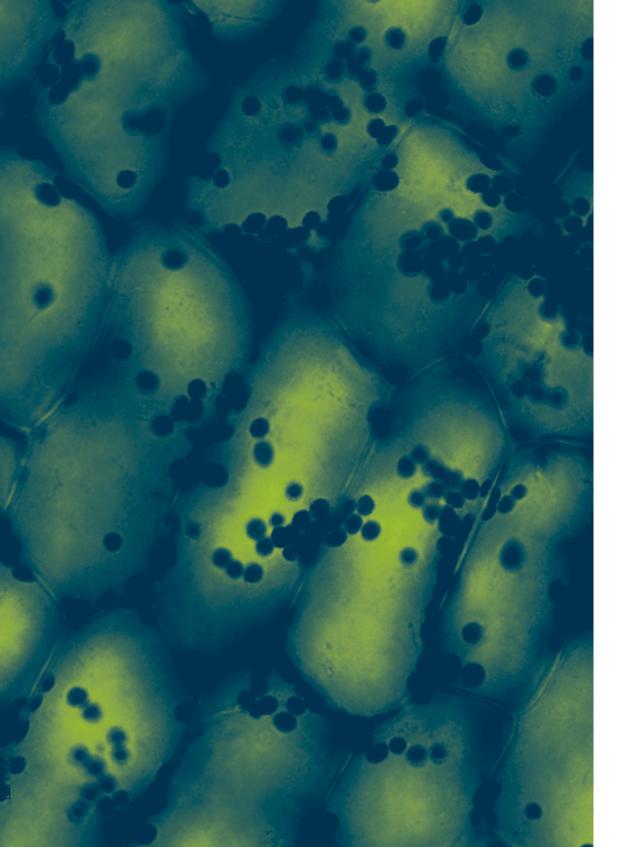
Key competences

- Fosters excellence in data science to support progress in biological research and health
- Provides life scientists and clinicians in academia and industry with world-class bioinformatics resources and services
- Leads and coordinates the field of bioinformatics in Switzerland
- Federates world-class researchers and delivers training in bioinformatics

Research cooperation with companies various interactions

andreas.luft@uzh.ch Prof. Armin Curt armin.curt@balgrist.ch www.neuroreha.uzh.ch

Prof. Andreas Luft



Applied Research Institutions

Collaborating with universities, public bodies, industry, and non-governmental organizations, applied research institutions serve as a bridge between the scientific world and the "real world" by delivering solutions with the help of science and technology. They thus create an important link between science and business.

Agroscope

Founded in 1878

Contact

Agroscope Reckenholzstrasse 191 CH-8046 Zurich + 41 58 468 71 11 reckenholz@agroscope. admin.ch

Agroscope Schloss 1 P.O. Box CH-8820 Wädenswil + 41 58 460 61 11 waedenswil@agroscope. admin.ch www.agroscope.ch

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Agroscope is the Swiss Confederation's R&D centre of excellence for the agrifood sector with a mission to develop science-based innovations and solutions. Agroscope encourages cooperation with partners from academia, public administration and commercial enterprises. The thematic priorities at its Wädenswil site are horticulture (fruit and vegetable growing, viticulture) food, and analytics. At the Zurich Reckenholz site, the focus is on resource efficiency, biodiversity, climate change, and sustainable farming systems.

Key competences

Efficiency in agriculture and the food sector

- Food quality and safety, protection of the environment

- Strengthened sustainability and resource conservation

Research cooperation with companies numerous interactions

Facts 2015

Key competences – Evolutionary ecology

Facts 2015

- Environmental chemistry

Mainly government and NGOs

- Engineering and infrastructure planning

Research cooperation with companies

- Interdisciplinary and transdisciplinary research

Employees (FTE): 943 | 44% female Total budget: CHF 140.2 million | Third-party funding: 11%

Eawag (Swiss Federal Institute of Aquatic Science and Technology) Founded in 1936

Eawag is a world-leading aquatic research institute which is affiliated with the

ETH. Its research provides the basis for innovative approaches and technologies

in the water sector. Through close collaboration with experts from industry, gov-

ernment, and professional associations, Eawag plays an important role bridging

theory and practice, allowing new scientific insights to be rapidly implemented.

Contact Eawag Überlandstrasse 133 CH-8600 Duebendorf info@eawag.ch www.eawag.ch

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Empa (Swiss Federal Laboratories for Materials Science and Technology) Founded in 1880

Empa conducts cutting-edge interdisciplinary materials and technology research focused on meeting the requirements of industry and the needs of society. Empa thus links applications-oriented research to the practical implementation of new ideas.

Key competences

- Basic and applied materials research and technology development
- Knowledge and technology transfer to industry and society
- Advanced professional training and continuing education
- Sophisticated technical and analytical services

Research cooperation with companies

about 350 e.g. IBM, BASF, Novartis, Straumann, Oerlikon Balzers

Facts 2014

Employees (FTE): 880 | 27% female Number of patents filed in 2014: 18 Total budget: CHF 181 million of which third-party funding: CHF 73 million (~40%)

Paul Scherrer Institute (PSI)

Founded in 1988

The Paul Scherrer Institute PSI is the largest research institute for natural and engineering sciences in Switzerland, conducting research in three main fields: matter and materials, energy and environment, and human health. PSI develops, builds, and operates large complex research facilities. Every year, more than 2,500 scientists from Switzerland and around the world come to PSI to use its unique facilities to conduct experiments that are not possible anywhere else.

Paul Scherrer Institute

Contact

Contact

Empa

Überlandstrasse 129

CH-8600 Dübendorf

portal@empa.ch

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www.empa.ch

CH-5232 Villigen www.psi.ch

Key competences

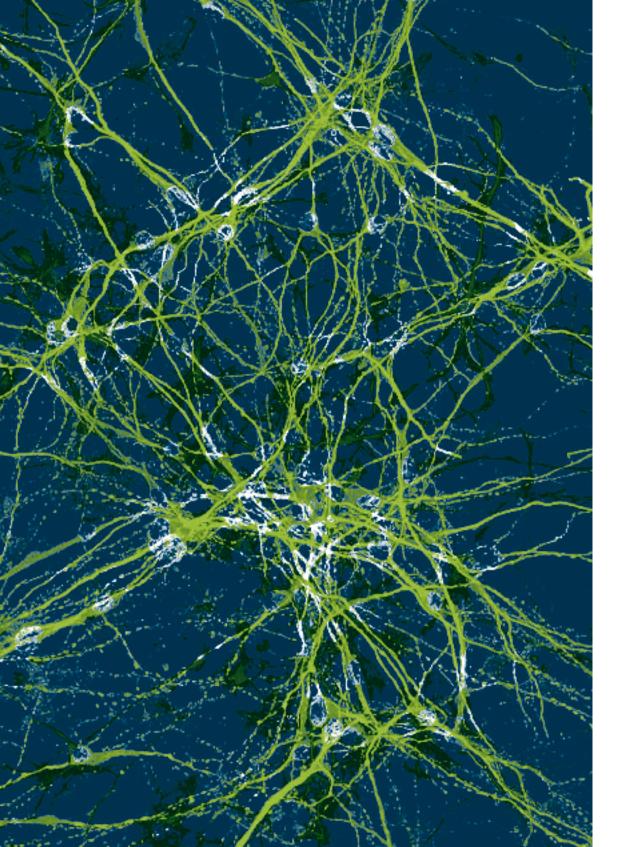
- Fundamental and applied research
- Energy systems integration platform

Research cooperation with companies - 50 to 60 per year

Facts 2014

Employees (FTE): 1,900 | 25% female Number of patents filed in 2014: 15 Total budget: CHF 378.2 million of which third party funding 102.9 million

Employees head count: 501 | 49.9% female Total budget: CHF 74 million | Third-party funding: 22%



Technology Transfer, Incubators, and Innovation Parks

An impressive network of dedicated technology transfer organizations, incubators, and innovation and technology parks support the increasing number of life sciences start-up companies, thus providing evidence for the strong entrepreneurial spirit in Zurich.

Balgrist Campus

Founded in 2010

Contact

Thomas Huggler Balgrist Campus AG Lengghalde 5 P.O. Box, CH-8008 Zurich info@balgristcampus.ch www.balgristcampus.ch Balgrist Campus is a private limited company with the aim of advancing research of the musculoskeletal system. Thanks to generous donations, ~75% of the building is self-financed. The center of the innovative research and development building is designed to stimulate communicative interactions for the exchange of knowledge. Dry labs, office space, wet labs, workshops, and gait labs are available to the research groups from the areas of biomechanics, robotics, tumor biology, muscles, paraplegia, and clinical orthopaedics.

Key competences / services

- Open-space dry labs, offices, wet labs, and workshops
- State-of-the-art research infrastructure open to academic institutions and private companies
- Immediate proximity to the orthopaedic university hospital

Facts

Start of construction: September 2013, Opening: December 2015. Tenants: University Clinic Balgrist, ETH Zurich, and private research companies from Switzerland, Germany, and Canada.

BIO-TECHNOPARK[®] Schlieren-Zurich

Founded in 2003

Contact Mario Jenni Bio-Technopark Schlieren-Zurich Wagistrasse 23 CH-8952 Schlieren mario.jenni@ bio-technopark.ch www.bio-technopark.ch The nationally and internationally respected Bio-Technopark offers professional support for life sciences start-ups in the establishment and expansion of business activities and promotes interaction between start-ups, academia, and industry. Through stringent selection, coaching, and support, more than 30 successful start-ups and well-established companies, together with 20 institutes, clinics, and research groups from the University and University Hospital Zurich, have emerged in Schlieren-Zurich.

Key competences / services

- We advise, coach, and support entrepreneurs
- We provide lab and office space, including specialist infrastructure
- We promote exchange between our tenants to maximize synergies

- We provide contacts to industry, academia, and network partners

Facts

Employees of tenants (FTE): 1,000 Successful start-up acquisitions: 7 for a total of CHF 1.5 billion IPOs: 2 | Licensing deal value in total: CHF 5 billion

Commission for Technology and Innovation (CTI)

The CTI is the Confederation's innovation promotion agency. It provides consultancy and networking services and financial resources to help turn scientific research into economic results.

The most successful instrument is funding for joint R&D projects between higher education institutions and businesses, such as support in setting up new businesses. Innovation mentors help companies and public research institutions to jointly launch innovation projects of national and international significance.

Commission for Technology and Innovation CTI Einsteinstrasse 2 CH-3003 Bern +41 58 462 24 40 info@kti.admin.ch www.kti.admin.ch

Key competences / services

- R&D funding
- Start-up and entrepreneurship
- Knowledge and technology transfer
- Energy funding program

Facts (Main figures 2015)

Approved project proposals: 475 (engineering sciences 155, enabling sciences 110, life sciences 110, micro- and nanotechnologies 100) Companies in the coaching process: 286

ETH transfer and Industry Relations (IR)

Founded in 1995

ETH transfer, the technology transfer office, manages industrial research agreements, supports patent applications and the licensing of ETH technologies, and lends assistance to early stage spin-off companies. Over the last five years, more than 1,500 new research agreements were signed. In 2015 alone, 25 spin-offs were founded.

Industry Relations (IR) is the gateway for industry and matches interested companies with researchers at ETH. IR arranges meetings between companies and ETH groups and organizes lab visits. IR is also in charge of the annual ETH-Industry Day, an information and exchange event for industry and ETH researchers.

Key competences / services

- ETH transfer supports the commercialization of ETH technologies
- ETH transfer manages research agreements and supports spin-offs
- IR is the industry entry point and helps to find relevant research groups
- IR promotes industry partnerships with ETH

and ETH transfer

Dr. Silvio Bonaccio ETH Zurich Rämistrasse 101 CH-8092 Zurich transfer@sl.ethz.ch www.transfer.ethz.ch

Industry Relations Dr. Urs Zuber Weinbergstrasse 29 CH-8006 Zurich urs.zuber@ethz.ch www.ethz.ch/ industryrelations

glatec business incubator

Founded in 2008

Contact

Mario Jenni glatec c/o Empa Überlandstrasse 129 CH-8600 Duebendorf mario.jenni@empa.ch www.glatec.ch

glatec, a non-profit organization located at Empa (Swiss Federal Laboratories for Materials Science and Technology) in Duebendorf (Zurich), runs a business incubator facilitating and supporting innovative early-stage start-ups in the fields of materials science, environmental science, and technology.

Key competences / services

- We advise, coach, and support entrepreneurs
- We provide premises and other facilities
- We promote collaborative research with Empa and/or Eawag (aquatic research)
- We provide contacts to industry, academia, and network partners

Facts

27 start-ups with 240 employees incubated since inception

Inartis Network

Founded in 2013

Inartis Network is one of the eight national thematic networks (NTNs supported Contact by the Commission for Technology and Innovation (CTI). The network's mission is to create value and jobs across the Swiss life sciences economy through innovation. Inartis Network is an independent, non-profit organization that focuses on fostering transdisciplinary R&D projects to deliver innovation made in Switzerland. The Network welcomes researchers and entrepreneurs from both academia and business.

Key competences / services

- Event organization
- Networking support
- Matchmaking for R&D projects
- Support in structuring R&D projects
- Advice on funding opportunities

Facts

Number of members: 60 Two offices: Renens (VD) (head office) and Zurich (ZH)

grow Wädenswil

Founded in 2001

Contact Prof. Dolf van Loon grow Wädenswil Einsiedlerstrasse 29 CH-8820 Wädenswil dolf.van.loon@ grow-waedenswil.ch www.grow-waedenswil.ch

The start-up center grow Wädenswil supports, promotes, and coaches projects and young companies in life sciences (biotechnology, chemistry, nutritional and environmental technology, pharma, etc.), facility management, and informatics. Grow provides affordable offices and laboratory facilities in the immediate vicinity of the Zurich University of Applied Sciences (ZHAW). Companies in grow can thus benefit directly from the strong competences and first-class facilities in these fields of its partner, the ZHAW.

Key competences / services

- Support, coaching in technical fields, business set-up, organization, company management
- Hands-on workshops in fields of direct relevance for grow members
- Affordable office and laboratory facilities
- Financial support for grow companies

Facts

Number of company members: 20

Start Smart Schlieren

Founded in 2013

Start Smart Schlieren is an innovation and business center that provides inno-Contact vative start-ups and micro-enterprises with the infrastructure necessary for a successful business start. The association is cofinanced by its members and the town of Schlieren. The office buildings belong to the town of Schlieren.

Key competences / services

- Support of start-up companies by means of advice, networking, training, events, and the provision of excellent workspace
- Encouraging networking and the exchange of knowledge with universities, colleges, polytechnics, companies, and the members of the association
- Increasing the attractiveness of Schlieren by creating new and sustainable jobs

Facts

15 start-up companies and 20 well-established companies

Barbara Angelsberger Start Smart Schlieren Rütistrasse 14 CH-8952 Schlieren barbara.angelsberger@ start-smart-schlieren.ch www.start-smartschlieren.ch

Inartis Network

CH-8005 Zurich

joseph.maisano@

inartis-network.ch

www.inartis-network.ch

Technoparkstrasse 1

Switzerland Innovation Park Zurich

Founded in 2016

Contact

Swiss Innovation Park Zurich c/o Department for Economic Affairs for Canton Zurich Neumuehlequai 10 CH-8090 Zurich www.innovationsparkzuerich.ch

The Park provides favorable conditions for researchers at universities and companies to achieve success on international markets more quickly. It offers closeproximity, interdisciplinary exchanges, and a creative working environment. Seventy hectares have been set aside at the airfield in Dübendorf. Planning permission has already been granted for an initial building phase involving 38 ha and a floor space of 410,000 m². The Park offers space for businesses of all sizes, from start-ups and SMEs to major companies. Start within existing hangars in Q1/2017.

Key competences / services

- Life sciences and quality of life
- Engineering and environment
- Digital technologies and communication
- Cross-functional disciplines from universities

Unitectra

Founded in 1999

Unitectra is the technology transfer office of the Universities of Zurich, Basel, and Bern. Our staff, an interdisciplinary team of technology transfer professionals with scientific, industrial, and legal backgrounds, manage over 500 active licenses and annually conclude about 50 new licenses and over 1,000 collaborative research contracts. Unitectra assists in the creation of spin-off companies (www.spinoff.ch). Its mission is to commercialize university-generated technologies for the public benefit and to enable researchers and universities to partake in their commercial success.

Contact Dr. Herbert Reutimann Unitectra Scheuchzerstrasse 21 CH-8006 Zurich mail@unitectra.ch www.unitectra.ch

Key competences / services

- Commercialization of new technologies
- Fast and flexible contractual solutions for any type of research collaboration
- Entry point for companies seeking collaborations with the Universities of Zurich, Basel, and Bern

Facts

Current portfolio of more than 500 patent families, 500 active licenses, over 130 spin-off companies and more than 70 licensed products on the market.

TECHNOPARK® Zurich

Founded in 1993

Contact

Matthias Hölling Technopark Zurich Technoparkstrasse 1 CH-8005 Zurich <u>matthias.hoelling@</u> <u>technopark.ch</u> www.technopark.ch

F У

Technopark Zurich has been bringing people together from the fields of science, technology and economy at its 47,000 m² site since 1993. It is the top location for technology transfer in Switzerland and a key point of contact for innovative start-ups looking to transform knowledge into marketable products and services. The strong links to ETH Zurich and universities ensures that research and entrepreneurship is consolidated within the building.

Key competences / services

- Rental of rooms
- Consulting and coaching of tenants
- Event location
- Entrepreneurship training and workshops for tenants

Facts

Start-ups: Around 80

Space offer: Some workshop space, limited life sciences labs available to ETH spin-offs, only, up to three years after incorporation

Wyss Zurich

Founded in 2015

Wyss Zurich is a new multidisciplinary translational science center at the University of Zurich and ETH Zurich made possible by Dr. h.c. mult. Hansjörg Wyss, focusing on the emerging fields of regenerative medicine and robotic technologies. Its objective is commercialization and clinical application through spin-offs, out-licensing deals, and trade sales.

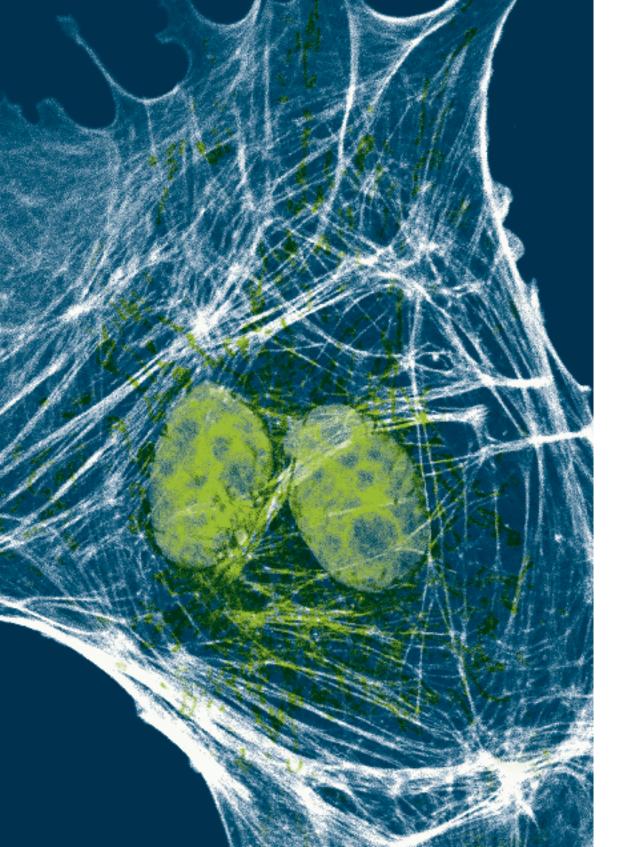
Key competences / services

- Fostering translational research and science and engineering entrepreneurs
- Regenerative medicine and robotic technologies
- First-in-man trials, GMP, GLP, GCP
- Coaching and mentoring

r- Contact

Michael Stucky Wyss Zurich c/o ETH Zurich Leonhardstrasse 27 CH-8092 Zurich info@wysszurich.ch www.wysszurich.uzh.ch





Industry, Associations, and Public Sector

Zurich has evolved into a dynamically expanding center for the life sciences industry. The life sciences cluster has exhibited above-average growth rates since 2000. Thanks to first-class world-renowned academic institutions, strategic investors, stable and business-friendly regulatory agencies, and leading IP protection strategies, Zurich attracts international life sciences companies. Further, Zurich is a fruitful ground for spin-offs and start-up companies.

The industry associations and the business and economic development offices provide valuable platforms, consulting, networking, and know-how for industry.

Spin-offs in the Canton of Zurich

(list is not exhaustive)

Company*	Location	URL	Founded in*	Institution	Description
Aeon Scientific	Schlieren	aeon-scientific.com	2010	ETHZ	Catheter steering system for treating cardiac arrhythmias based on patented technology for electromagnetic steering
Balgrist CARD	Zurich	card.balgrist.ch	2014	Balgrist	Patient-specific solution (3D planning, 3D-printed guides) for complex orthopedic surgeries such as corrective osteotomies
Biognosys	Schlieren	biognosys.ch	2008	ETHZ	Provides innovative services and products for protein discovery and quantification
C-Cit	Wädenswil	c-cit.ch	2002	ZHAW	Development and application of chemical and bio sensors for biotech, medtech, and foodtech
Cellspring	Zurich	cellspring.co	2015	ETHZ	Technology enabling creation of biomimetic microtissues independent of cell type in a matter of minutes
CePower	Wädenswil	cepower.ch	2002	ZHAW	Cultivation of mammalian cells in serum-free media and generation of monoclonal antibodies
Covagen AG (J&J)	Schlieren	covagen.com	2006 (2014)	ETHZ	Clinical stage company with protein-antibody fusion platform (inflammatory diseases & cancer)
CT Atlantic	Zurich	ct-atlantic.com	2008	UZH	Research and development of novel, human-derived antibodies for the treatment of cancer
Culture Collection of Switzerland	Wädenswil	ccos.ch	2010	ZHAW	National public culture collection for microorganisms. Provides services around strains, cryostorage, and customized solutions
Degradable Solutions (Sunstar)	Schlieren	degradable.ch	1999 (2011)	ETHZ	Develops resorbable medical implants which reduce bone harvesting associated with pain and donor-site morbidity
Delenex Therapeutics	Schlieren	delenex.ch	2009	UZH	Clinical stage biopharmaceutical company developing locally and systemically applied antibody therapeutics
Dermolockin	Winterthur	dermolockin.com	2014	ZHAW	Develops and commercializes active thermography-based systems for dermatological applications
ECTICA TECHNOLOGIES	Zurich	ectica-technologies.com	2015	ETHZ	Develops tools for the biotech and pharma industry, such as hydrogel-based 3D cell culture
ESBATech, a Novartis company	Schlieren	esbatech.com	1998 (2009)	UZH	Develops antibody fragment technology. Part of the Ophthalmology Disease Area research team of Novartis (NIBR)
evalueSCIENCE	Zurich	evaluescience.com	2009	ETHZ	Helps clients build stronger research organizations and create environments that foster innovation
Glycart (Roche)	Schlieren	roche.ch/en/standorte/schlieren	2000 (2005)	ETHZ	Research, development, and commercialization of new potent antibody-based products (e.g. for the treatment of cancer)
Glycemicon	Schwerzenbach	glycemicon.com	2013	ETHZ	Development of natural medical foods /pharmaceutical compounds for the prevention / treatment of type 2 diabetes / obesity
GlycoVaxyn (GlaxoSmithKline)	Schlieren	glycovaxyn.com	2004 (2015)	ETHZ	Facilitates the development and production of glycosylated therapeutic proteins to be used as medications or vaccines
Hocoma	Volketswil	hocoma.ch	1998	Balgrist	Develops and manufactures robotic and sensor-based devices for functional movement therapy
InSphero	Schlieren	insphero.com	2009	ETHZ	Develops 3D cell culture platforms and methods to enable large-scale, reproducible production
Kuros Biosciences	Zurich	kuros.ch	2000	ETHZ	Develops innovative products for tissue repair and regeneration
Malcisbo	Schlieren	malcisbo.com	2010	ETHZ	Develops novel carbohydrate-based vaccines for human and animal health against parasitic and bacterial diseases
Medyria	Winterthur	medyria.com	2012	ZHAW	Engineers technologies for endovascular catheter navigation and sensing
Memo Therapeutics	Basel / Zurich	memo-therapeutics.com	2012	ETHZ	Innovator in the area of recombinant immunoglobulins and human-derived monoclonal antibodies
Molecular Partners	Schlieren	molecularpartners.com	2004	UZH	DARPin based therapies to treat diseases in oncology, immunology, and ophthalmology
Nebion	Zurich	nebion.com	2008	ETHZ	Develops innovative systems to extract high value information from the genomic data for biotechnology, and personalized medicine
NeMoDevices	Zurich	nemodevices.ch	2007	ETHZ / UZH	Minimally invasive and non-invasive multi-parameter neuromonitoring in one system for patients with stroke and brain injuries
Neurimmune	Schlieren	neurimmune.com	2006	UZH	Development of innovative immunotherapeutics for human diseases
Neurotune	Schlieren	neurotune.com	2005	UZH	Medications to treat disorders of the human nervous system
Pearltec	Schlieren	pearltec.ch	2008	ETHZ	Develops medical devices to prevent patients from moving during medical imaging (MRI, CT)
Prionics (Thermo Fisher Scientific) Schlieren	prionics.com	1997 (2014)	UZH	Animal health diagnostics company developing diagnostic test kits, accessories and biochemicals
ProteoMediX	Schlieren	proteomedix.com	2010	ETHZ	Specialized in the identification of novel biomarkers for the early detection of cancer and personalized treatment
Qvanteq	Zurich	qvanteq.com	2009	ETHZ	Develops bioactive stents to overcome the adverse clinical effects of currently available coronary and endovascular stents
Redbiotech	Schlieren	redbiotec.ch	2006	ETHZ	Development of new vaccines, including active agents for the disease areas of CMV, HPV, and influenza
rqmicro	Zurich	rqmicro.ch	2013	ETHZ	Provides solutions for accurate quantification of infectious organisms in water and food employing cutting-edge technology
UrbanFarmers	Zurich	urbanfarmers.com	2011	ZHAW	Technology company building commercial food production units in cities allowing commercial decentralized farming at low cost
Versantis	Zurich	versantis.ch	2015	ETHZ	Develops antidotes capable of removing diverse toxic agents from the body to save patients from metabolic poisoning
VirtaMed	Schlieren	virtamed.com	2007	ETHZ	Develops and produces highly realistic surgical simulators for medical endoscopic surgery training
Yourehab	Schlieren	yourehab.com	2010	UZH	Creates products and services which enable patients undergoing rehabilitation to improve independence
ZuriMed Technologies	Zurich	zurimed.com	2015	ETHZ / Balgrist	Specialized in orthopedic biomechanics and biomaterials, inventing and developing orthopedic implants

Balgrist:Balgrist University HospitalETHZ:ETH ZurichUZH:University of ZurichZHAW:Zurich University

ZHAW: Zurich University of Applied Sciences

A second date in brackets in the column Founded in indicates that the company * has been taken over by the company in brackets

Companies in the Canton of Zurich

(list is not exhaustive)

Company	Location	URL	Global Staff	Description
Alexion	Zurich	alexionpharma.eu	3,000	Biopharmaceutical company focused on serving patients with severe, life-threatening, rare, and ultra-rare diseases
Allergan (Actavis)	Zurich	allergan.com	21,000	Focused on innovative and durable value-enhancing products within brands, generics, biologics, and OTC portfolios
Astellas Pharma	Wallisellen	astellas.ch	17,500	Produces products in the areas of gastritis, osteoporosis, hypertension, schizophrenia, arthritis, atopic dermatitis
Baxalta	Volketswil	baxalta.com	16,000	Focused on developing and marketing bio-pharmaceuticals
Baxter	Volketswil	baxter.ch	45,000	Focused on medical products, including intravenous solutions, peri-operative care, pharmacy devices, software, dialysis
Bayer	Zurich	bayer.ch	117,000	Focused on consumer healthcare products, agricultural chemicals and biotechnology products, and high-value polymers
Biomed	Dübendorf	biomed.ch	60	Independent trading firm for prescription and OTC pharmaceutical products on the Swiss market
Biotronik	Bülach	biotronik.ch	5,600	Biomedical technology company with a focus on devices for vascular intervention and electrotherapy of the heart
Bruker Biospin	Fällanden	bruker.com	6,000	Supports pharmaceutical companies, research institutes, and development organizations with innovative solutions
Dow Europa	Horgen	dow.com	51,000	Provides chemical, plastic and agricultural products and services to consumer markets, including food,
				transportation, health, and construction
Ecolab	Wallisellen	ch.ecolab.eu	47,000	Provides water, hygiene, energy technologies and services to the food, energy, healthcare, industrial, and hospitality markets
Fischer Chemicals	Zurich	fischer-group.ch		Distributor, trader, and service provider for API, intermediates, dosage forms and registration dossiers, and food ingredients
GE Medical Systems	Glattbrugg	gehealthcare.de	46,000	Provides medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery,
				bio pharmaceutical manufacturing technologies, and performance solutions services
KCI Medical	Rümlang	kci-medical.ch	5,000	Develops and manufactures new technologies, medicines, and therapies designed in the field of wound healing
Mettler-Toledo	Greifensee	mt.com	13,000	Precision instruments for use in lab applications, such as weighing solutions, pipettes, and thermal analysis instruments
Mylan	Zurich	mylan.ch	18,000	Generics and specialty pharmaceutical company manufacturing and marketing more than 1,300 different products
Nobel Biocare	Kloten	nobelbiocare.com	2,500	Implant-based dental restorations, such as dental implant systems, individualized prosthetics, and biomaterials
Novo Nordisk Pharma	Küsnacht and Zurich	novonordisk.ch	41,000	Healthcare company with a focus on diabetes care and other serious chronic conditions such as haemophilia,
				growth disorders, and obesity
Numab	Wädenswil	numab.com		Development of innovative antibody-based therapeutics (highly stable molecules with tailored pharmacological properties)
Pfizer	Zurich	pfizer.ch	90,000	Develops and produces medicines and vaccines in the areas of immunology, oncology, cardiology, diabetology, and neurology
Philips (Healthcare)	Zurich	philips.ch/healthcare		Healthcare solutions for diagnostic, treatment, and preventative care
Qiagen Instruments	Hombrechtikon	qiagen.com	4,300	Provides sample and assay technologies for molecular diagnostics, applied testing, and academic pharmaceutical research
Sias	Hombrechtikon	sias.biz		Innovative multi-tipped robotic liquid handling systems and robot-friendly functional modules for lab automation
Siemens (Healthcare Diagnostic)	Zurich	healthcare.siemens.ch		Focused on medical imaging, laboratory diagnostics, clinical IT, and medical infrastructure
SIS MEDICAL	Winterthur	sis-medical.com		Develops and manufactures products for minimal invasive therapy in the field of vascular disease
Sonova	Stäfa	sonova.com	10,000	Develops and markets hearing care solutions in two segments: hearing aids and cochlea implants
Takeda Pharmaceuticals	Zurich	tpi.takeda.com	30,000	Research-based global pharmaceutical company focused on metabolic disorders, gastroenterology, neurology, and oncology
International				
Tecan Group	Männedorf	tecan.com	1,200	Laboratory instruments and automated workflow solutions in biopharmaceuticals, forensics, and clinical diagnostics
The Medicines Company	Zurich	themedicinescompany.com		Provides solutions in three areas: acute cardiovascular care, surgery / perioperative care, and serious infectious disease care
Vifor Pharma	Glattbrugg	viforpharma.com/de	1,900	Focused on discovery, development, manufacturing and marketing of products for the treatment of iron deficiency
Wiegand	Bülach	wiegand.ch		Develops tools to support logistics in hospitals, residential care, nursing homes, and in outpatient care
Zimmer Biomet	Winterthur	zimmerbiomet.ch	18,000	Focus on improving musculoskeletal healthcare. Designs, develops, manufactures, and markets orthopaedic implants

- Business and Economic Development Canton of Zurich Danielle Spichiger danielle.spichiger@ vd.zh.ch www.location.zh.ch
- Economic Development City of Zurich Benno Seiler wirtschaftsfoerderung@ zuerich.ch www.zurichlocation.ch
- Location Promotion Winterthur Region Michael Domeisen office@ standort-winterthur.ch www.location-winterthur.ch

Business and Economic Development, Zurich Area

We aim at intensifying cooperation between industry, research, and government by means of joint cluster activities.

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The Zurich area offers corporations and businesses a great package of decisive location factors: a large talent pool, liberal labor law, a wealth of cutting-edge research institutions, a strong financial center and service provider industry, an international airport, efficient public transportation, a stable political environment, moderate taxation, and an entrepreneur-friendly administration.

Key services

We support, expedite, and connect. We are the point of contact for:

- Companies interested in relocating
- Resident companies requiring assistance from the cantonal administration
- Organizations acting on behalf of companies in the Zurich area
- Individuals who would like to found a company

Life Science Zurich Business Network

Founded in 2011

The Life Science Zurich Business Network is an independent association comprising representatives from industry, economic development, business clusters, and technology transfer. It represents the life sciences cluster in the Zurich area and supports and stimulates networking and collaborations between industry, academia, research, and the public sector in the Zurich area and companies and organizations abroad.

Key services

- Support and promotion of networking
- Fostering of cooperation between different institutions
- Coordination of activities among different players
- Representation of the Zurich life sciences cluster in Switzerland and abroad
- Single point of contact for questions regarding life sciences in the Zurich area

Dr. Isabel Klusman c/o University of Zurich Winterthurerstrasse 190 CH-8057 Zurich www.lifescience-businessnetwork.ch

Contact

FoodPlus Schweiz

Founded in 2015

Contact

Beat Ritschard FoodPlus Schweiz P.O Box 435 CH-8810 Horgen standortfoerderung@ zimmerberg-sihltal.ch www.foodplus.ch FoodPlus Schweiz is a networking and innovation platform for companies and research institutes to facilitate know-how transfer and develop fast and cost-sensitive joint ventures for innovation projects related to food.

The cluster combines food (analytics, conservation, packaging, safety, and sensory studies), plants (production, phytonutrients, genomics, and resistances), environment (harmful substances, analytics, and biosphere) and health (nutrition and lifestyle) to strengthen know-how transfer, education, and innovation.

Key services

- Access to application-oriented know-how, methods, and technologies
- Networking support connecting R&D and the food industry
- Promoting spin-offs and public-private partnerships via transfer and innovation projects
- Supporting an entrepreneurial setting for the settlement of SMEs
- Fostering a sustainable development of food industry value chains

Facts

Founded 2015 by Zurich Park Side, the City of Wädenswil, Agroscope and ZHAW.

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Medical Cluster

Founded in 1997

The Medical Cluster is a network of companies comprised of members from research, industry, and consulting. Its mission is to strengthen the production site so as to establish Switzerland as the world's best location for the development, production, and distribution of medical technology products. Through our platform, we provide opportunities to gather and exchange information for more than 800 domestic and foreign medtech experts and specialists every year.

Peter Biedermann Medical Cluster Schwarztorstrasse 31 CH-3007 Bern mail@medical-cluster.ch www.medical-cluster.ch

Contact

Key services

- Our meeting and exchange platforms: Morning Talk, Meet the Expert, Insight
- Swiss Medtech Day
- [Expert Groups] : Lean Management, Human Centered Design and Usability
- Surveys: Swiss Medical Technology Industry Survey
- Swiss Pavilion: Medtech trade fairs across Europe and international markets

Facts

Medical Cluster is funded by membership fees and contributions from the Cantons of Bern, Solothurn, Aargau, and Zurich. Current membership: 410

Swiss Biotech Association (SBA)

through the following activities:

Founded in 1998

Contact

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Nik Alexakis Swiss Biotech Association

Stauffacherstrasse 16 CH-8004 Zurich info@swissbiotech.org www.swissbiotech.org

Key services

- Platform events for members and stakeholders
- Community for SBA members on topics (archive and news)

- Dissemination of accomplishments in biotechnology

- International event coordination

- Collaboration with strategic partners

- National event coordination and programming
- Knowledge technology transfer activities (academia and industry)

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The Swiss Biotech Association represents the interests of the biotech sector, sup-

ports the entrepreneurship of biotech companies, and generates value for them

- Development of optimal framework conditions for the biotech sector

- Networking of stakeholders at national and international levels

Facts

Number of members: 249

Swiss Life Sciences Database

Contact

Venture Valuation AG Kasernenstrasse 11 CH-8004 Zurich contact@ venturevaluation.com www.swisslifesciences.com The Swiss Life Sciences Database is an internet-based directory that allows users to search for companies that are active in the Swiss biotech, pharma, and medtech industries. It is part of the Biotechgate database, which includes over 37,000 company profiles from the life sciences industry worldwide. All data in the directory is updated on a regular basis. The Swiss Life Sciences Database is sponsored by the Swiss Biotech Association, Life Science Zurich Business Network, the Canton of Zurich, and Basel Area. The directory is owned and maintained by Zurich-based Venture Valuation.

Key services

- Over 1,700 Swiss life sciences companies
- Advanced search and map features
- Covers biotech, pharma, and medtech companies
- Reports and downloads available for free
- Part of the global Biotechgate database with over 37,000 companies

Facts

Over 1,700 company profiles. Updated on a regular basis

Toolpoint for Lab Science

Founded in 2004

Toolpoint is a vertically integrated cluster that combines the know-how and ability of the lab automation industry in Europe. It was founded by companies of the Greater Zurich Area. It unites industry, universities, institutions, and partners that share the same goal of making processes in and around the laboratory more efficient and effective.

Key services

- Promotes innovation
- Strengthens members' international market standing
- Acts as an intermediator for technology transfer
- Support of standards and process development (www.sila-standard.org)
- Entrepreneurially operated, delivers constant benefits to its members

Facts

30 member companies with worldwide employment of 20,000 employees and a turnover of roughly \$ 5 billion

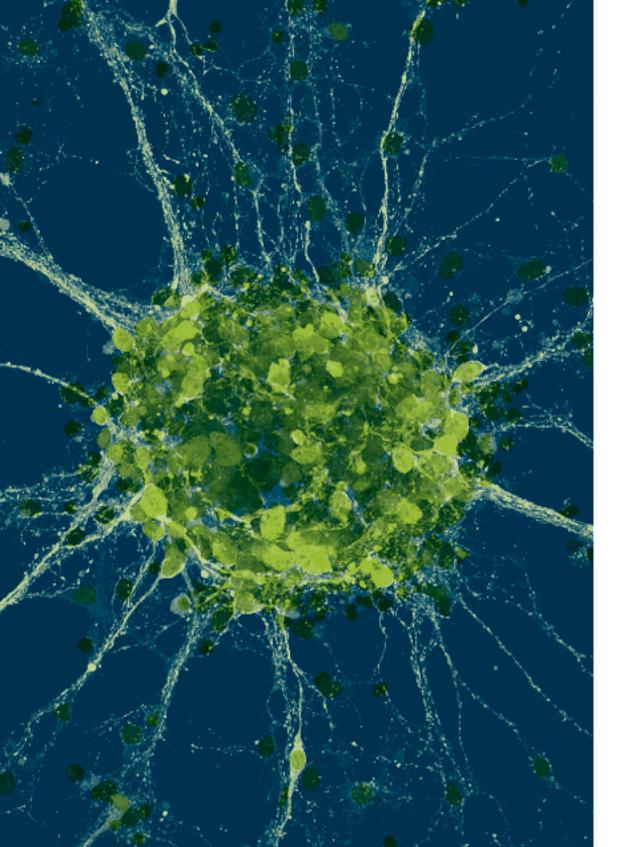
Toolpoint for Lab Science Hans Noser Gewerbestrasse 12 CH-8132 Egg

Toolpoint Management GmbH Hans Noser St. Gallerstrasse 57 CH-8400 Winterthur hans.noser@toolpoint.ch www.toolpoint.ch

Launched in 2003

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Financing Networks

The Greater Zurich Area is one of the most significant financial service centers in the world. Excellent financial services, a long tradition of banking and insurance, and favorable legal framework conditions make the Zurich region a leading global financial center. Financial networks such as CTI Invest and SECA aim at bringing together investors and industrial partners with innovative, promising companies. Additionally SIX Swiss Exchange offers companies from this sector an ideal growth environment, with efficient access to the capital of a diversified, specialized and experienced group of investors.

For more information on financing networks, please check the federal portal for small and medium size companies: www.kmu.admin.ch

CTI Invest

Contact

www.cti-invest.ch

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CTI Invest is the leading financing platform for Swiss high-tech start-ups at both early and later stages. It is the leading force in the professionalization of the business angels and venture capitalist scene in Switzerland and invites industrial partners to participate. It organizes value-added events for Swiss high-tech startup companies. Innovative start-up companies are presented to its members. Furthermore, the portfolio companies of the members can benefit from this opportunity. CTI Invest was founded in May 2003 and is a private non-profit organization. CTI Invest is not committed to any political party or religion.

SIX Swiss Exchange

SIX Swiss Exchange is Europe's leading exchange for Life Sciences companies, Contact representing around 40% of the European Life Sciences market capitalization across Europe's major stock exchanges. It is also the leading independent exchange in Europe. It connects companies from around the world with international investors and trading participants. It creates particularly market-oriented framework conditions for listing and trading in its highly liquid segments. SIX Swiss Exchange multiplies the locational advantages of the Swiss financial marketplace with first-rate services and is an ideal listing location. It distributes its own range of indices, including Switzerland's most important blue-chip index SMI®. With the world's most advanced trading technology X-stream INET, it offers excellent trading conditions.

www.six-swissexchange.com

Swiss Private Equity and Corporate Finance Association (SECA)

Contact www.seca.ch

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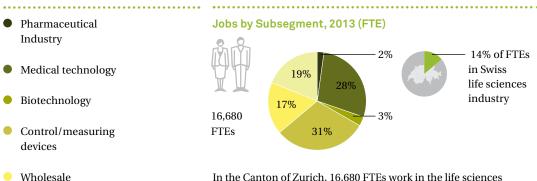
SECA is the representative body for Switzerland's private equity, venture capital, and corporate finance industries. The association is a non-profit organization and has these objectives and purposes: to promote private equity and corporate finance activities in Switzerland; to promote the exchange of ideas and cooperation between members; to contribute to the professional education and development of the members and their clients; to represent the members' views and interests in discussion with government and other bodies; and to establish and maintain ethical and professional standards. Members of the SECA include equity investment companies, banks, corporate finance advisors, auditing companies, management consultants, lawyers, and private investors.

Zürcher Kantonalbank ZKB

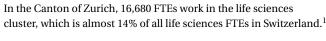
The Zürcher Kantonalbank is a full-service bank that provides a unique mix of Contact client proximity, competence, and responsibility. The bank maintains an office for start-ups, providing start-up financing, equity financing, and mezzanine capital.

www.zkb.ch/de/un/fk/ gruendung-nachfolge/ finanzierung-start-ups. html

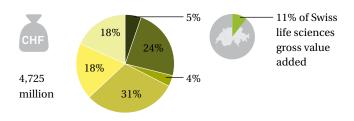
Key Facts of the Life Sciences Cluster in the Canton of Zurich



Research and laboratories



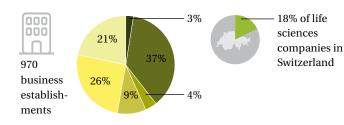
Gross Value Added by Subsegment, 2013



The Zurich life sciences cluster generated CHF 4,725 million in 2013. This is almost 11% of the Swiss life sciences gross value added.¹

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Business Establishments by Subsegment, 2013



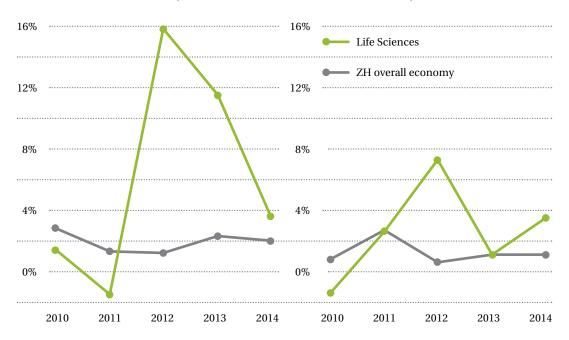
- ¹ FSO, STATENT 2013p, calculations Statistical Office Canton of Zurich
- ² BAKBASEL, 2015
- ³ FSO, UDEMO 2013p, calculations Statistical Office Canton of Zurich

There are 969 life sciences business establishments in the Canton of Zurich, which account for almost 18% of all life sciences business establishments in Switzerland.¹



Growth Rates for FTEs, 2010-2014

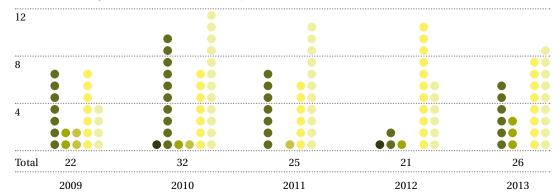
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Zurich economy overall (1.9%).²

From 2010 to 2014, the pharma, biotech, and medtech From 2010 to 2014, the pharma, biotech, and medtech subsegments exhibited an annual average growth rate subsegments exhibited an annual average growth rate of gross value added of more than 6%, which is sig- for FTE of almost 2.6%, which is significantly higher nificantly higher than the average growth rate of the than the average growth rate for FTE of the Zurich economy overall (1.3%)²

Number of Companies Founded in Pharma, Medtech and Biotech



From 2009 to 2013, more than 120 life sciences companies were founded ³

Image Documentation

Cover Stained RNA molecules in a cell culture of human keratinocytes, used to study gene activity. Thomas Stöger, and Lucas Pelkmans, Institute of Molecular Life Sciences, UZH Also see page 8, page 20 and page 42

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- Page 3 View of the city of Zurich with the buildings of the UZH and the ETH Zurich. © ETH Zurich / Marco Carocari
- Page 6Cholesterol crystals in the heart vessels of an atherosclerotic mouse.Stefan Freigang, and Manfred Kopf, Molecular Health Sciences Platform, ETH Zurich
- Page 8Accumulation of several clonal cell types in the ovary of a Drosophila melanogaster.Katja Köhler, Julia Barth, and Ernst Hafen, Institute of Molecular Systems Biology, ETH Zurich
- Page 13 Islet of Langerhans in the pancreas of a mouse with type-2 diabetes. Fabrice Heitz, Division of Psychiatric Research, UZH
- Page 20Detail of the tubular tracheal system of the embryonic fruit fly Drosophila melanogaster.Dominique Förster, and Stefan Luschnig, Institute of Molecular Life Sciences, UZH
- Page 31 Transverse bone section with two Haversian canals and concentric lamellae around each canal. Karl Link, and Frank Rühli, Institute of Evolutionary Medicine, UZH
- Page 32 Astrocytes in cell cultures reprogrammed to develop into nerve cells. Simon Braun, and Sebastian Jessberger, Brain Research Institute, UZH
- Page 38Chloroplasts in the waterweed Elodea.Joachim Hehl, Light Microscopy and Screening Center, ETH Zurich
- Page 42 Cell culture of astrocytes and neurons evolved from progenitor cells after growth factor removal. Simon Braun, and Sebastian Jessberger, Brain Research Institute, UZH
- Page 50 Arterial endothelial cell with an actin-filament cytoskeleton surrounding the DNA and mitochondria. Joachim Hehl, Light Microscopy and Screening Center, ETH Zurich
- Page 60 Cell culture of neurons generated from progenitor cells after growth factor removal. Simon Braun, and Sebastian Jessberger, Brain Research Institute, UZH

This booklet is a product of the Life Science Zurich Business Network. It aims at demonstrating the versatility and abundance of the life science cluster in and around the Canton of Zurich.

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Stadt Zürich Präsidialdepartement

