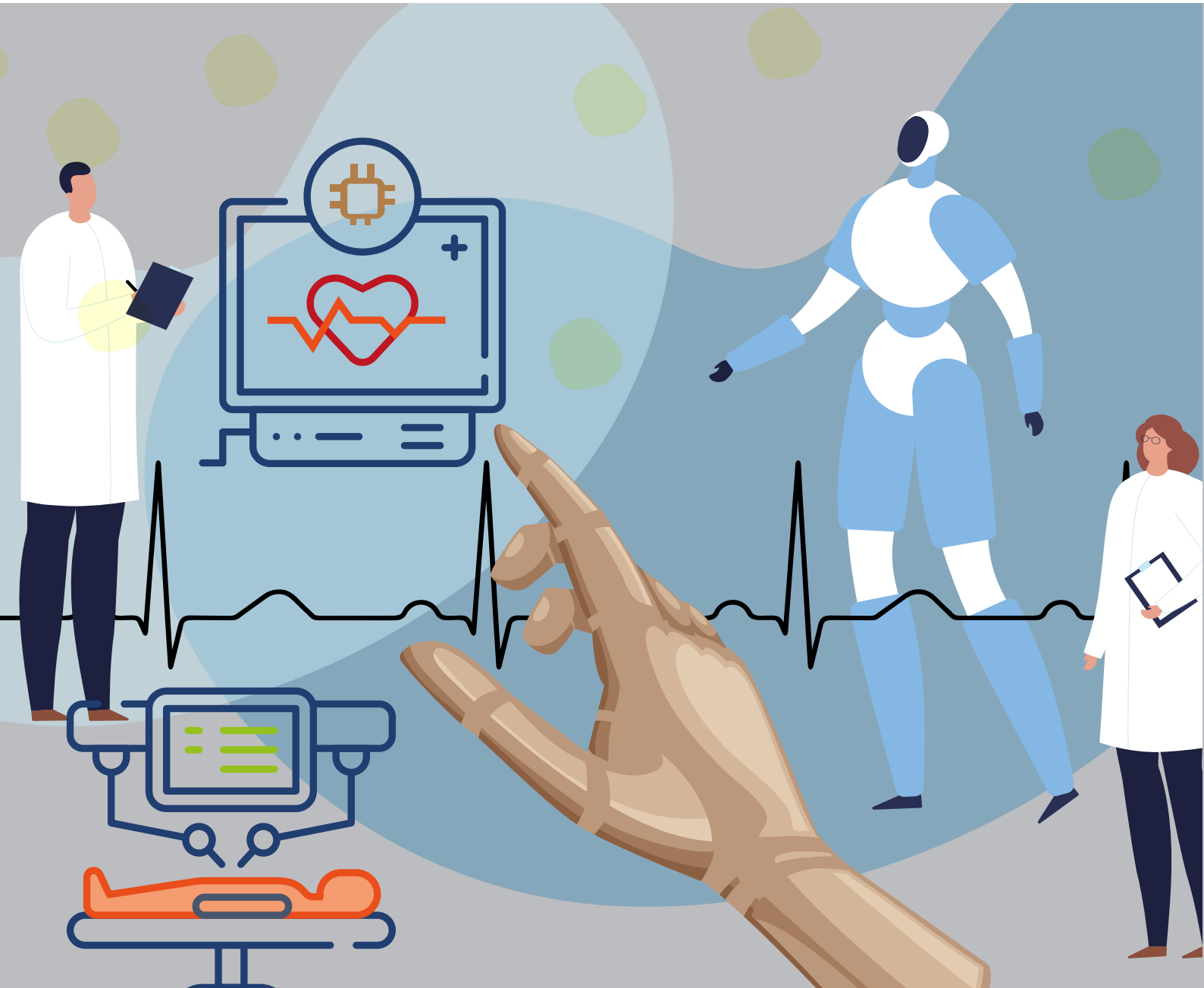
UNIVERSITÄT BERN

Faculty of Medicine
www.medizin.unibe.ch

Annual Report 2024



Content

Internationalization

Equal Opportunities and Young Academics

University Institutes

University Clinics Inselspital

University Clinics UPD

Institute of Dental Medicine

University and Faculty Centers

Research Platforms, Clusters and Networks

Foreword

The year 2024 saw 305 students complete their human medicine studies in our faculty – more than ever before. In 2018, the University of Bern increased the number of places it offered in human medicine by 100. Now the first of these +100 students have begun their professional careers – doctors who are urgently needed. From an organizational point of view, the expansion of available student places was a major feat. I am therefore very pleased that we have achieved this goal while maintaining the same high quality of training. Our graduates continue to be among the best in the country.
We are committed to excellence in teaching and research in order to advance academic medicine in Bern, in Switzerland and internationally. We achieve this, for example, through innovative teaching formats and new courses of study, such as the Certificate of Advanced Studies in Brain Health, or through high-level research across the whole spectrum from the biomedical fundamentals to clinical patient care. We create new professorships and thus open up and develop cutting-edge research fields such as Medical Data Sciences. In this highly innovative field, a total of 10 new professorships have been established in the Faculty since 2020.

Last year, we also implemented two forward-looking institutional innovations: the office of Dean of the Faculty of Medicine is now a full-time position, and the Inselspital, one of the largest university hospitals in Switzerland, and the Faculty of Medicine have moved closer organizationally in order to work together more efficiently.

The professionalization of the Faculty's leadership and the close collaboration between the University and the Hospital create conditions which meet the current and future requirements of medical research and teaching – and which also benefit medical care.

These are some of the exciting developments that have taken place in our faculty. There are many more to discover in our forthcoming annual report. I trust you will find it a rewarding read.

Prof. Dr. med. Dr. h. c. mult. Claudio Lino Alberto Bassetti
Dean, Faculty of Medicine, University of Bern

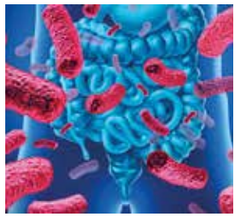
Faculty

Content

Highlights

18.1.2024 - Intestinal microbiota and postoperative septic complications

Infections are the most common complication following surgical procedures. A study led by the Department of Visceral Surgery and Medicine has revealed that changes in the gut flora during surgery could play a significant role in the development of these complications. This insight opens up new perspectives for preoperative examinations and the adjustment of treatment before, during, and after surgeries.



Spari et al., Sci Rep. 2023

2.2.2024 - Detecting hypoglycemia while driving a car

Hypoglycemia poses a substantial vehicle accident risk for people with diabetes. A study led by the Department of Diabetes, Endocrinology, Nutritional Medicine and Metabolism has shown that hypoglycemia could be detected noninvasively during real car driving with a machine learning approach which used only data on driving characteristics and gaze/head motion.

Lehmann et al., N Engl J Med. 2024

8.2.2024 - Stroke study shows time dependence of thrombolytic therapy

Researchers from the University Institute of Diagnostic and Interventional Neuroradiology, the Stroke Research Center Bern, and the Department of Neurology have shown in an international study that the benefit associated with intravenous thrombolysis prior to thrombectomy was time dependent and lessened with longer periods of time which between symptom onset and expected administration of intravenous thrombolysis.

Kaesmacher et al., JAMA. 2024

15.2.2024 - Vapes do not necessarily help stop using nicotine

Vapes are an effective aid to quitting smoking tobacco cigarettes. However, they do not help to reduce nicotine dependence. This is shown by the results of the world's largest study on this topic, which was conducted by a Swiss-wide interdisciplinary research group led by the Institute of Primary Health Care (BIHAM).

Auer et al., N Engl J Med. 2024

28.2.2024 - Ameliorate motor abnormalities in psychosis patients

Psychomotor slowing is a frequent symptom of psychosis, associated with poor outcomes and functioning. Researchers from the Translational Research Center of the Universitäre Psychiatrische Dienste (UPD) Bern have shown that inhibitory add-on repetitive transcranial magnetic stimulation safely alleviated psychomotor slowing in psychosis, also with delayed onset.

Lead authors Niluja Nadesalingam and Sebastian Walther

Walther et al., JAMA Psychiatry. 2024

6.3.2024 - For a more accurate time of death

Environmental conditions influence the decomposition process of a body and thus the determination of the time of death. An international study led by researchers from the Institute of Forensic Medicine investigated the process of decomposition on pig carcasses left in nature in Switzerland and provided valuable data for forensic analysis.

Lara Indra takes samples from a cadaver in the study.

Media release of the University of Bern

11.3.2024 - Graduation Ceremony of the Faculty of Medicine

On Saturday, March 11, 2024, the achievements of the new graduates of the Faculty of Medicine were celebrated in a festive setting at the Kursaal Bern. The Faculty congratulates all the graduates on their degrees.
The keynote speaker, Mr. Pierre Alain Schnegg, Member of the Cantonal Government and Director of Health, Social Affairs and Integration of the Canton of Berne, addressed the graduates with recognizing and motivational words, emphasizing the importance of lifelong learning, especially in such a dynamically evolving field as medicine.

Keynote speaker Pierre Alain Schnegg

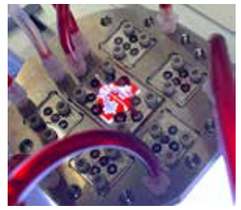
15.3.2024 - New University Clinic for Forensic Psychiatry and Psychology

The services of the new University Clinic include the psychiatric care of persons in penal institutions and the preparation of psychiatric reports for the public prosecutor's office and the courts. The clinic also coordinates voluntary therapy requests initiated by individuals. The new clinic is located on the campus of the Universitäre Psychiatrische Dienste (UPD) Bern.

University Clinic for Forensic Psychiatry and Psychology

19.3.2024 - Fighting heart attack down to the smallest vessels

Researchers from the Cardiovascular Engineering research unit of the ARTORG Center for Biomedical Engineering Research have co-developed and tested a new method to combat the blockage of tiny coronary arteries after a heart attack. The new approach offers a treatment option to prevent the death of heart tissue after a heart attack.



Rösch Y. et al., Bioeng Transl Med. 2023

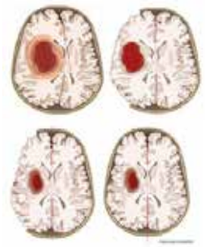
25.4.2024 - Cardiac arrhythmia among climbers on Mount Everest

Arterial hypoxemia, electrolyte imbalances, and periodic breathing increase the vulnerability to cardiac arrhythmia at high altitudes. A cohort study led by the Department of Cardiology, in collaboration with researchers from Nepal, has shown that more than 1 in 3 healthy individuals experienced cardiac arrhythmia during the climb of Mount Everest, thereby confirming the association between exposure to high altitude and incidence of cardiac arrhythmia.

Kunhang Sherpa et al., JAMA Cardiol. 2024

15.05.2024 - Severe deep brain bleeds can be treated

There is currently no treatment option for brain bleeds occuring in the brain's deep structure. But that could change. A new study co-led by the Department of Neurology has demonstrated that a surgical procedure to reduce pressure in the brain may save lives and reduce handicaps in patients with severe deep-bleeding strokes.



Beck J, et al., Lancet. 2024

18.6.2024 - Victims of a tsunami or human sacrifice?

What tragedy took place 2000 years ago around the ruins of a Celtic bridge in the Three Lakes region of Switzerland? An archaeological research team co-led by the Department of Physical Anthropology at the Institute of Forensic Medicine has investigated the fate of the 20 victims discovered near the ruins of a bridge and hopes to shed light on their story. The research team also aimed to gain new insights into the cultural and biological heritage of our Celtic ancestors.

Laffranchi et al., Sci Rep. 2024

26.6.2024 - New findings on preoperative skin antisepsis

Preoperative skin antisepsis is key to preventing infection at or adjacent to surgical incision sites. One of the two disinfectants used worldwide for this purpose was until now considered to be superior. The other is often more readily available and less expensive. The Department of Infectious Diseases, together with the university hospitals of Basel and Zürich, found in a multi-center, cluster-randomized trial both disinfectants being equally effective.

Widmer et al., JAMA. 2024

16.7.24 - Biomarkers identified to better characterize cirrhosis regression

Researchers from the Department of Visceral Surgery and Medicine and the Institute of Clinical Chemistry, in collaboration with the Medical University of Vienna, have identified a set of lipid biomarkers that could serve as indicators of cirrhosis regression in patients with successfully treated advanced chronic liver disease.

Mendoza et al., J Hepatol. 2024

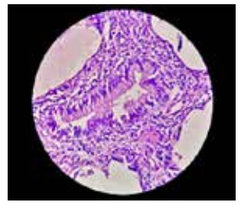
2.9.2024 - No benefit from stents with degradable plastic coating

A study led by the Department of Cardiology in collaboration with six Japanese hospitals has shown that stents with a degradable polymer coating offer no long-term advantage over conventional stents. After three years, both types of stent are equally effective. However, the study underlines the importance of long-term cholesterol-lowering medication after a heart attack.

Taniwaki et al., Eur Heart J. 2024

9.9.2024 - Generative AI takes on clinical prediction in cancer

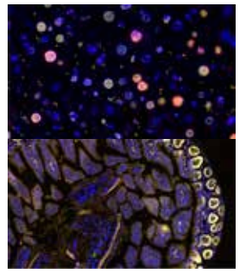
A team of computer scientists, biologists, and clinicians led by researchers from the Department of Urology and the University of Lausanne developed a novel approach to analyzing cancer tissue. The team created an artificial intelligence model generating virtual pictures of diagnostic tissue colorations. This represents a major step forward in pathology analysis.



Pati et al., Nat Mach Intell. 2024

17.9.2024 - Why liver or kidneys age faster than skin or intestines

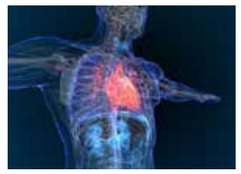
Researchers from the Department for BioMedical Research, the Department of Visceral Surgery and Medicine, and the University of Geneva have identified a mechanism that explains why certain organs age faster than others. They found that damages to non-coding DNA, which are often hidden, accumulate more in slowly proliferating tissues. These damages remain undetected for a long time and prevent cell division, unlike in organs that regenerate frequently.



Rossetti et al., Cell. 2024

20.9.2024 - Cardiac MRI improves risk assessment for heart failure

An international study led by the Department of Cardiology has shown that cardiac magnetic resonance imaging improves risk assessment in patients with reduced heart function. In particular, the detection of scar tissue in the heart proves to be a decisive factor for the prognosis.



Eichhorn et al., JAMA. 2024

26.9.2024 - Kidney stones are often excreted without pain

Kidney stones, especially small ones, can be passed without symptoms. How often this happens and which stones are passed painlessly, remained unclear. A research team led by the Department of Nephrology and Hypertension has shown that a high percentage of kidney stones are excreted without symptoms. This is relevant for patients with recurrent kidney stones.

Stritt et al., Clin J Am Soc Nephrol. 2024

15.10.2024 - New test improves diagnosis of allergies

An international research team co-led by the Department for BioMedical Research and the Department of Rheumatology and Immunology has developed a test to simplify and improve the diagnosis of allergies. The effectiveness of this test has now been confirmed in clinical samples from children and adolescents suffering from a peanut allergy.

Bachmeier-Zbären et al., Allergy. 2024

17.10.2024 - The ‘Human-AI Deal’ for AI with consciousness

Researchers from the Department of Physiology have developed a new model for the emergence of consciousness. The model suggests that one day, artificial agents, i.e., systems imitating human thought that imitating human thought, could gain consciousness.
To regulate our interaction with such systems, the researchers propose an agreement between humans and machines.

Benitez et al., AI and Ethics. 2024

18.10.2024 - Foundation of the Swiss Society for Translational Medicine strengthens Switzerland’s leading position in Translational Medicine

The Faculty of Medicine of the University of Bern, sitem-insel and the ETH Zürich founded the Swiss Society for Translational Medicine. The members of the board are: Prof. Claudio Bassetti, Dr. Simon Rothen, Prof. Rudolf Blankart, and Prof. Jörg Goldhahn. The Society aims to create optimal conditions for translational medicine, promote cross-sector exchange between clinics, science, and industry, strengthen the bridge between research and practical application and improve networking and information sharing among members.

Dr. Simon Rothen, CEO of sitem-insel AG, at the foundation ceremony

To the Website of the Swiss Society for Translational Medicine

6.11.2024 - Important role of a gene desert discovered

Researchers from the Department for BioMedical Research and the Department of Cardiology, in collaboration with international partners, have discovered that a section of the genome known as a gene desert plays an important role in the development of the embryo and the heart in mice and humans. The study provides further evidence of the importance of these gene-free DNA segments for the control of genes and may help detect heart diseases earlier.

Abassah-Oppong et al., Nat Commun. 2024

2.12.2024 - Short antibiotic prophylaxis after bladder removal is sufficient

A recent study by the Department of Infectious Diseases, the Department of Anaesthesiology and Pain Medicine, and the Department of Urology has shown that 24-hour antibiotic prophylaxis in bladder surgery with urinary diversion is just as effective as treatment lasting several days. This finding supports the use of shorter antibiotic prophylaxis in surgery, which can reduce unwanted side effects and minimize the risk of resistant germs.

Thurnheer et al., JAMA Netw Open. 2024

6.12.2024 - How harmless is arsenic in seafood?

An interdisciplinary study from the Institute for Infectious Diseases and the Institute of Geography of the University of Bern has revealed that gut bacteria play a crucial role in converting arsenobetaine into toxic arsenic compounds. Arsenobetaine is commonly found in seafood and was previously considered harmless. The new findings raise questions about the safety of seafood consumption.

Mukherjee et al., J Hazard Mater. 2024

Faculty of Medicine in Numbers

1 faculty
- **40** clinics
- **16** institutes

2,465 students in
- **2** bachelor programs
- **6** master programs

539 students in
- **48** CAS/DAS/MAS programs

439 final master degrees
- **305** Human Medicine
- **39** Dental Medicine
- **14** MSc in Biomedical Sciences
- **20** MSc in Pharmacy
- **54** MSc in Biomedical Engineering
- **7** MSc in Artificial Intelligence in Medicine

454 doctoral degrees
- **303** Dr. med.
- **27** Dr. med. dent.
- **90** from the Graduate School of Cellular and Biomedical Sciences
- **34** from the Graduate School of Health Sciences

217.4 million budget in CHF, split as follows:
- **80** million for the University Institutes
- **108** million for the Insel Gruppe
- **9.5** million for the Universitäre Psychiatrische Dienste UPD
- **11** million for the Institute of Dental Medicine zmk

Additionally:
- **35.8 million** from the Swiss National Science Foundation
- **52.2 million** third-party funds for research

112 professors with tenure or tenure track
- **25%** of whom are women
- **204** non-tenured professors
- **28%** of whom are women

3,194 original articles published

Faculty Executive Board

Dean and Director Teaching & Research of the Insel Gruppe
Prof. Claudio Bassetti

Deputy of the Dean
Prof. Nadia Mercader Huber

Head of the Dean's office*
Dr. Lukas Stalder

Dean of Education
PD Dr. Roman Hari

Vice-Dean Internationalization and National Networking
Prof. Aristomenis Exadaktylos

Vice-Dean Digitalization
Prof. Aurel Perren

Vice-Dean Equal Opportunities and Young Academics
Prof. Britta Maurer

Vice-Dean Research and Representative of the Pre-Clinical Departments
Prof. Dr. Dimitrios Fotdiadis

Vice-Dean Innovation and Representative of the Clinical Departments
Prof. Stephan Windecker

Insel Gruppe Medical Director
Prof. Martin Fiedler

Vice-Dean Resources
Prof. Jan Gralla

UPD Director Teaching & Research
Prof. Thomas Dierks (until 31.12.2024)

Representative VDM
Prof. U. Huynh-Do

UPD Medical Director
Prof. Stefan Klöppel

*without suffrage

Forward-Looking Management Structure for the Faculty of Medicine

In the summer of 2024, the Faculty of Medicine at the University of Bern took some decisive strategic steps – a first for Switzerland – to professionalize its management and promote closer cooperation in teaching and research with the Insel Gruppe.

At its meeting on June 26, 2024, the University of Bern's Faculty of Medicine decided to make the role of dean a full-time position in future. After being elected, the deans will resign from their professorship and its associated management of a department or clinic in order to focus entirely on their duties as the Faculty's top executive.

In Switzerland, a level of professionalization such as this for the head of a medical faculty is as yet unique. In other countries, for example the USA, full-time deans are already the norm. However, they are often managers without any special medical or academic background. In Bern, a professorship in medicine will still be a prerequisite.

Meeting raised expectations more successfully

Since the founding of the University of Bern in 1834, the deans of the Faculty of Medicine have fulfilled their management functions – at least insofar as carrying out regulatory requirements is concerned – on a part-time basis. However, the role of dean can nowadays hardly be combined with the management of a university department or clinic. This is due, on the one hand, to the size and complexity of the University of Bern's Faculty of Medicine in its current form; on the other, to the increased demands placed on the position of dean, in part attributable to digitalization in medicine. In Medicine, digitalization requires particularly profound changes affecting all specialist areas.

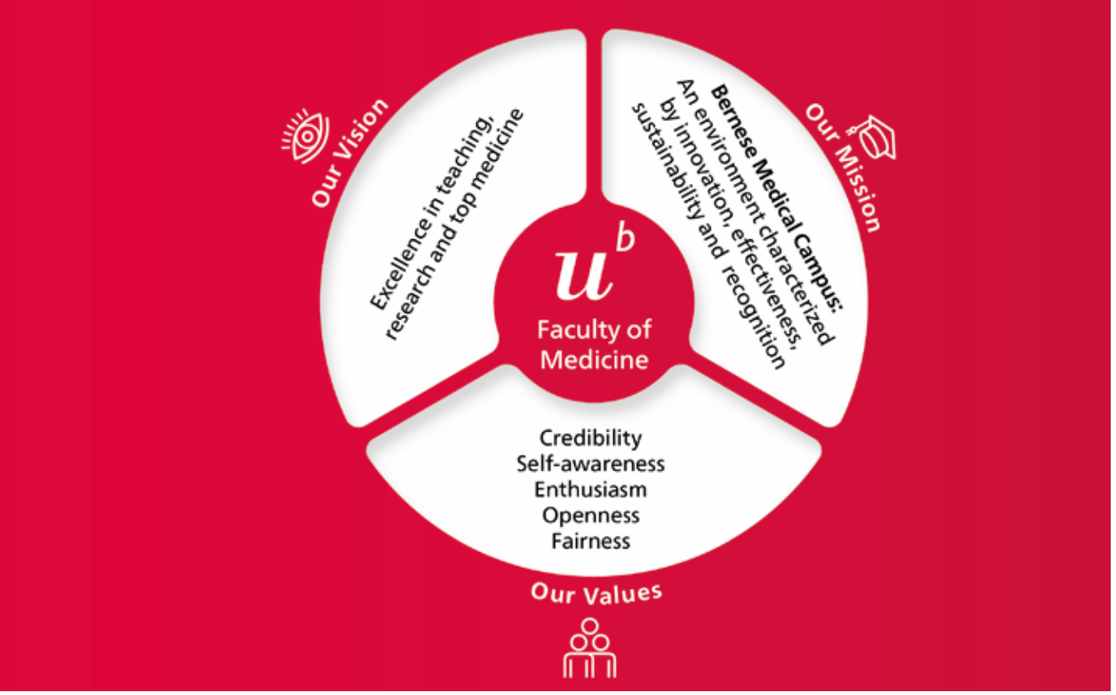
The Dean, Prof. Claudio Bassetti, makes the following point: "The implementation of the 2030 Strategy of the Faculty of Medicine has opened unique possibilities and opportunities. To realize these potentialities, the Faculty has decided to further its organizational professionalism, including the appointment, for the first time in almost 200 years of history, of a full-time dean."

Greater say in the Insel Gruppe

The role of the dean in the field of medicine in Bern will also be strengthened with regard to the cooperation between the University and the Insel Gruppe. At its meeting on June 21, 2024, the Board of Directors of the Insel Gruppe elected Prof. Claudio Bassetti as the Insel Gruppe's Director of Teaching and Research. According to the performance agreement between the University and the Inselspital, the Directorate of Teaching and Research (DLF) is responsible for implementing academic research and teaching at the Hospital in coordination with the University's Faculty of Medicine. The fact that the dean, ex officio, also leads the DLF will lead to greater efficiency and synergies in the cooperation between the University and the Insel Gruppe.

This is what Claudio Bassetti says about this innovation: "The partnership between the University of Bern and the University Hospitals is crucial for creating the medicine of the future. In June 2024, the Board of Directors of the Insel Gruppe entrusted the Dean with the Directorate of Teaching and Research. This visionary decision offers the unique opportunity to maximize the synergies between the two institutions in the promotion of innovation and excellence in medical care, teaching, and research."

Prof. Claudio Bassetti
Dean of the Faculty of Medicine and Director Teaching & Research of the Insel Gruppe



Implementation of Strategy 2030 in 2024

The Faculty Executive Board and the Faculty Council approved Strategy 2030 in the summer of 2021. In 2024, great efforts were made in various fields, including excellence in teaching, excellence in research, digital medicine, organizational development, networking and positioning, and fostering young researchers.

A wide range of activities were successfully implemented in 2024. Some of these are described in more detail later in this Annual Report, but here are a few milestones:

- The decision to support four interprofessional teaching projects through the competitive teaching fund (FILMED) accelerated the transformation towards a more interconnected and collaborative medical curriculum.
- The criteria for the evaluation of excellence in research were analyzed and will be revised in 2025.
- A further research cluster was formed in the area of metabolism.
- As part of the professionalization of the Dean's office, the position of Dean was changed from part time to full time. Additionally, a new division was created, named Successions Professorships. It is responsible for the strategic and operational handling of successions and manages the successions process.
- A structural analysis was completed of the interaction between the two university hospitals, the Faculty of Medicine, and the University of Bern. The main measure is that the position of Dean is now linked to the role of Director of Teaching and Research at the Insel Gruppe. Further measures will be implemented in 2025.
- New strategic partnerships have been formed with medical schools in Singapore, Canada, and Ukraine and with the international organization Brain Research Africa Initiative (BRAIN). Furthermore, the Faculty of Medicine has played an active role in two European alliances in which the University of Bern participates.
- The Faculty's Talent4Bern funding program was expanded to researchers applying for ERC Starting Grants and SNSF Ambizione Grants.
- The communication concept of the Faculty of Medicine has been approved by the Faculty Executive Board.
- The development of the digital research platform is progressing with the joint support of the Faculty of Medicine, the University of Bern, and the Insel Gruppe.
- The elaboration has started of a concept for the transformation of the Center for Artificial Intelligence in Medicine (CAIM) into the Department for Digital Medicine (DDM). Its aim is to foster translational and interdisciplinary data-driven research in medicine and healthcare.

Rankings of World Universities

International rankings are designed to reflect academic performance in a simple score. Over the years, the Faculty of Medicine has consolidated its position as one of the world's top 100 medical universities. In particular, our dental clinics are among the best dental schools in the world.

The following table shows the ranking of the University of Bern from 2021 to 2024, either in clustered form when not specified more precisely by the authors of the ranking or as an exact rank for top rankings.

Shanghai Ranking: Global Ranking of Academic Subjects				
	2021	**2022**	**2023**	**2024**
Clinical Medicine	76-100	76-100	76-100	76-100
Public Health	201-300	151-200	76-100	51-75
Dentistry & Oral Science	16	13	9	7
Nursing	76-100	101-150	101-150	201-300
Medical Technology	51-75	51-75	51-75	51-75
Pharmacy & Pharmaceutical Sciences	201-300	151-200	51-75	51-75
Times Higher Education (THE): World University Rankings by Subject				
	2021	**2022**	**2023**	**2024**
Medicine & Dentistry	92	76	73	70
QS World University Rankings by Subject				
	2021	**2022**	**2023**	**2024**
Medicine	114	94	91	94
Dentistry	9	7	7	6
Pharmacy & Pharmacology	201-250	151-200	151-200	151-200

Institutional Overview

Uni Mittelstrasse

Institute for Medical Education (IML), Mittelstrasse 43
Institute of Primary Health Care (BIHAM), Mittelstrasse 43
Institute of Social and Preventive Medicine (ISPM), Mittelstrasse 43
Department of Clinical Research (DCR), Mittelstrasse 43 and sitem-insel

Hallerstrasse 6

Multidisciplinary Center for Infectious Diseases (MCID)

Uni Muesmatt

Institute of Anatomy, Baltzerstrasse 2
Institute of Biochemistry and Molecular Medicine, Bühlstrasse 28
Institute for the History of Medicine, Bühlstrasse 26
Institute of Physiology, Bühlplatz 5
Library Medicine, Baltzerstrasse 4
Theodor Kocher Institute (TKI), Freiestrasse 1

von Roll Area

Institute of Complementary and Integrative Medicine (IKIM), Freiburgstrasse 46 & Fabrikstrasse 8

UPD

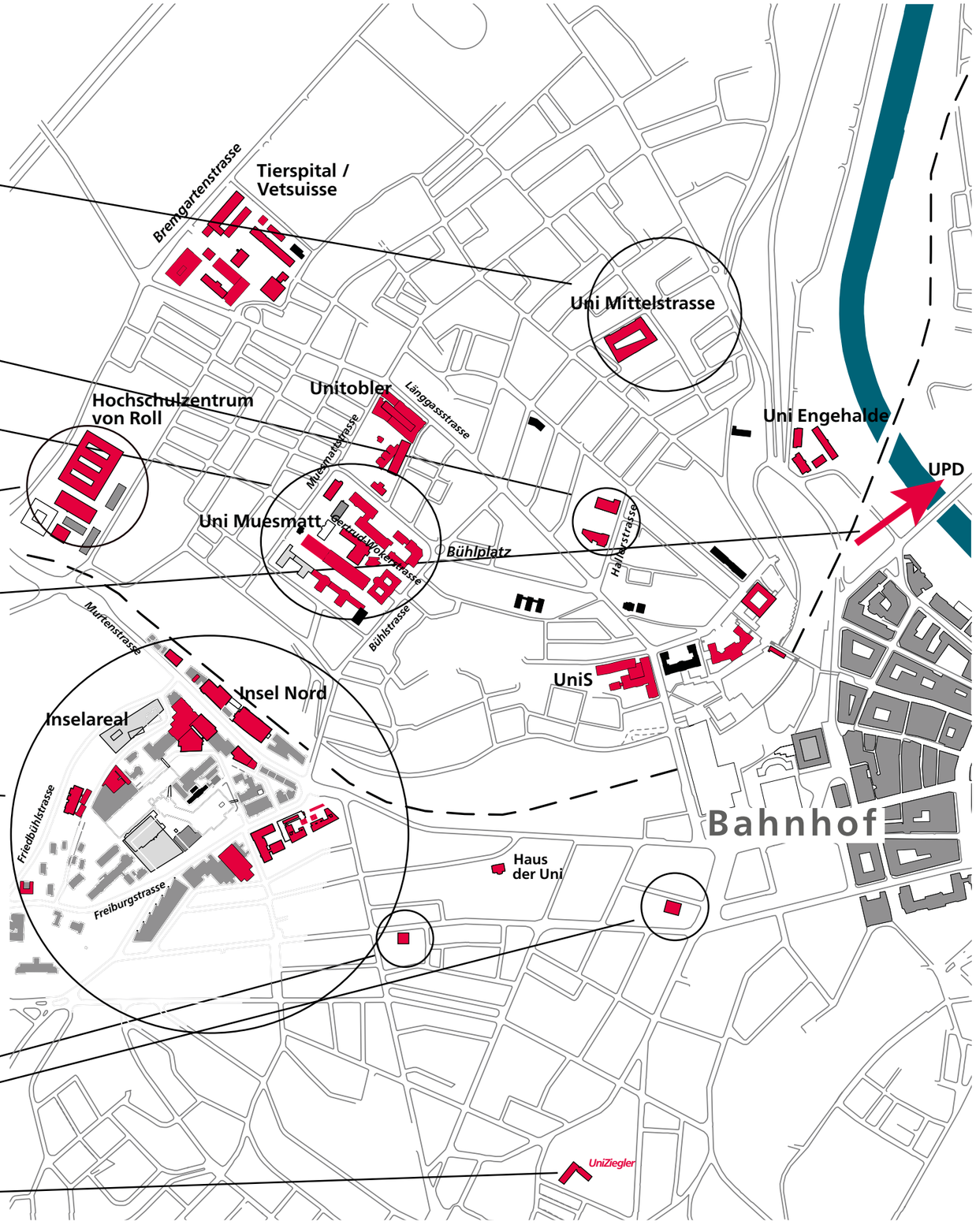
Universitäre Psychiatrische Dienste, Bolligenstrasse 111

Insel Campus

Clinics and Institutes at the Inselspital, Bern University Hospital
ARTORG Center for Biomedical Engineering Research, Murtenstrasse 50 & sitem-insel
Bern Center for Precision Medicine (BCPM), Murtenstrasse 24
Center for Artificial Intelligence in Medicine (CAIM), Murtenstrasse 50
Dean's Office, Dean's Office of Student Affairs, Murtenstrasse 11
Department for BioMedical Research (DBMR), Murtenstrasse 28
Department of Clinical Research (DCR), sitem-insel and Mittelstrasse 43
Institute of Complementary and Integrative Medicine (IKIM), Freiburgstrasse 46 & Fabrikstrasse 8
Institute for Infectious Diseases (IFIK), Friedbühlstrasse 25
Institute of Forensic Medicine, Murtenstrasse 26
Institute of Tissue Medicine and Pathology (IGMP), Murtenstrasse 31
Institute of Pharmacology, Inselspital, INO-F
Learning Center, Murtenstrasse 17
Neurotec, sitem-insel
Institute of Dental Medicine zmk, Freiburgstrasse 7
Swiss Institute for Translational and Entrepreneurial Medicine (sitem), sitem-insel
Translational Imaging Center (TIC), sitem-insel
University Comprehensive Cancer Center Inselspital (UCI)
University Neurocenter, sitem-insel

Teaching Facilities

Effingerhaus 55
UniAlhambra
UniZiegler



Awards and Honors

January

Stroke Prize of the German Society of Neurology and the German Stroke Society
Prof. David Seiffge, Senior Consultant and Deputy Head of the Stroke Center at the Department of Neurology, was awarded the 2023 Stroke Prize of the German Neurological Society (DGN) and the German Stroke Society (DSG) for his pioneering work on the application of intravenous thrombolysis.

Lelio Orci Award
Prof. Wanda Kukulski, Co-Director and Research Group Leader at the Institute of Biochemistry and Molecular Medicine, received the 2023 Lelio Orci Award for her pioneering efforts in the field of intracellular membrane trafficking.

Albrecht von Haller Young Investigator Award
The Swiss Heart Foundation presented PD Dr. Johannes Goldberg from the Department of Neurosurgery with the 2023 Albrecht von Haller Young Investigator Award for his outstanding research project investigating the risk of cerebral hemorrhage in smokers.

Pfizer Research Prize in Oncology and Neuroscience
Dr. Joanna Triscott from the Department for BioMedical Research received a Pfizer Research Prize for her research on the role of the lesser-known lipid regulator PI5P4Kα in prostate cancer and its relationship with androgen hormone signaling.

Dr. Florence Aellen and Prof. Athina Tzovara from the Experimental Neurology Center (ZEN) at the Department of Neurology, and the Institute of Computer Science received a Pfizer Research Prize for their research on using AI to predict the chances of recovery from a coma.

Swiss Cancer Research Foundation
Prof. Mark Rubin, Director of the Department for BioMedical Research, was elected President of the Scientific Committee of the Swiss Cancer Research Foundation.

American Academy of Periodontology Clinical Research Award
Prof. Anton Sculean, Director of the Clinic of Periodontology, was awarded the Clinical Research Award of the American Academy of Periodontology. The award is presented for the best published article with a direct impact on the treatment of periodontitis.

February

New Member of the University of Bern Executive Board
Prof. Andrew Chan, Chief Physician at the Department of Neurology, was elected Vice-Rector of the University of Bern. His appointment as Vice-Rector for International and Academic Careers has been effective from August 1, 2024.

March

Fellow of the Royal College of Surgeons of Edinburgh
Prof. Aristomenis Exadaktylos, Director of the Department of Emergency Medicine, was appointed Fellow of the Royal College of Surgeons of Edinburgh. He is the first emergency physician from Switzerland to be awarded this honor.

Graduation Ceremony of the Faculty of Medicine
At the 2025 Graduation Ceremony of the Faculty of Medicine, the following awards were presented:

Faculty prizes for the three best doctoral theses of the year 2024:
1. prize: Dr. Flavia Martina Zingg , Department of Rheumatology and Immunology
2. prize: Dr. Luca Lorenz Noti, Institute of Tissue Medicine and Pathology
3. prize: Dr. Élise Céline Vuille-Lessard, Department for Visceral Surgery and Medicine - Hepatology

Recognition award from the Schweizerische Zahnärzte-Gesellschaft SSO (Swiss Dental Association) for outstanding achievements in the studies of dental medicine:
Noah Diserens

Ärztegesellschaft/Medical Society of the Canton of Bern, Federal Licensing Examination:
Clinical Skills: Jan David Brand, Fabienne Elena Leuzinger
Clinical Knowledge: Dr. Jeannelle Michelle Heinzmann

CSL Behring Prize for outstanding achievements in the Master of Science in Biomedical Sciences program:
1st Place: Isa Naima Uccelli
2nd Place: Anna Kaufmann
3rd Place: Sina Livia Schmid

Alumni Award for the best Master's thesis in the Master of Science in Biomedical Sciences program:
Yasmine Tschuy

The RMS Foundation Award for the best graduate in the Master of Science in Biomedical Engineering program:
Julian Piller

Full Membership of the Swiss Academy of Engineering Sciences
Prof. Christoph Stettler, Director and Chief Physician of the Department of Diabetes, Endocrinology, Nutritional Medicine and Metabolism, was appointed a Full Member of the Swiss Academy of Engineering Sciences (SATW) in recognition of his outstanding achievements in the development and clinical translation of innovative technical solutions to diabetes treatment support.

Paul Langerhans Award in Dermatology
Prof. Christoph Schlapbach, Senior Consultant at the Department of Dermatology, won the 2024 Paul Langerhans Award of the Arbeitsgemeinschaft Dermatologische Forschung (ADF) for his excellent research on the regulation of T helper cells in inflammatory skin diseases.

Maupertuis Research Prize for the ELAN study team
The Swiss Brain League awarded the 2024 Maupertuis Research Prize to Prof. Urs Fischer, Director and Chief Physician of the Department of Neurology, and the whole research team of the ELAN study in recognition of their important results on the effective and safe use of anticoagulation for stroke therapy.

Håkan Ahlman Award of the European Neuroendocrine Tumor Society
The Håkan Ahlman Award is the most prestigious award presented by the European Neuroendocrine Tumor Society (ENETS). It recognizes the best scientific publication in the field of neuroendocrine tumors. Dr. Cédric Nesti from the Department of Visceral Surgery and Medicine was the winner of the 2024 Håkan Ahlman Award.

Four international awards in dental research
At its 2024 annual meeting, the International Association for Dental, Oral, and Craniofacial Research (IADR) presented the following awards to researchers from the Institute of Dental Medicine:

Prof. Richard Wierichs from the Clinic of Restorative, Preventive and Pediatric Dentistry received the Basil G. Bibby Young Investigator Award for young scientists in the field of cariology.

Prof. Dieter Bosshardt, Head of the Robert K. Schenk Laboratory for Oral Histology, won the IADR/PRG Award in Regenerative Periodontal Medicine.

Prof. Anton Sculean, Director of the Clinic of Periodontology, was awarded the IADR – Lasers & Bio-photonics Scientific Group, Scientific Award 2023-24 and the Eminence Award of the European Federation of Periodontology.

April

Honorary Membership of the European Biosafety Association
Dr. Kathrin Summermatter, Head of the Biosafety Centre at the Institute of Infectious Diseases, was appointed Honorary Member of the European Biosafety Association (EBSA) in recognition of her contribution to the development of biosafety across Europe.

May

Two awards for an innovative approach to tackle inappropriate prescribing in older adults
Dr. Katharina Tabea Jungo, Adjunct Researcher at the Bern Institute of Primary Health Care, was awarded two prizes for her study titled Optimising prescribing in older adults with multimorbidity and polypharmacy in primary care (OPTICA) – cluster randomised clinical trial: the 2024 Outstanding Junior Research Manuscript Award of the American Geriatrics Society (AGS) and the 2024 Research Prize of the Swiss College of Primary Care Medicine (Kollegium für Hausarztmedizin KHM).

Prix 2024 of the Diabetes Research Foundation
Dr. Ludovic Mure, Research Group Leader at the Department of Ophthalmology and the Department for BioMedical Research, was awarded the Prix 2024 of the Diabetes Research Foundation (Fondation pour la Recherche sur le Diabète) for his research project aiming to understand the impact of diabetes and diabetic retinopathy on non-visual responses to light such as circadian, sleep, and mood regulation.

June

Winner of a Swiss Reproducibility Award
Dr. Virginia Chiocchia, postdoctoral researcher at the Institute of Social and Preventive Medicine, received the 2024 Swiss Reproducibility Award for Early Career Researchers in the category biology and medicine for her tool ROB-MEN, a user-friendly web application to assess the risk of bias due to missing evidence in network meta-analysis.

SGORL Grand Prix for Auditory Pathway
Prof. Stefan Weder, Head Physician of the Department of Otorhinolaryngology, Head and Neck Surgery and Head of the Auditory Pathway Research Team at the ARTORG Center, was awarded the prestigious Grand Prix of the Swiss Society of Oto-Rhino-Laryngology, Neck and Facial Surgery (SGORL).

Appointment as an individual member of the SAMS Senate
Prof. Daniel Surbek, Managing Co-Clinic Director and Head of Obstetrics and Feto-Maternal Medicine at the Department of Obstetrics and Gynecology, was appointed an individual member of the Senate of the Swiss Academy of Medical Sciences (SAMS) on the basis of his scientific achievements.

SAKK/Astellas GU-Oncology Award
Dr. Anke Katharina Augspach and her colleagues from the Department for BioMedical Research received the 2024 SAKK/Astellas GU-Oncology Award for their application titled Minor intron splicing is critical for survival of lethal prostate cancer.

July

DBMR Prizes at the Day of BioMedical Research
At the Day of BioMedical Research organized by the Department for BioMedical Research (DBMR), the following awards were presented:

Johanna Dürmüller-Bol DBMR Research Award 2024
Andrea Felser, Department of Clinical Chemistry: The role of mitochondrial energy metabolism in adrenal hyperandrogenism: mechanisms and clinical implications

DBMR Technician of 2024 Award
Kay-Sara Sauter-Etter, Department of Pediatrics

Benoît Pochon Prize 2023
Martina Minoli, Department of Urology: Developing new tools for precision medicine in bladder cancer

Prize for the Best DBMR Publication 2023
Roberta Esposito, Department for BioMedical Research: Tumour mutations in long noncoding RNAs enhance cell fitness

DBMR Prize for Innovative Research Idea 2024
Marc Wehrli, Department of Medical Oncology: CAR T cells secreting synthetic proteins engaging solid tumors

Anke Augspach, Department for BioMedical Research: Establishing the minor spliceosome as an innovative therapeutic target for breast cancer

Andrea Felser, Department of Clinical Chemistry: The role of mitochondrial energy metabolism in adrenal hyperandrogenism: mechanisms and clinical implications

Poster prizes of the Day of BioMedical Research 2023
Best preclinical project
Sara Çaku, Department of Hematology and Central Hematology Laboratory: Characterization of the role of Gas6 protein in sepsis as a basis for a novel therapy

Best clinical project
Laura Gallucci, Department of Neurology: Early cognitive trajectories after stroke: still prevalent cognitive impairment despite neurological recovery

Best project by a medical student:
Jacopo Soldini, Department of Anaesthesiology and Pain Medicine: Detecting diastolic dysfunction using cardiovascular magnetic resonance derived E/e

Stem Cell Project Prize:
Siavash Rahimi, Department of Dermatology: Mechanostructural signaling in Pemphigus vulgaris upon uncoupling of transadhesion

Alumni MedBern Research Award
Janine Lux, Institute for Infectious Diseases (IFIK): Interspecies peptide hijacks *S. pneumoniae* transporter to inhibit growth and colonization

Chairperson of AO Spine Switzerland
The AO Spine Country Council in Switzerland elected Prof. Christoph Albers, Deputy Clinic Director and Co-Head of Spine Surgery at the Department of Orthopedic Surgery and Traumatology, as Chairperson of the AO Spine Switzerland Council. AO Spine is the world's leading spine society.

Deputy Editor of the Journal of Hepatology
Prof. Annalisa Berzigotti, Clinic Director and Head of Hepatology at the Department of Visceral Surgery and Medicine, was appointed Deputy Editor of the Journal of Hepatology, in recognition of her outstanding clinical and scientific work and achievements in hepatology.

August

Keynote Lecturer Award in Comparative Pathology
Prof. Britta Engelhardt, Director of the Theodor Kocher Institute, received the Journal of Comparative Pathology Education Trust ESVP/ECVP Keynote Lecturer Award during the 5th Cutting Edge Pathology Congress.

Two awards for research on infectious diseases
Dr. Philipp Jent, Head of Infection Prevention and Control at the Department of Infectious Diseases, was awarded two research prizes at the SSI SSM SSHH Joint Annual Meeting: the Swiss Society of Infectious Diseases Annual Award for Clinical Research and the Swiss Society of Infectious Diseases Best Paper Award.

September

Research Prize of the Swiss Heart Foundation
With her research, Prof. Yvonne Döring, Head of Research at the Department of Angiology, has made a significant contribution to the understanding of atherosclerosis as a chronic inflammatory disease of the arteries. The Swiss Heart Foundation awarded her the 2024 Research Prize for this outstanding achievement.

Board member of the SNSF Research Council
The Foundation Council of the Swiss National Science Foundation (SNSF) elected Prof. Nicolas Rodondi, Director of the Institute of Primary Health Care (BIHAM), as a member of the Academic Board, the governing body of the SNSF Research Council.

Gold medal of the European Respiratory Society mid-career in pediatrics
Prof. Philipp Latzin, Head of Pulmonology at the Department of Pediatrics, was awarded the Gold Medal of the European Respiratory Society mid-career in pediatrics at the 2024 annual congress of the European Respiratory Society.

Saul Horowitz, Jr. Memorial Award from Mount Sinai Alumni
Prof. Dr. Mark Rubin, Director of the Department for BioMedical Research, received the 2024 Saul Horowitz, Jr. Memorial Award. The award is given to a physician who has made or promised to make significant contributions as a teacher, researcher, and/or practitioner in the field of medicine.

SGAIM Teaching Award
Prof. Steffen Eychmüller, Chief Physician at the Department of Radiation Oncology and Head of the University Center for Palliative Care, won the Teaching Award of the Swiss Society of General Internal Medicine SGAIM. The two Co-Presidents Prof. Drahomir Aujesky and Dr. Regula Capaul presented the award at the SGAIM Fall Meeting.

Excellence Award of the European Society for the Study of Personality Disorders
The European Society for the Study of Personality Disorders (ESSPD) awarded its 2024 Excellence Award to PD Dr. Marialuisa Cavelti, Madelyn Thomson, Dr. Stefan Lerch, PD Dr. Corinna Reichl, and Prof. Michael Kaess from the University Hospital of Child and Adolescent Psychiatry and Psychotherapy. The ESSPD recognized the research team for a recently published article that makes a significant contribution to the field of personality disorders and is characterized by originality in concepts or methods.

October

Best Scientific Study Award at the World Cancer Congress
Dr. Fabio Dennstädt, Resident Physician at the Department of Radiation Oncology, received the Best Scientific Study Award for his project titled Creation of a CDE-based data structure for radiotherapeutic decision-making in breast cancer at the 2024 World Cancer Congress organized by the Union for International Cancer Control.

German Pain Society Award for Pain Research
Dr. Debora M. Hofer and Dr. Michael A. Harnik from the Department of Anaesthesiology and Pain Medicine were awarded the second prize for pain research at the annual congress of the German Pain Society (Deutsche Schmerzgesellschaft). Led by Prof. Ulrike Stamer, the working group investigated chronic pain and the long-term use of opioids.

November

DCR Prizes at the Day of Clinical Research
At the Day of Clinical Research organized by the Department of Clinical Research (DCR), the following awards were presented:

Best Investigator Initiated Clinical Trial: PD Dr. Sonja Häckel – Outcome of surgical versus primary non-surgical treatment of traumatic thoracolumbar spine burst fractures in patients without neurological symptoms – a study protocol

Best Trial in Progress: Dr. Alexander Koch - Early life intervention in paediatrics supported by E-Health (ELIPSEI) - a randomized controlled clinical trial to coach parents to lower obesity in children

Best Poster by a Medical Student: Filippa Kühni - Completion of adjuvant chemotherapy after total versus partial pancreaticoduodenectomy for pancreatic cancer – a retrospective analysis

Best Poster by a PhD Candidate: Lea Hess - AdoASSIP study protocol - building evidence in adolescent suicide prevention and Treatment (BEST)

Best Poster by a Master's Candidate: Matteo Tagliabue - Respiratory and cardiac motion resolved whole-heart MRI

Best Multidisciplinary Research: Rafael Morand – iSPHYNCS: Unsupervised clustering in questionnaires and metadata reveals distinct subtypes in the narcoleptic borderland

Best Visual Presentation: Dr. Eva S. Peper – New MRI trajectory designs improve image quality and quantitative parametric maps of biomarkers in the brain

Best Technology Project for Clinical Research: Dr. Tobias Blatter – Data mining reference intervals by ICD-10 stratified differential distributions

December

Dr. Lutz and Dr. Celia Zwillenberg Prize
On the 190th Dies academicus of the University of Bern Benedetta Coppe, postdoctoral fellow at the Institute of Anatomy, and Hang Thi Thuy Gander-Bui, postdoctoral fellow at the Institute of Tissue Medicine and Pathology, were awarded the Dr. Lutz and Dr. Celia Zwillenberg Prize for their outstanding scientific contributions.

Outstanding habilitation in aging research
PD Dr. Anna K. Eggimann, senior consultant and lead clinical research at the Department of Geriatrics, received the 2024 award from the University of Bern for Senior Citizens. Anna Eggimann was honored for her habilitation on new diagnostic and therapeutic approaches for the prevention and treatment of muscle wasting and sarcopenia in old age.

New Professors at the Faculty of Medicine

Yvonne Döring

Since January 1, 2024, Extraordinary Professor of Translational Angiology at the Department of Angiology

Yvonne Döring obtained her BSc in cell biology at the University of Osnabrück in 2004 and her MSc in biomedicine at the Johannes Gutenberg University in Mainz in 2006. In early 2007, she joined the DFG Research Unit 809 at RWTH Aachen University as a PhD student and received her doctorate in 2011. She then began a postdoctoral position at the Institute for Cardiovascular Prevention at LMU Munich. During her time in Munich, she was able to participate in an international collaboration with the Leducq Foundation and complete an internship in Daniel J. Rader's laboratory at the Pennsylvania School of Medicine in Philadelphia. After her return to LMU Munich, she became a group leader and Principal Investigator of the DFG Collaborative Research Center SFB 1123 at the Institute for Cardiovascular Prevention. Since 2020, Yvonne Döring has been Professor and Head of Research at the Department of Angiology at the Inselspital in Bern.

Yvonne Döring researches arterial vascular inflammatory and immune mechanisms and works on the elucidation of mechanisms involved in the development of atherosclerosis, atherothrombosis, and calcification. She focuses on the importance of chemokines and their receptors in atherosclerosis.

Kristina Adorjan

Since February 1, 2024, Ordinary Professor of Psychiatry and Psychotherapy and Director and Chief Physician of the Universitäre Psychiatrische Dienste (UPD) Bern

After studying economics and political science, Kristina Adorjan studied medicine at the Technical University in Munich. She completed her specialist training at the Clinic for Psychiatry and Psychotherapy at the LMU Munich and has been a member and project coordinator at the Center for International Health (CIH/LMU) since 2014. Kristina Adorjan has also been a research associate at the Institute for Psychiatric Phenomics and Genomics (IPPG) since 2015. In March 2020, she became Senior Physician and Deputy Director of the Department of Psychiatry and Psychotherapy at the LMU Hospital.

Because she also studied economics and political science, Kristina Adorjan is very interested in combining the three areas of medicine, economics and politics and improving psychiatric care, particularly in Switzerland and also in developing countries. Consequently, she has supported psychiatric training and the development of a research infrastructure for biological studies in Ethiopia for many years. In 2019, she was awarded the DGPPN Prize for Research on Mental Illness for her research activities in Africa. Her research investigates the interaction of genetic and environmental factors in mental illness. Kristina Adorjan is also involved in the development of innovative care models for people with mental illnesses and attaches great importance to interdisciplinary collaboration in clinical practice, teaching and research, and broad international networking.

Beat Roth

Since March 1, 2024, Ordinary Professor for Urology and Director and Chief Physician of the Department of Urology

Beat Roth graduated in medicine from the University of Basel in 2000. After earning his doctorate in 2001, he completed most of his specialist training at the Inselspital. Between 2011 and 2013, he undertook a research fellowship at the MD Anderson Cancer Center in Houston. During his training, he specialized intensively in the treatment of urological cancers, various urinary diversion procedures, and the complex management of kidney stones. In 2016, Beat Roth was appointed an Associate Professor at the University of Bern, and in 2019, he became a Full Professor at the University of Lausanne. He was Head of the Urology Department at CHUV, University Hospital in Lausanne, from 2019 until 2024. Since March 2024, he has held the position of Clinic Director and Head of the Urology Department at the University Hospital of Bern.

Beat Roth is actively involved in research that focuses on both superficial and muscle-invasive bladder cancer and kidney stones. He has been a co-investigator in significant national studies, including the Swiss Kidney Stone Cohort and the NOSTONE study. He is also the principal investigator of the UROPOT study, which focuses on the potentiation of antibiotics.

Urs Fischer

Since June 1, 2024, Ordinary Professor of Neurology and Director and Chief Physician of the Department of Neurology

Urs Fischer studied medicine in Bern, London, San Francisco, and Lomé and received his doctorate from the University of Bern in 2000. Following his specialist training in neurology at the Inselspital, he completed an MSc at the University of Oxford. In 2015, he was elected Extraordinary Professor of Acute Neurology and Stroke at the University of Bern and became Co-Head of the Stroke Center and Co-Director of the Clinical Trial Unit. In 2021, Urs Fischer was appointed Full Professor and Chief Physician of Neurology at the University of Basel.

His research focuses on the diagnosis and treatment of patients with acute neurological diseases, in particular stroke. Urs Fischer leads international research projects that are supported by the Swiss National Science Foundation and that have been published in high-ranking scientific journals such as NEJM, The Lancet, JAMA, and Circulation. Through his work as President of the Swiss Neurological Society and President Elect of the European Stroke Organisation (ESO), he is very well connected both nationally and internationally. In addition to top-class research, Urs Fischer attaches great importance to good clinical care and the promotion of young clinical and academic talents. He has established a PhD program in Clinical Sciences and the European Stroke Master at the University of Bern.

Bogdan Draganski

Since June 1, 2024, Extraordinary Professor of Dementia and Neurodegenerative Disorders at the Department of Neurology.

Bogdan Draganski graduated in human medicine from the Humboldt University of Berlin in 1996 and received his doctorate in 2001. After completing his specialist training in Germany, he conducted research into the mechanisms of brain plasticity at the Institute of Neurology, UCL London, followed by work on neurodegeneration at the Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig. He has been an Associate Professor and Senior Physician at the Neurological University Hospital, Lausanne, since 2010. Supported by the Swiss National Science Foundation, the EU, and charitable foundations, his research findings have been published in prestigious journals. As a board member of the Swiss Memory Clinics and the Swiss Network for Dementia Research (Synapsis Foundation), his aim is to forge closer links between clinical practice and research for the benefit of patients with cognitive disorders.

Bogdan Draganski's current projects address the prevention and early diagnosis of neurodegenerative diseases using new methods of non-invasive brain imaging. His clinical and research focus is on the identification of lifespan factors that influence brain health and the mechanisms of cognitive maintenance in old age.

Moritz Tannast

Since August 1, 2024, Ordinary Professor of Orthopedic Surgery and Traumatology and Director and Chief Physician at the Department of Orthopedic Surgery and Traumatology

Moritz Tannast graduated from the University of Bern in 2002 with a degree in human medicine. In the same year, he obtained his doctorate at the Inselspital in Bern and Tufts University and Harvard Medical School in Boston, he completed his specialist training as an orthopedic surgeon at the Inselspital, complemented by a research stay in Santa Monica supported by the Swiss National Science Foundation.

After his return to Switzerland, Moritz Tannast worked as a Senior Physician in the Department of Urology at the Inselspital. In 2013, he became the only orthopedic surgeon to date to be awarded a professorship by the Swiss National Science Foundation, followed by habilitation and an associate professorship at the University of Bern. In 2019, he accepted an appointment at the University of Fribourg, where he was full professor and head of orthopedic surgery at Fribourg Hospital.

Moritz Tannast is the author of numerous publications focusing on hip and pelvic surgery. He has received several awards for his work, including the Best Dissertation of the Faculty of Medicine and the Theodor Kocher Prize for the best young scientist at the University of Bern.

Benoît Zuber

Since August 1, 2024, Ordinary Professor of Anatomy and Structural Biology and Co-Director of the Institute of Anatomy, Head of the Department of Microscopic Anatomy and Structural Biology

Benoît Zuber graduated in biology from the University of Lausanne in 2003 and completed his doctorate there in 2007. He then worked as a postdoctoral researcher at the Medical Research Council Laboratory of Molecular Biology in Cambridge, UK. In 2011, he joined the University of Bern and became a senior assistant at the Institute of Anatomy. In 2012, he received a grant from the Swiss National Science Foundation for the professorship program. Benoît Zuber achieved his habilitation in 2015 and was appointed Extraordinary Professor of Anatomy and Structural Biology in 2017, succeeding Prof. Peter Eggli.

Benoît Zuber investigates the structural and functional properties of biological systems using state-of-the-art microscopy techniques. His research focuses on the visualization of synapses and other biological processes in their natural state. He is also involved in the development and application of new cryo-electron microscopy techniques to study cellular structures and the interaction of pathogens with their host cells. Benoît Zuber has made numerous significant contributions to structural biology and is a recognized expert in his field.

Tobias Reichlin

Since August 1, 2024, Ordinary Professor of Rhythmology and Electrophysiology at the Department of Cardiology

Tobias Reichlin completed his medical studies at the University of Basel in 2004. He qualified as a specialist in internal medicine in 2011 and in cardiology in 2014. Following a two-year clinical research fellowship supported by the Swiss National Science Foundation at Brigham and Women's Hospital at Harvard Medical School, Boston, he qualified as a professor at the University of Basel in 2014. In 2018, he was appointed Associate Professor of Rhythmology and Electrophysiology at the University of Bern. Since then, he has headed the Department of Cardiac Electrophysiology at the Department of Cardiology, where he was promoted to Chief Physician in 2022.

Since Tobias Reichlin took office in 2018, Bern has become the largest center for the treatment of cardiac arrhythmias in Switzerland. In addition to the clinical program, the translational and clinical research program has also been significantly expanded during this time, earning Bern national and international recognition. His research projects focus on further improving the catheter treatment of cardiac arrhythmias with innovative technologies. The further development of pacemaker technologies and stroke prevention in patients with atrial fibrillation are also among his key research interests.

Ursula Wolf

Since August 1, 2024, Ordinary Professor of Anthroposophic Advanced Medicine at the Institute of Complementary and Integrative Medicine (IKIM)

Ursula Wolf studied medicine and obtained her doctorate in 1995, the certificate of competence in anthroposophically extended medicine in 2001, the specialist title for general internal medicine in 2004, and her habilitation in 2011. She worked for two and a half years as a postdoctoral fellow in the Department of Physics at the University of Illinois at Urbana-Champaign, one of the ten best universities for physics in the USA, and for four months as a visiting scientist at the National High Magnetic Field Laboratory and University of Florida in Tallahassee. Subsequently, as a senior research associate, she prepared Health Technology Assessment reports for various complementary medicine disciplines on behalf of the BSV/BAG. Since 2005, she has been working in research and teaching at the University of Bern and clinically since 2008.

The focus of Ursula Wolf's research is the efficacy, safety, and pathways of complementary and in particular anthroposophic medical therapy methods, and she has led an SNF–Innosuisse Bridge Discovery project in the development of functional near-infrared spectroscopy. She is a former resident of the International Society of Traditional, Complementary & Integrative Medicine Research (ISCMR) and the International Society on Oxygen Transport to Tissue (ISOTT).

Carole Bourquin

Since September 1, 2024, Ordinary Professor of Pharmacology and Director of the Institute of Pharmacology. Since March 1, 2025, she has also been a Senior Physician in the Division of Clinical Pharmacology at the Department of General Internal Medicine of the Inselspital

Carole Bourquin completed her medical doctorate in clinical pharmacology in Geneva, followed by a PhD in neuro-immunology at the Max Planck Institute in Munich. After two years as a postdoctoral researcher, she set up her own research group to study the immunotherapy of cancer at the Ludwig Maximilian University in Munich. At the same time, she trained as a clinical pharmacologist. In 2011, she returned to Switzerland as a full professor of pharmacology at the University of Fribourg. Since 2016, she has been a full professor of pharmacology at the University of Geneva and practices at the University Hospital of Geneva as a specialist in clinical pharmacology.

Carole Bourquin's research focuses on the mechanisms of anticancer immunity and their pharmacological control to improve the efficacy of immunotherapy. As an experienced pharmacologist at the interface between basic, preclinical, and clinical research, she brings extensive expertise in the translational aspects of immunopharmacological research and drug development. Carole Bourquin's pioneering research in the field of immunopharmacology has been funded by the Swiss National Science Foundation, the Swiss Cancer League, and the European research program Horizon 2020, among others.

Athina Tzovara

Since September 1, 2024, Extraordinary Professor of Machine Learning in Medicine at the Department of Neurology and the Institute of Computer Science

Athina Tzovara is a member of the Institute of Computer Science at the Faculty of Science and the Center for Experimental Neurology at the Faculty of Medicine. She received her diploma in Electrical and Computer Engineering from the National Technical University of Athens in 2009. In 2012, she obtained her PhD in neuroscience from the University of Lausanne. She then moved to the University of Zurich as a postdoctoral researcher and was a research associate at University College London. Before coming to the University of Bern, Athina Tzovara was at the Helen Wills Neuroscience Institute at the University of California Berkeley. In 2019, she initially moved to Bern as an assistant professor, funded by the Decoding Sleep interfaculty research cooperation. She founded and currently leads the Cognitive Computational Neuroscience Research Group.

Athina Tzovara's research combines modeling and machine learning techniques with invasive and non-invasive recordings of neural activity in humans to investigate the neural mechanisms that support human cognition in healthy and diseased states.

Mia Rakic

Since December 1, 2024, Extraordinary Professor of Histology and Head of the Robert K. Schenk Laboratory for Oral Histology at the Department of Periodontology

Mia Rakic is a specialist in periodontology and dentistry and a recognized expert in the personalized treatment of bone pathologies, including biomarker-based diagnostics and targeted regenerative therapies. She received her PhD from the University of Belgrade in 2012 and completed her postdoctoral training at the University of Nantes, where she specialized in the development of precision biomaterials for peri-implant bone regeneration. She has worked at the University of Belgrade as Assistant Professor, at the University of Nantes as Associate Professor, and as Senior Research Associate at the Faculty of Dentistry, Complutense University of Madrid. Mia Rakic is President Elect of the European Federation of Periodontology and a member of its Board of Directors and Scientific Committee.

Mia Rakic's main areas of research are bone markers, precision biomaterials for bone regeneration, implant surface alterations, and titanium particle diseases. Mia Rakic's current work focuses on the personalization of clinical strategies for the treatment of peri-implant diseases through the use of biomarkers, targeted therapies and machine learning algorithms and on the improvement of assessment standards in preclinical and clinical studies in periodontology and oral implantology.

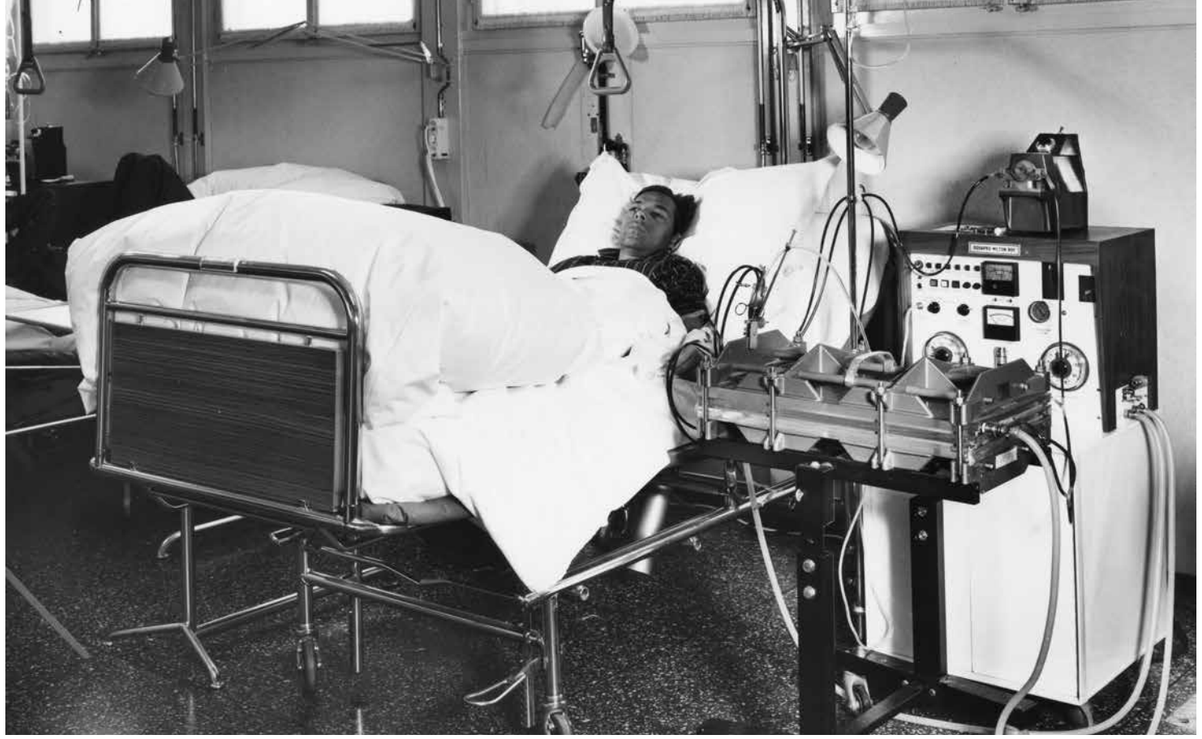
In Memoriam: Prof. Yitzhak Zimmer

The Faculty of Medicine remembers Prof. Yitzhak Zimmer, Head of Research at the Department of Radiation Oncology, who succumbed to a serious illness on June 16, 2024. We express our sincere condolences to Yitzhak's family and friends and bid a solemn farewell to an exceptional scientist, biologist, teacher, and personality.

Yitzhak Zimmer completed his master's degree in biology at Tel Aviv University in 1986 and his PhD at the Weizmann Institute of Science in Rehovot, Israel, in 1994. His PhD focused on fibroblast growth factor receptors and was supervised by two pioneers in receptor tyrosine kinase research, Prof. David Givol and Dr. Avner Yayon. After a short fellowship in the laboratory of Dr. Shulamit Michaeli, Yitzhak Zimmer received postdoctoral training in transgenic animal models at the Central Nervous System Department of Ciba-Geigy in Basel. In 1997, he returned to Israel as a research associate at Tel Aviv University Medical School and finally in 2000 settled in Bern as the head of the Laboratory for Radiation Biology at the Inselspital. Here, he pursued extensive research activities in molecular radiation biology, always with a strong interest in basic research that was embedded in translational applications. He was fascinated by the interplay between ionizing radiation and molecular coping mechanisms and the resulting potential implications for patient care.
In 2013, Yitzhak Zimmer habilitated at the University of Bern in molecular and cellular biology and became an associate professor in 2018.

Along with his team, Yitzhak Zimmer ceaselessly investigated the impact of the receptor tyrosine kinase MET and its signaling pathways on cellular DNA damage response and the impact of this crosstalk on cancer patients' outcome. His research also encompassed the topics of genomic profiling of head and neck cancer, protein phosphorylation signatures of irradiated cells, targeted therapy response predictions, and lately, the plausible use of anti-MET CAR-T cell approaches in glioblastoma. His research was supported by numerous third-party grants. Yitzhak Zimmer supervised and inspired numerous master and PhD students and was active as a supervisor, co-advisor, and mentor at the Graduate School for Cellular and Biomedical Sciences. Together with Prof. Deborah Stroka and Prof. Mario Tschan, he founded the Bern Cancer Research Cluster. This collaborative academic initiative expanded into the current Cancer Research Network Bern, which promotes young scientists and interdisciplinary cooperation in tumor medicine. Yitzhak Zimmer was also a prominent figure in radiation biology research. For many years, he was a member of the Executive Committee of the Scientific Association of Swiss Radiation Oncology.

Much too early and just two weeks before his retirement, Yitzhak Zimmer succumbed to the illness he had fought for almost two years.
The Faculty of Medicine is grateful for his scientific contributions and tireless dedication. Yitzhak Zimmer's passion for science and his pronounced sense of humor will be kept in fond memory by all.



Breakthrough with new equipment: Alfred Blumberg introduced Fredrik Kiil's parallel plate dialyzer in Bern. Ernst Grob, private

Historical Spotlight: The Arrival of Kidney Replacement Techniques in the Swiss Healthcare System

The history of today's Department of Nephrology and Hypertension illustrates both the effort required to adopt innovations and the uncertainties inherent in the process.

During the early Cold War period, the Medical Polyclinic of the University of Bern was the hub of Swiss renal medicine. In the late summer of 1960, François Reubi (1917–1997), the head of the clinic, and his staff received a visit from a rising star in nephrology: the Seattle physician Belding Scribner (1921–2003).

Only six months earlier, Scribner's team at the University of Washington School of Medicine had achieved a breakthrough in long-term dialysis. They had developed an implantable Teflon tube system, termed a shunt, to repeatedly connect an artificial kidney to a patient suffering from chronic organ failure.

Finding treatments for chronic kidney disease had become a pressing issue at that time in Switzerland. The widespread use of painkillers had altered the prevalence of severe organ damage. In particular, women employed in the watchmaking and textile industries were given kidney-damaging compounds containing phenacetin and caffeine, often by overseers and sometimes at the employer's expense, to help them endure their exhausting work. Phenacetin nephritis became a common diagnosis.

During his brief visit to Bern, Scribner trained physicians in shunt construction. In Seattle, the development of the connector led to the formation of the world's first long-term dialysis center. In Bern, by contrast, it took another five years before the first successful long-term dialysis was achieved despite direct guidance from the developer himself. What delayed the adoption of Scribner's method?

A research stay made the difference: François Reubi with Alfred Blumberg, who performed Switzerland's first successful long-term dialysis in April 1965. Anonymous photographer, private.

Equipment and patients matter

Reubi's clinic did not attempt to replicate Scribner's procedure exactly. Instead, the physicians combined the shunt with the equipment the clinic had operated since 1956 to treat reversible acute renal failure, a rotating drum dialyzer developed by Swedish doctor Nils Alwall (1904–1986). However, Scribner was using modified parallel plate dialyzers. Dialysis with Alwall's machine was more complicated, making it harder to achieve stable results.

However, the most promising of the Bernese cases failed because of the patient. This man had the shunt implanted and was sent home in a stable condition but did not return for further dialysis. He died at home at the age of 33.

The Bernese team instructed by Scribner was disbanded due to career changes after only three treatment attempts in 1961. Reubi shifted focus from long-term dialysis to transplant medicine, which was seen as the more promising approach to dealing with chronic kidney failure. For many physicians, it was unimaginable that long-term dialysis could provide a life worth living.

Kidney transplantation as a competing technique

In March and June of 1964, the staff of the Medical Polyclinic, along with a team led by local vascular surgeon Albert Senn (1919–2008), performed Switzerland's first two kidney transplants after observing the approach taken by a team in Paris. These attempts to establish the alternative kidney replacement technique of the time also failed.

The first patient, a 27-year-old woman, died from an infection within two weeks of the surgery. This case highlights the lack of a balanced approach to suppressing the body's immune response. Furthermore, archival sources reveal that some precautions were inadequate. Medical interest in the case was so great that many physicians who were not involved in the procedure attended as guests in the operating theater or visited the patient's bedside.

The second transplant underscores the pressure under which the surgeries were conducted. Without long-term dialysis, the physicians had no choice but to either attempt the transplant or let the patient die. In June 1964, they attempted a transplant across blood groups. Due to the state of research at the time, they were not fully aware of the additional challenges this posed.

After these failures, Reubi's group returned to long-term dialysis and did not attempt another kidney transplant until 1968. In the winter of 1964–65, Reubi hired Alfred Blumberg (1932–2020), who had just returned from a two-year research stay in Seattle. With the help of nurse Johanna Blumberg (1931–2020), his wife, he replicated Scribner's method precisely, which led to Switzerland's first successful long-term dialysis.

The beginning of a new renal medicine: The Bernese Medical Polyclinic used Nils Alwall's rotating drum dialyzer to treat reversible renal failure in the 1950s. Institute for Medical Education, Department for Education and Media, University Library of Bern, History of Medicine

Financing the most expensive treatment of the time

In April 1965, clinical obstacles to establishing long-term dialysis in Bern had been overcome. Soon, Reubi began planning a dialysis unit. This opened in 1967 and is the predecessor of today's Department of Nephrology and Hypertension.

The challenge shifted to financing what was the most expensive treatment of the time. Switzerland's healthcare system was highly fragmented, with significant disparities in the size of insurance providers. In 1965, 49 larger health insurance funds shared the market with over 900 funds with fewer than 10,000 members. A single long-term dialysis patient could have upset the finances of a small insurance company.

The health insurers resolved this problem through a joint reinsurance provider. Starting in 1967, this provider assumed responsibility for funding the treatment costs, and the cantons financed the first dialysis facilities through state budgets. In 1971, roughly ten years after the invention of the Teflon shunt in the US, Swiss physicians reported that their country had the highest dialysis density in the world.

Funded by public resources and operated with the support of a reinsurance provider: The dialysis unit ward at the Medical Polyclinic of the University of Bern in the 1970s. Ernst Grob, private.

What suffering am I willing to live with?

The kidney replacement techniques of the 1960s were crucial to the emergence of nephrology as a distinct medical specialty. They also created an entirely new group of patients.

Kidney patients in the 1970s faced questions similar to those that the broader Swiss population has been encouraged to confront since 2013, when advance directives or living wills became nationally regulated: What suffering am I willing to live with? When would I choose death instead? But in the 1970s, there was no consensus on where the patients' autonomy began and where medical authority ended. Once again, the Bernese Medical Polyclinic played a role in addressing the issue. Fritz Kropf (1923–1978), one of its patients, initiated a support group. Founded in 1975, this organization has since influenced the shaping of medical care and the conflict between external control and self-determination.

Further reading: Ingold, Niklaus: Das erste Ersatzorgan. Die künstliche Niere und die Ausweitung des medizinisch Möglichen im Schweizer Gesundheitswesen, Zürich 2024.

Dean's Office

Prof. Claudio L. A. Bassetti
Dean

Dr. Lukas Stalder
Head of the Dean's Office

Dean's Office Administration Teaching and Research

Dr. Marcel Wullschleger
Head

Dr. Peter Frey
Project Management Teaching Capacities

Pia Jäggi
Finances

Nicole Peter
Quality Manager until August 2024

Nadia Möri
Research Evaluation, Coordination of National and International Relations a.i.

Mirjeta Murina
Assistant to the Head of the Dean's Office / Administration

Marc Oboussier
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Nadine Probst
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General Secretariat

Dr. Eliza Isabaeva
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Emilie Ballestraz
Coordinator Internationalization and National Networking

Carmen Betschart
Deputy Head

Romano Hönger
Assistant to the Dean

Dr. Roger Konrad
Communications Officer

Svea Lehmann
Equal Opportunities Coordinator

Rita Meyer
Appointments, habilitations

Isabelle Salzmann
Dissertations, confirmations

José Schranz
Annual Report Officer

Franziska Studer
Dissertations, graduation documents, graduation ceremony

Successions Professorships

Tina Schubert
Co-Head (operative)

Dr. Jacqueline de Sá
Co-Head (academic)

Gabriela Brügger
Project Management

Sanche Schwab
Successions, IT support

Dean's Office of Student Affairs

Claudia Buser
Head

Beatrice Ducret
1st Year Administration, enrollment inquiries, top-class sports & studies

Karin Erb
EKP administration, Master Theses

Sarah Habegger
Student's Office, Elective Year

Alexandra Lehmann
Administration of elective course SJ1/SJ2, Master's lectures, PJ certificates

Barbara Rechsteiner
1st Year Study Coordinator, Administration of the Master in Pharmacy

Dr. Marcus Haag
Study Coordinator
3rd – 6th Year

Dr. Franziska Busch
Project management strategy implementation education

Isabel Fahrni
Administration 3rd year lectures and seminars

Franziska Kolb
Administration 2nd year, SK1 and block courses

Dr. Nino Räschle
Project management strategy implementation education

Anja Rüegsegger
Assistant to the Dean of Education and to the Head of Student Affairs

Franziska Schmidhauser
Administration PBL-Tutors

Regula Walther
Clinical Skills Training and 3rd Year Courses

Dr. Sandra Trachsel
2nd Year Study Coordinator

Daniela Wuillemin
Administration Clerkships, Courses 6th Year SK2

Education

Promoting interprofessional education is a strategic goal of the Faculty. The year 2024 brought a long-awaited boost in this field. Under the project management of Dr. Franziska Busch, exchanges with other medical education institutions were intensified, and the implementation of various interprofessional teaching formats was initiated. This boost also bore fruit within the Faculty. Therefore, it is no coincidence that four projects with interprofessional teaching content were funded by the FILMED program for innovative teaching projects in 2024.

Misunderstandings surrounding a political proposal in the Federal Parliament in the summer of 2024 caused a great deal of controversy. The successful proposal called for an adjustment of the entrance examination for medical studies, but not for the abolition of admission restrictions, as it was often misrepresented. The debate was triggered by the shortage of doctors in certain specialties. As one of Switzerland's largest educational institutions, we will continue to engage with this issue beyond 2024.

PD Dr. Roman Hari
Dean of Education

Content

Promoting Interprofessional Education in Medicine

Interprofessional education represents a strategic teaching goal of the Faculty of Medicine. Franziska Busch is invested in implementing interprofessionalism into medical education. Her role as project lead at the Dean's Office of Student Affairs supports her efforts in this field. As senior physician at the Division for Neonatology at Inselspital Bern, she is familiar with the benefits and challenges of inter-professionalism from an everyday clinical perspective.

Dr. med. et cand. MME Franziska Busch
Senior Physician Neonatology
Project Management Strategy
Implementation

The term „interprofessionalism" can be interpreted in many ways. What does interprofessionalism in health care mean to you?
Franziska Busch: Interprofessionalism means achieving the highest standards of care *because of* rather than *inspite of* numerous and even controversial perspectives and personalities.

Switzerland has a high quality health care system. Why do we need more interprofessionalism in human medicine?
We know that interprofessional education improves teamwork and communication skills as well as error management and, last but not least, patient safety. In times of shortage of medical specialists across all professions, we need to offer more attractive, more rewarding ways of learning and working with each other. Upcoming generations of health care professionals want to feel worthy; they want to go home at the end of the day knowing they have made a difference, knowing they have been recognized by others. Interprofessionalism increases the perception of one another as one team working together to serve a common purpose.

Does this also motivate you to get involved in interprofessional teaching alongside your clinical work?
As a doctor, I see clinical work and education tightly intertwined on a daily basis. Education is an investment in our future as medical professionals. The more we try to put education to good use now, the sooner our future generations will benefit from it. We cannot afford to let any more highly qualified personnel drift off into other professions for lack of recognition and a feeling of detachment. We know that people learn best in a nurturing environment of common interest, minimal hierarchy, and honest, well-intended feedback from their peers. Interprofessional education serves all those purposes at once. By embracing this advantage, we can make a real difference for future learners today.

The study of human medicine is highly regulated and extensive. Is there room for interprofessionalism?
In my opinion, it is not a question of whether there is room, it is a question of whether we are willing to prioritize interprofessional education over other structures and teaching approaches. Modern education values peer-to-peer teaching as well as learning, and clinical reasoning in diverse teams over frontal lectures and the rather "passive gathering" of information. Students expect medical education to develop alongside them, they choose which faculty best meets their needs. It is our job to live up to their expectations.

There have been a number of very promising interprofessional initiatives here in Bern, some of which are currently piloting, some of which have been ongoing. For instance, a project with Bern University of Applied Sciences and SHAPED® (Swiss Health Alliance for Interprofessional Education) involves implementing clinical case discussions as well as medical quizzes and game-based interprofessional exchange between future midwives, nutritionists, nurses, physiotherapists, pharmacists, and medical doctors into the medical curriculum. Demonstrating that these initiatives succeed and that feedback from students and facilitators strongly supports these efforts will make their promotion easier in the future.

FILMED Grant Projects

Since 2022, the Faculty has awarded funding for the development of innovative teaching projects as part of the FILMED program. This enables lecturers and project leaders to devote the time necessary to design, implement, and evaluate such innovative projects. Four collaborative projects were selected for funding in 2024. Congratulations to the lead applicants, their co-applicants, and the project partners.

Dr. Anina Pless, MME

Institute of Primary Health Care (BIHAM)

Interacting with people with disabilities – curriculum design and introduction of a two-part practical course for medical students
Persons with disabilities amount to one fifth of the Swiss population. Physicians-in-training receive little instruction in interacting with them. This can adversely affect the health care of persons with disabilities. Anina Pless' project addresses this gap by raising medical students' awareness of the specific needs of these patients. A pilot project with two practical courses is being conducted with 20 volunteer students in collaboration with Sensability, an organization that promotes inclusion and is run by persons with disabilities. In the first course, students simulate different disabilities under the supervision of Sensability members and increase their awareness of challenges and barriers. In the second course, students practice specific clinical situations like physical examinations with persons with disabilities and receive feedback.

Julian Mücke

Institute for Medical Education (IML)

Interprofessional ward round training
Ward rounds bring together different professions to find the best solution to a health problem. Although they are a key activity in inpatient healthcare, ward rounds receive little attention in the medical curriculum. The aim of the project, which has been developed by Julian Mücke, Daniel Bauer, and Kai Schnabel, is to integrate interprofessional ward round training into the curriculum. In the project, degree programs at the University of Bern (Human Medicine, Pharmacy, CAS Palliative Care), the Bern Center of Higher Education of Nursing (where the program already exists), and the Bern University of Applied Sciences (School of Health Professions) will collaborate to develop and implement a joint interprofessional ward round training program, which is to be incorporated into the mandatory curricula of the participating institutions in the medium term.

Dr. Karen Maes

Institute of Primary Health Care (BIHAM)

Independent interprofessional teaching formats: pairing of students, interpro kits & shadowing
The degree programs in Pharmacy, Nursing, Physiotherapy, Human Medicine, Midwifery, as well as Nutrition and Dietetics have hardly any overlap. The implementation of systematic interprofessional education is difficult. For this reason, Karen Maes and Sandra Wüst will develop and implement individually organized interprofessional teaching formats for students from these programs using three teaching formats: The pairing (i) serves to connect students from different healthcare degree programs, to exchange, and to learn from each other. The interpro kits (ii) enable students to work together to solve clinical or communication cases through peer learning, with the focus on the patient. The job shadowing (iii) opens up the opportunity to get to know each other's professions in real setting. The development of the three teaching formats will involve students and lecturers from all disciplines.

Dr. Sebastian Halm

Institute of Anatomy

Applied Anatomy – interprofessional, practical course in physiotherapy – medicine
Sebastian Halm's project aims to improve the practical application of anatomy learning content and at the same time to increase interprofessional exchange between students of medicine and physiotherapy.
An earlier pre-pilot with a joint practical training course on the cervical spine with 44 physiotherapy students and 55 medical students showed excellent results. The course has increased the participants' understanding of each other's profession. Building on this, the practical training course will now be implemented as a pilot project in the 3rd year of medicine and the 2nd year of physiotherapy with around 300 and 100 students respectively. The structure of the pre-pilot will be preserved; however, the learning objectives will be expanded to include the lumbar spine.

Association of the Lecturers of the Faculty of Medicine

The VDM (Verein der Dozierenden der Medizinischen Fakultät) represents the interests of the academic mid-level staff in teaching, research, and service and promotes contact and the exchange of information among its members. It is committed to fostering early-career researchers and equal opportunities for women and men.

All lecturers and professors of the Faculty of Medicine who are not permanent members of the Faculty may become members of the VDM. The association is financed by the voluntary contributions of its members.

The VDM Board represents the VDM on the Faculty Council and consists of the President, the Vice-President, the Actuary, and five other members. The members of the Board are elected for a term of three years. Re-election is possible.

Members of the Board in 2024 were
Prof. Uyen Huynh-Do, President
Prof. Jean-Marc Nuoffer, Vice-President
Prof. Jan Kucera, Actuary
Prof. Marcel Arnold
Prof. Kathleen Seidel, since January 24
Prof. Manuela Funke-Chambour
Prof. Florian Schönhoff
Prof. Mario Tschan

We thank Prof. Gabriela Baerlocher for her past activities in the Intrafaculty Commission for Equal Opportunities and in the VDM board, and welcome Prof. Kathleen Seidel. Prof. Manuela Funke-Chambour now represents the VDM in the Intrafaculty Commission for Equal Opportunities. Prof. Jan Kucera has been elected to the Library Commission.

The current VDM President, Prof. Uyen Huynh-Do, serves in three faculty working groups: Commission for Communications, Research Committee, and as president of the Professorship for Gender Medicine structural commission. The VDM Vice-President, Prof. Jean-Marc Nuoffer, is a permanent member of the Resources Committee of the Faculty.

In 2024, VDM representatives were delegated to more than 10 structural and succession commissions. We would like to thank all the representatives for their important contributions.

In 2024, the yearly VDM general assembly took place on August 29, 2024. The guest speaker was Ms. Regula Steiner, who has been the Vice-President of the Ethics Commission of the Canton of Bern (KEK) since January 2024.

Verein der Dozierenden der Medizinischen Fakultät Bern (VDM)
Institut für Physiologie
Bühlplatz 5, 3012 Bern

Teacher of the Year Award - a Little Glimpse to the Graduation Ceremony 2025

The Local Student Association of Bern's Medical Students and the Faculty of Medicine honor particularly dedicated and talented teachers with the Teacher of the Year Award.

Our students are the experts in judging good teaching. For this reason, they have elected a Teacher of the Year every year since 1987. The Local Student Association of Bern's Medical Students (fsmb) organizes the election. Since 2023, the students have elected a Teacher of the Year for both bachelor and master studies. The award is presented to the winners at the graduation ceremony.

The 2024 winners are PD Dr. Martin Lochner from the Institute of Biochemistry and Molecular Medicine for the bachelor studies and Prof. Christian Jackowski, Director of the Institute of Forensic Medicine, for the master studies. Third-year students Sabine Held and Aeneas Rufer represented the fsmb in honoring the two winners with laudations at the graduation ceremony on March 1, 2025.

PD Dr. Roman Hari, Dean of Education, announced the Teachers of the Year

Teacher of the Year Master Studies
Prof. Christian Jackowski with Aeneas Rufer and Sabine Held

Teacher of the Year Bachelor Studies
PD Dr. Martin Lochner with Aeneas Rufer and Sabine Held

Laureate PD Dr. Martin Lochner

Biochemistry is hard, but with Martin Lochner it's more than doable!
Student's comment

Teacher of the Year Award - Bachelor Program

Biochemistry is often rumored to be the most feared subject among medical students. Complex formulas, endless amino acid sequences, and tireless pipetting can be overwhelming – unless you have a teacher like PD Dr. Martin Lochner!

Next to managing and engaging in his research on the chemical synthesis of small molecular tools to contribute to the study of membrane proteins, PD Dr. Martin Lochner gives his lectures with great passion and ensures his knowledge is conveyed well. "Biochemistry is hard, but with Martin Lochner, it's more than doable!" one student shared. His talent lies in breaking challenging topics down into clear and digestible parts. His lectures flow effortlessly, simplifying complex pathways and ensuring the material stays present, memorable, and practical.

What sets him apart is his effort to actively engage with students, whether during lectures or in biochemistry practicals. Martin Lochner takes the time to explain difficult concepts, diving deeper when curiosity sparks and questions arise. He emphasizes communication as paramount to learning. With interdisciplinary experience, he bridges the gap between the way different fields view concepts: where molecular biologists see amino acids as building blocks and sequences, chemists might see a formula. This perspective has shaped his creative teaching style: He frequently uses graphs, cartoons, and even his unique collection of thematic t-shirts (BaZnGa!) to communicate his knowledge and explain complex concepts.

His structured, concept-focused approach makes biochemistry not just manageable, but genuinely worthwhile. He prioritizes big-picture understanding over dull memorization of details, helping students grasp the essence of biochemistry with clarity and confidence.

About the laureate

While studying chemistry in Zürich, Martin Lochner quickly realized his passion for the biological and medical aspects of the field.

As a postdoctoral research fellow at Cambridge (2004-2005), Martin Lochner made a shift from pure chemistry to biochemistry, exploring neuroscience at a molecular level. This experience opened his eyes to how different disciplines approach problem-solving – shaping his attitude towards both research and education and hence driving his passion for collaboration and innovation.

Beyond the lab and lecture hall, Martin Lochner's passion for proteins and chemical interactions extends into his artistic pursuits. He enjoys working with fluorescence and creating colorful chemical compounds, combining his scientific expertise with an artistic flair. A music enthusiast, he attends live concerts – ranging from stoner metal and dark wave to indie. In 2024 alone, he attended 35 concerts! His diverse interests, from neuroscience to spray painting, and his ability to find inspiration in other fields, make him a truly interdisciplinary thinker with a gift for brilliant teaching.

The students are grateful for the effort he puts into teaching and congratulate PD Dr. Martin Lochner on winning
the award.

Laureate Prof. Christian Jackowski

...uncovering the truth, but doing so with respect, precision, and care for everyone involved.
Prof. Christian Jackowski

Teacher of the Year Award - Master Program

Known for his integrity, expertise, and unwavering dedication to his field, Prof. Christian Jackowski's well-structured and passionately delivered lectures (SK1) are eagerly awaited by his students. Through his eloquent and enthusiastic approach, he has earned the 2024 Teacher of the Year Award, awarded annually by the students of the Faculty of Medicine at the University of Bern.

As the director of the Institute for Forensic Medicine and a specialist in postmortem imaging, Prof. Christian Jackowski views forensic medicine not just as uncovering the truth, but about doing so with respect, precision, and care for everyone involved. Forensic medicine is as varied as it is demanding. It involves office work, practical investigation, and travel across the canton. Every case is unique, and the work is anything but monotonous.

As an educator, Christian Jackowski brings his broad experience to medical students. His teaching is guided by honesty, transparency, and a focus on reality. He believes in presenting forensic medicine as it is – without embellishment or dramatization. Through his lectures, he sensitizes students to the importance of postmortem examinations, aiming to reduce the stigma and hesitation surrounding death.

He provides detailed lecture notes and a list of frequently asked questions for self-study. In the lectures, he then proceeds to show how to use the knowledge, often choosing seemingly unremarkable cases that demand a closer look. His goal is to teach students how to examine the overlooked, recognize the unrecognizable, and approach every situation with thoroughness and care. By comparing media reports of incidents to the actual forensic findings, he encourages critical thinking and teaches students to approach cases with skepticism and scientific intuition.

In his own words "Where there is life, there is also death," but his encounters with death have shown him some of the most life-affirming moments, filled with grace and humanity. This ability to balance scientific thoroughness with compassion and dignity encourages students to approach their future work with curiosity, care, and professionalism. And most importantly, to always pursue what brings the greatest satisfaction!

About the laureate

Initially more interested in physics and training three times a day for competitive pole vaulting, Christian Jackowski wondered if he could manage medical studies as well. Still, he pursued a career in medicine, even though the stereotypical image of white coats, white walls, and pale faces never appealed to him.
He eventually found his way to forensic medicine when he came across an advertisement for a research position in postmortem imaging at the University of Bern. This residency (2003-2007) offered a perfect blend of his interests – combining the physical sciences with practical work and medical applications. Over the years, he built a successful academic career in a field that truly fulfills him. And thanks to his colleagues from ballistics, he still gets to discuss and explore his passion for physics.

The students are glad to have committed teachers like him and congratulate Prof. Jackowski on winning the award.

fsmb Executive Board at our General Assembly in December 2024

Local Student Association of Bern's Medical Students

The fsmb (Fachschaft Medizin der Universität Bern)

- is a student-led organization dedicated to supporting and representing medical students
- provides a key link between students and the faculty, fostering communication and collaboration
- contributes to optimizing studies
- has elected spokespeople in each study year who act as contacts for students and represent the academic year in the fsmb board
- functions as a bundled voice for Bern's medical students: The Executive Board gathers student concerns, explores solutions, and engages in dialogue with faculty and administrative bodies
- represents medical students in various commissions of the Faculty of Medicine to ensure their right to co-determination
- offers several assistance services and events such as clinical language courses, ski and sports weekends, stethoscope sales, the Medifest, a welcome aperitif for master students from Fribourg, and much more (see our homepage)
- elects its board at the annual general meeting; interested students are always welcome to join!

Our new structure

The past year has been one of transformation and growth for the fsmb at the University of Bern. With nearly 50 dedicated members, our board is now larger than ever. However, the rapid increase in size has also pushed us to our organizational and logistical limits. To address this, a working group undertook a complete restructuring of the board last summer.

We have been implementing this new structure since autumn 2024 and are proud to say that it has made our board significantly more professional and efficient. We can now fully harness the potential of our many members.

To make our work even more effective, we have divided the board into six departments, each led by a dedicated head:

Administration is responsible for internal organization, communication, and coordination within the fsmb.

Finance manages financial resources and ensures sustainable funding for our projects.

Student Services organizes and oversees student support initiatives, including study materials, courses, and additional resources.

Representation advocates for medical students on university committees and decision-making bodies.

Year Representatives facilitate communication between the year groups and the board.

Events plan and organize activities that enrich student life and strengthen the sense of community.

This new structure both enhances our efficiency and clarity and allows us to implement our projects in a more targeted and professional manner. We firmly believe that this restructuring and our continued growth bring enormous value to students, the university, and medical education as a whole.

We look forward to a year full of new projects, exciting developments, and an even more active fsmb at the University of Bern.

Lectures by Night—A new initiative by the fsmb

The Lectures by Night are a pilot project launched by the fsmb board in the spring semester of 2024. This format aims to address current or overlooked topics that matter to students and provide them with engaging and diverse insights. The events feature a variety of formats, including panel discussions, documentary screenings, guest lectures, and much more! Each session takes place in the evening in a lecture hall and is followed by an interactive discussion and Q&A session, accompanied by an apéro organized by us.

The first Lecture by Night, titled Tips and Tricks for Hospital Life – Insights from Four Junior Doctors, was a tremendous success. The event attracted a large audience who engaged in thought-provoking discussions even at a late hour.

Given its popularity, the Lectures by Night have now become a permanent initiative of the fsmb. We plan to organize two to three such events per semester to continue bringing relevant and inspiring topics to our students.

fachschaft medizin
universität bern

School of Human Medicine

For over two centuries, the Faculty of Medicine in Bern has fostered excellence in educating future physicians. Today, it proudly stands as Switzerland's second-largest institution dedicated to medical education, renowned for its innovative and practice-oriented approach.

Profile

- The School of Human Medicine emphasizes the integration of practical, patient-centered training methodologies.
- The learning objectives, which form the basis of the Federal Licensing Examination, are aligned with the PROFILES framework.
- The Bachelor's curriculum equips students with a solid foundation in pre-clinical and clinical concepts, ensuring a comprehensive understanding of medicine.
- The Master's program continues to deliver subject-specific, practice-oriented study models with a strong emphasis on bedside teaching in both hospitals and general practices.
- Offering a wide range of opportunities in various medical disciplines, the Inselspital remains a cornerstone of clinical training.

Figures

Bachelor of Medicine: number of students 2024

Year 1 (human medicine and dentistry)	423
+ USI students (human medicine)	15
Year 2 (human medicine and dentistry)	384
+ USI students (human medicine)	15
Year 3 (human medicine only)	300

Master of Medicine: number of students 2024

Year 4	334
Year 5	304
Year 6	330

Federal Licensing Examination in 2024

Clinical Knowledge:	Clinical Skills:
305 candidates	307 candidates
305 passed	302 passed
0 failed	5 failed
100% pass rate	98.4% pass rate

School of Human Medicine
Murtenstrasse 11, 3007 Bern

School of Dental Medicine

The zmk bern School of Dental Medicine stands out among dental schools with its integrated, interdisciplinary synoptic curriculum, emphasizing problem-based learning and clinical case studies. A strong focus on evidence-based treatment concepts underscores the program's dedication to excellence in education. Both the Bachelor and Master programs are aligned with the Swiss national curriculum for dental medicine and were accredited in December 2018 by the Rectors' Conference of Swiss Universities, following the endorsement of the Swiss Accreditation and Quality Assurance Agency for Higher Education, as part of the Bologna Process.

The Bachelor of Dental Medicine (B Dent Med) program spans three years. The first two years are conducted alongside the Human Medicine curriculum, followed by a year at zmk bern with a focus on dedicated dental propaedeutic courses, concluding with a final examination. It is important to note that the B Dent Med degree does not grant eligibility for obtaining the Swiss dental license.

The Master of Dental Medicine (M Dent Med) program emphasizes the development of clinical expertise and theoretical knowledge. Students are rigorously evaluated on their ability to perform interdisciplinary treatments, theoretical understanding, and analytical skills. The program culminates in the completion of a Master thesis, which may take one of the following forms:

- Academic discourse on a dentistry-related topic,
- Comprehensive case study with systematic literature review,
- Documentation of academic research (e.g., clinical trial protocol), or
- Fully developed e-learning case.

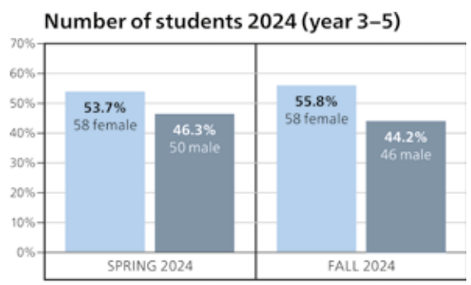
Swiss national examination in dental medicine

To obtain the Swiss dental license, graduates of the M Dent Med program must pass the Swiss National Examination in Dental Medicine. This standardized examination, introduced in 2011, is administered simultaneously across Switzerland in German and French. Successful candidates are eligible to apply for a dental license in any Swiss canton, enabling them to practice independently. Additionally, the Swiss dental degree is recognized as equivalent within the European Union and is a prerequisite for formal postgraduate training in federally recognized dental specialties.

Graduates 2024 at the zmk bern

In 2024, 38 candidates (20 women and 18 men) successfully completed the Master's examination in Dental Medicine. The number of undergraduate students at zmk bern, including both Bachelor's and Master's programs, as well as the gender distribution, are illustrated in the accompanying figure.

Number of students 2024 (year 3–5)



School of Dental Medicine
Freiburgstrasse 7, 3010 Bern

Master of Science in Artificial Intelligence in Medicine

The master's program covers topics from artificial intelligence, machine learning, and deep learning to their practical applications in the medical field.

In addition to AI focused courses, the curriculum includes courses related to medical and clinical practice, providing students with valuable insights into the daily operations of the clinical world and guiding them in the effective integration of AI into the medical domain.

The MSc thesis project is conducted in collaboration with distinguished physicians from Insel Gruppe, internationally acknowledged AI researchers from the University of Bern and leading Swiss and international companies.

Profile
- Interdisciplinary two-year full-time program in English
- Admission with BSc in a variety of STEM subjects
- Compatible with up to 40% work
- Rotations in university hospital departments
- Fundamental and applied courses in AI
- Strong ties to industry and hospitals

Figures
- Gender ratio (f/m): 2/3
- Graduates in 2024: 7
- Students currently enrolled in the program: 40

2024 Freshers
We have welcomed our biggest cohort so far to the MSc AI in medicine! Before the semester started, they took part in a 5- day preparation course. The week ended with a networking apero to which all current students were also invited. It was a pleasure to meet all of the freshers and see them settle into their new studies. We're excited to see what they achieve and wish them the very best.

Discover our "My thesis in 180 seconds" videos
In collaboration with our recent graduate students, we have created "my thesis in 180 seconds" videos to highlight our student master theses. The videos provide a brief explanation of the thesis as well as its relevance to current research. The videos can be found on our YouTube channel.

To the YouTube channel of MScAIMBMEUniBe

AIM students at CAIM research symposium
The CAIM symposium introduced a selection of projects supported by the Center for AI in Medicine (CAIM) as well as the CAIM Fellows and their projects. The topics discussed ranged from cardiology to digital care assistants with a keynote presentation on the future of AI in radiology by Daniel Rückert. Our students learnt about the various research projects undertaken by our centre and got the opportunity to network with professors and specialists of the field.

New Erasmus agreements with Harakopio University of Athens
The master program has signed an agreement with the Department of Informatics & Telematics and the Department of Nutrition and Dietetics at Harakopio University of Athens allowing our students to go on an exchange to Greece. We're very excited about this collaboration and look forward to seeing the first students go on exchange next year. We are continuing to work on establishing further agreements with European universities.

HAROKOPIO UNIVERSITY

AIM students visit MEDICA
A few of our students attended MEDICA, one of the world's leading medical technology fairs, through a trip organised by the Biomedical Engineering Club. The fair, taking place on the 11th -14th of November, brought together businesses, researchers and medical practitioners from all over the world to present and explore innovations in med-tech, digital health, medical software and diagnostics. The trip was the perfect opportunity for our students to network and
discover the possibilities of AI in the medical field.

Master of Science in Artificial Intelligence in Medicine
Freiburgstrasse 3, 3010 Bern

Master of Science in Biomedical Sciences

The Master Program in Biomedical Sciences aims to train young biomedical scientists to provide contemporary skills sought by Swiss Academic Institutions and Biomedical Research Companies. In the past these employers had struggled with a shortage of suitable local candidates.

Established in 2006, the Biomedical Science programs of the Universities of Fribourg (Bachelor) and Bern (Consecutive Master) have played an important ongoing role in training cohorts of biomedical scientists to address this very issue. The harmonized curriculum of these two universities remains unique in Switzerland in exposing the students to a translational teaching environment involving both natural, medical and pharmaceutical sciences as well as offering insights into clinical research and close links with industry. To achieve a comprehensive translational skill and knowledge base, the first year of the Bachelor Studies in Fribourg conveys a firm basis in natural sciences followed in the second year with lectures shared with medical students to acquire comprehensive knowledge in human anatomy, physiology and biochemistry. During the final year of the Bachelor Studies and the 1st year of the Master studies in Bern, students then acquire a systematic knowledge of the pathophysiology of all organ systems with lectures given by pre-clinical institutes, the university hospital, and pharmaceutical companies. Lecture courses are complemented by practical courses introducing the students to state-of-the art techniques used in biomedical research. The remaining time is devoted to a master thesis project conducted in a laboratory of choice and includes collaborative projects with industry. Our graduates have a broad portfolio of knowledge and skills at the interface between basic sciences and clinical research that enables them to engage successfully in basic, translational and clinical research. This includes emerging fields in human medicine such as precision medicine and increasing application of artificial intelligence.

Profile

- Direct admission with a BSc in Biomedical Sciences of the University of Fribourg or a Bachelor in Human and Dental Medicine
- 1 1/2 year full time study program
- Human pathophysiology is lectured by basic researchers and clinicians
- Courses include practical work in research laboratories and training in modern experimental techniques
- Two laboratory internships (3 weeks each) in research fields chosen by the students allow for deeper insights into research areas of interest
- Elective studies offered include introductions to Clinical Studies, attendance of the Labortierkundekurs 1 (LTK1, completed with a diploma), and a course in career planning
- Opportunities for conducting the Master Thesis in the industry
- Broad portfolio of systematic knowledge and skills at the interface between basic sciences and clinical research
- Graduates are in in high demand for doctoral positions in academia and for research positions in the industry

Figures

- Diplomas since 2011: 247
- Presently enrolled students: 29
- Gender (m/f): 2/27
- 7 biomedical sciences graduated in 2024

CSL Behring Prize 2024

As in previous years CSL Behring sponsored prizes for our best students and these were personally handed over by CSL Behring's Dr. Adrian Zürcher. The CSL Behring Prize 2024 for the best Master's Degrees were awarded to:
1. Rank: Uccelli Isa Naima *5.44*
2. Rank: Kaufmann Anna *5.34*
3. Rank: Schmid Sina Livia *5.2*

CSL Behring website

Uccelli Isa Naima, 1st place

Kaufmann Anna, 2nd place

Schmid Sina Livia, 3rd place

Alumni Biomedical Science Prize 2024

The prize for the best Master Thesis 2024 sponsored by the Alumni Organization went to Yasmine Tschuy for her study on "Developmental and disease-relevant functions of genomic heart enhancers controlling the Hand2 transcription factor". The prize was handed over by Alumni Jessica Roskosch.

The work was conducted under supervision of Dr. Marco Osterwalder, and Co-Supervisor Dr. Julie Gamart from the Department for Biomedical Research.

Yasmine Tschuy, Alumni Prize

Master Program in Biomedical Sciences
Bühlplatz 5, 3012 Bern

The Class of 2024

Master of Science in Biomedical Engineering

The master's program in biomedical engineering is a full-time study program offered in cooperation with the Bern University of Applied Sciences. It aims at training multidisciplinary engineers to deliver scientifically-founded, sustainable and cost-effective solutions for biomedical problems in academia, medical care and industry.

The Curriculum
The full-time study program takes 4 semesters, which corresponds to 120 ECTS. It can be extended to a maximum of 6 semesters. When a student decides to complete the studies in parallel to a part-time professional occupation, further extension is possible on request. To support regular part-time work, mandatory courses take place (with rare exceptions) on only 3 days per week. After the first semester with mostly mandatory courses, which lay the foundation for the specialized courses in the upcoming semesters, students select one of the focus areas («Major Modules») Biomechanics, Electronic Implants, or Image-Guided Therapy. In the last semester, the program is completed by a master's thesis of 30 ECTS.

Profile
- Regular admission with a Bachelor's degree from a Swiss university or university of applied sciences in Engineering, Physics, Computer Science, or related subjects
- Admission "sur Dossier" for motivated talents from other study programs, e.g. Medicine, Biomedical Sciences, (Bio)Chemistry, Biology, or for international students
- International program in English
- Affiliated to a leading university hospital (Inselspital)
- Two-year full-time program but compatible with regular 40% of part-time work
- Oriented towards clinical applications
- Attractive, central location in Switzerland
- Excellent career perspectives

Figures
- 126 students were enrolled in fall semester 2024, 20% were female
- 45 regular and 6 exchange or guest students joined in 2024
- 29% of new students are female
- 54 biomedical engineers graduated over the year 2024

Master of Science in Biomedical Engineering
Freiburgstrasse 3
3010 Bern

Biomedical Engineering Day 2024

The 15th Biomedical Engineering Day took place on the 29th of May in the Ettore Rossi auditorium at the Inselspital in Bern. This annual networking event is a platform where Swiss MedTech companies as well as the BME research groups from the ARTORG Center and the Bern University of Applied Sciences (BFH) present themselves to interested students, researchers, and medical doctors. One highlight of the day was the successful live surgery performed by Karl Sommer from the Department of Urology. Illustrative explanations in the auditorium were given by Beat Roth from the same department.

The BME Day provided an opportunity for lively discussions.

RMS Award 2024

In 2024, the RMS Award went to Mirjam Oppliger for her outstanding grade point average (GPA) of 5.71/6.0. Every year, the Robert Mathys Stiftung (RMS), an independent service laboratory and research institute located in Bettlach, offers it to the BME student with the highest GPA. This year, the prize was awarded by Prof. Marc Bohner during the graduation ceremony of the Faculty of Medicine. Congratulations!

Award winner Mirjam Oppliger with Prof. Marc Bohner (right) and program director Prof. Philippe Zysset (left)

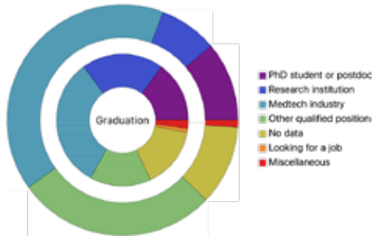
MEDICA

The Biomedical Engineering Club which regroups our alumni and current students, organised a trip to MEDICA in Düsseldorf. MEDICA is the world leading medical technology fair perfect for networking and exploring the potential of medical technologies. Our students got to meet businesses and researchers in fields ranging from medical equipment to digital health and medical software. The trip was perfect for our students to explore where their degree can take them.

Our students at MEDICA in Düsseldorf

Career paths of our Biomedical Engineering graduates

The inner and outer rings represent the activity shares after 1 and 5 years, respectively. Two thirds of the alumni work in biomedical engineering either in industry, research, or academia but the part in industry increases after 1 year. The share of PhD students or postdocs is approximately constant at 15-20 %. After 5 years, about 25% of the alumni hold other qualified positions.



Profession after graduation: activity after 1 (inner circle) and 5 years (outer circle)

Graduation Ceremony 2024

The traditional graduation ceremony of the Faculty of Medicine took place in March at the Kursaal Bern. Thirty-two Biomedical Engineering graduates were honored with a festive program. The event was concluded by an apéro which the students enjoyed together with their family and friends.

Biomedical Engineering graduates on their way into professional life

Bachelor and Master of Science Program in Pharmacy

- Bifacultary study programme with the Bachelor course in Pharmaceutical Sciences at the Natural Sciences Faculty and the Master course in Pharmacy at the Faculty of Medicine
- Bachelor years 1 and 2: Natural sciences (e.g. chemistry, physics, cell biology) and biomedical sciences (e.g. biochemistry, anatomy, physiology, microbiology, plant biology)
- Bachelor year 3: Pharmaceutical sciences (pharmaceutical technology, pharmaceutical chemistry, pharmaceutical biology, pharmacology, epidemiology, clinical chemistry, nutrition, biotechnology, quality management)
- Master year 1 (year 4): Diseases and pharmacotherapy, health promotion and disease prevention, the Swiss health system, scientific methodology; Master's thesis (6 months)
- Master year 2 (year 5): Clinical pharmacy and pharmaceutical care, clinical skills, triage and red flags, vaccination, prescription validation, communication training, business management, law, manufacturing of medicines in the public pharmacy, and other courses; Practical training in a public pharmacy (30 weeks)
- Upon completion of the Master of Science in Pharmacy, the Federal Exam in Pharmacy has to be passed to obtain the qualification to work as a pharmacist.
- In close collaboration between institutes of the Faculty of Medicine (most prominently the BIHAM), clinics of the Inselspital, and practising pharmacists we aim at offering a high-quality, patient-oriented education of our future generations of pharmacists.

Successful completion of the Master's degree and Federal Exams in Pharmacy
In summer 2024, our students sucessfully completed the third Master programme in Pharmacy and received the degree Master of Science in Pharmacy. In September 2024, the third Federal Exams in Pharmacy took place in Bern, and 18 young pharmacists have achieved the federal diploma.

Diploma Ceremony and best Federal Exams Award
At the official diploma ceremony of the Faculty of Medicine in March 2024, the Pharmacy graduates who had successfully completed the Master in Pharmacy and Federal Exams in summer 2023 were celebrated. Mark Kobel and Diana Walker, president and board member of the pharmacists' association ot the canton of Bern, handed over the award for the best results at the Federal Exams in Pharmacy 2023 to Céline Stebler and Noah Näf. Congratulations!

Mark Kobel, Celine Stebler, Noah Naf, Diana Walker (from left to right)

First Pharmacy Master Retreat
The first "PharmaINTENSIV" retreat for the year 5 Pharmacy students was held at the seminar hotel Rigi Kaltbad on the 25th-29th February 2024, expertly organised by Prof. Carla Meyer-Massetti. Lecture topics related to pharmacy practice. On a networking and career day,the students had the opportunity to interact with representatives of pharmacies, professional associations and pharmaceutical companies. Generous support from many sponsors and the commitment of the speakers and exhibitors made this informative and memorable retreat possible. Thank you very much!
Generous support from many sponsors and the commitment of the speakers and exhibitors made this informative and memorable retreat possible. Thank you very much!

Year 5 students with Professors Carla Meyer-Massetti and Verena Schröder

First interprofessional course for medicine and pharmacy students
In 2024, an interprofessional teaching team from the Faculty of Medicine and the Faculty of Law, offered a blended learning course "Interprofessional collaboration from prescribing to dispensing medication: Practical, legal and ethical challenges and opportunities" .Six medical students (study years 3 and 6) as well as 21 pharmacy students (year 5) participated in the course, which will be offered again in 2025. The course was financially supported by a FILMED grant from the Faculty of Medicine.

Successful Master's theses in Pharmacy
The year 4 pharmacy students performed their Master's theses during six months between January and August 2024. The Swiss Society of Industrial Pharmacists (GSIA) sponsored again a prize for an outstanding Master's thesis. The prize was presented by Reto Brügger, GSIA board member, to Jari Röthlisberger for his thesis „Evaluation of factor XIII function in a microvascular bleeding model" carried out at the Department for BioMedical Research (DBMR) and supervised by Prof. Verena Schröder.

Special journal edition on interprofessional collaboration
The interprofessional team at the Institute of Primary Health Care (BIHAM), under the coordination of Dr. Enriqueta Vallejo-Yagüe, played a pivotal role in developing a journal edition of pharmActuel on interprofessional collaboration. This special issue emphasizes strategies for integrating pharmaceutical, edical, and nursing expertise to improve patient outcomes and address systemic challenges, in an effort to strengthen inter-professional synergy in healthcare, with a clear focus on practical solutions and research-based insights.

pharmActuel on interprofessional collaboration hot off the press by Dr. Enriqueta Vallejo-Yagüe

Admin. Office Bachelor
Freiestrasse 3, 3012 Bern

Admin. Office Master
Murtenstrasse 11, 3008 Bern

Bachelor Master

PhD Education

The GCB and GHS offer research-oriented curricula with a wide range of courses, including special workshops and practical courses tailored to the individual needs of PhD candidates.
The emphasis is on high-quality training and support in research methods and study design to direct the candidates towards independent scientific work and enable them to assume scientific responsibility.

Profile of the Graduate School for Health Sciences (GHS)
The GHS offers a research-oriented-curricula on psychological and physiological factors that determine the health of individuals and groups in their social contexts and physical environments.
The requirement for the program is a master's degree in Psychology, Medicine, Biomedicine, Epidemiology, Sport Science, Social Sciences or other fields depending on the respective research project.

Depending on the field of research and on the amount of time invested in research, the candidates are assigned to one of the following expert committees (FKs):

- FK I: Individual Factors, Public Health and Methodologies for Health Sciences Research
- FK II: Neurosciences
- FK III: Clinical Sciences (50:50 model: patient-oriented research and clinical career).

Each candidate is supported by a thesis committee consisting of a thesis advisor (in some cases also a co-thesis advisor), co-referee and a member of an expert committee as mentor.

Graduates receive the following title:
PhD in Health Sciences (specialist area, e.g. Clinical Sciences).

Profile of the Graduate School of Cellular and Biomedical Sciences (GCB)
The GCB offers training in experimental research with state-of-the-art methods in molecular life sciences, biomedical sciences, and biomedical engineering. Research areas include Cell Biology, Biochemistry, Molecular Biology, Immunology, Genetics, Biomedical Sciences, Epidemiology, Tissue Engineering, Computer-Assisted Surgery, and Artificial Intelligence.

There are currently 7 areas of specialization:
- Cardiovascular
- Cell Migration
- Cutting-Edge Microscopy
- Neuroscience
- Precision Medicine
- Stem Cells and Regenerative Medicine
- Tumor Biology

The program requires a master's degree in Molecular Life Sciences, Biomedicine, Medicine, Biomedical Engineering, or a related field depending on the project. There are five expert committees:
- Biological Systems
- Biomedical Sciences
- Cell Biology
- Molecular Biology & Biochemistry
- Biomedical Engineering

Each candidate is supported by a thesis committee consisting of a supervisor, a co-advisor, and a member of an expert committee as a mentor. PhD in …(specialist area according to Study rules). The curricula of the MD-PhD program for medical doctors focuses on basic sciences, but the PhD candidates can spend 20% of their time in the clinic.

Graduates receive one of the following titles from the University of Bern:
- MD,PhD (Doctor of Medicine and Philosophy)
- DDS,PhD (Doctor of Dentistry and Philosophy)

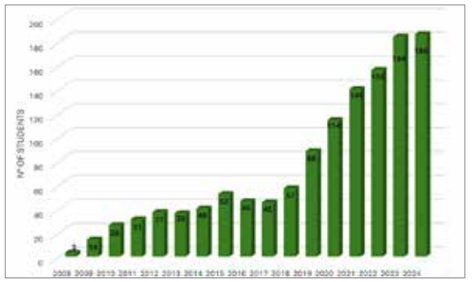
Highlights and important events at GHS
- Growth of 226 % in the number of students from the end of 2018 to 2024.
- Co-organized a successful Basics of Ethics in Health Sciences Research course to offer foundational insights into ethical practices and the key tenets of scientific integrity in health sciences research.
- Changes in the Steering Board Committee: Welcomed Dr. Bernhard Voelkl and Prof. Claudia Spadavecchia from the Vetsuisse Faculty and thanked Prof. Adrian Steiner, outgoing Vetsuisse Faculty representative.
- Thanked outgoing GHS President Prof. Sissel Guttormsen and welcomed Prof. Claudio Nigg as new President from January 2025.
- Welcomed three Student Representatives to the GHS Steering Board.
- Welcomed three new medical faculty expert committee members and thanked three outgoing.
- Two-days GHS Symposium at Studienzentrum Gerzensee was very successful (77 presentations of posters and talks).
- The number of graduations reached a record number for GHS with 34 diplomas issued.

Highlights and important events at GCB
- Admission Applications –142 in 2024, compared to 147 in 2023.
- A most valued colleague and mentor, Prof. Yitzhak Zimmer lost his battle to cancer in 2024. He is missed.
- Ten new mentors of the Faculty of Medicine joined the GCB expert committees.
- The GCB Symposium 2024 was held at the Uni von Roll, Fabrikstrasse 6 & 8, Bern. A new record number of participants were present. The program included 80 talks, 161 blitz talks and 210 posters.
- 51 MD,PhD, five DDS,PhD and 39 DVM,PhD students were registered year end December 2024.
- The ILIAS GCB101, Everything you need to know about how to navigate the GCB processes and requirements in clear, easy-to-understand steps, grew to over 800 members.

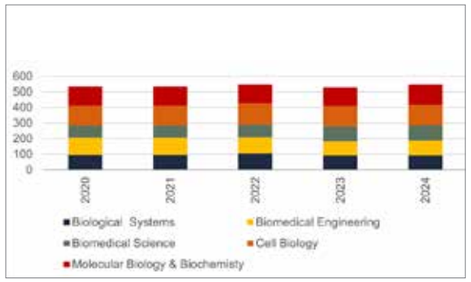
GHS total number of students in 2024
GHS total number of students in 2024: 186 students (which includes 34 graduations, 4 resignations and 38 new applicants in 2024).
Growth of 226 % from the end of 2018 to 2024.
97 % of the GHS Students are pursuing PhD degrees within the Faculty of Medicine.

GCB total number of students in 2024
GCB total number of students in 2024: 549 registered, (which excludes 121 theses defended, accounts for discontinued and includes the 142 new applications in 2024).

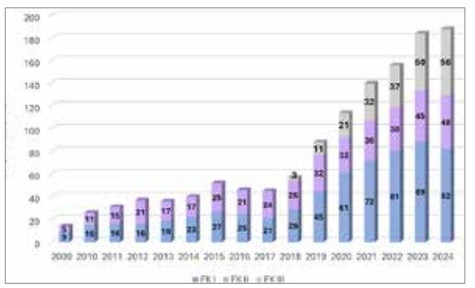
GHS Total Students 2008 - 2024



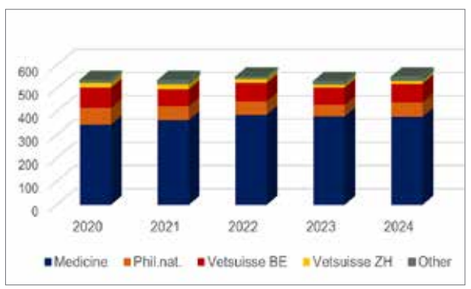
GCB Student Distribution across Expert Committees



GHS Student Distribution across Expert Committees



GCB Student Distribution across Faculties



Graduate Schools GCB & GHS
Mittelstrasse 43, 3012 Bern
www.gcb.unibe.ch & www.ghs.unibe.ch

GCB GHS

sitem-insel School

Operating under the umbrella of the Faculty of Medicine of the University of Bern, the sitem-insel School contributes to the translational process by educating researchers and executives in the field of translational medicine, biomedical entrepreneurship, artificial intelligence, and regulatory affairs from a holistic perspective. Our continuing education programs (MAS/DAS/CAS) and tailored courses offer practical, career-oriented skills and state-of-the-art knowledge. We support individuals in their entrepreneurial and scientific endeavors, bridging the gap between clinical practice, research, and industry and the opportunity to build a key network with relevant stakeholders along the translational process.

The sitem-insel School is located at sitem-insel on the Insel Campus Bern and benefits from the proximity to the University Hospital (Inselspital) and the University of Bern. sitem-insel's mission is to establish, operate and develop a National Center of Excellence for Translational Medicine that professionalizes translational research and development for the benefit of patients, society, and science.

Members

- Dr. Christian Rosser, EMBA UZH, Director
- Prof. Rudolf Blankart, Professor of Regulatory Affairs
- Dina Marti, Managing Co-Director
- Mark Illi, Managing Co-Director
- Mei Wang, Program Administrator
- Monika Dvorakova, Program Administrator
- Katrin Inselmann, Program Administrator

Contact

school.sitem@unibe.ch

Our Study Programs

MAS/DAS/CAS in Translational Medicine and Biomedical Entrepreneurship
Translational medicine refers to innovation process from bench to bedside and back. In line with the principles of translational medicine, our study programs aim to professionalize the essential interaction between basic science researchers, clinicians, regulatory bodies, and investors and supports scientists and researchers in bringing their medical innovation into clinical practice.

MAS/DAS/CAS in Regulatory Affairs and Quality Management
Regulatory specialists are integral to bringing novel medical devices to market. They require a breadth of managerial and interpersonal skills in addition to technical, clinical, and legal knowledge. This program equips participants with such skills and knowledge.

CAS in Artificial Intelligence in Medical Imaging
Understanding the principles and extensive potential of artificial intelligence is key to exploring its possibilities in the daily clinical practice of medical imaging. The study program equips medical professionals, engineers and scientists from life science related fields with the necessary knowledge and skills to translate medical problems to data science problems and hence to actively engage in the environment of digital healthcare.

6th Artificial Intelligence Symposium
As in previous years, the sitem-insel School had the privilege to host the 6th AI Symposium "Generating evidence: The impact of AI on patient care and workflows" in November 2024.
The Symposium brought together leading experts, clinicians, and researchers to explore the transformative potential of artificial intelligence in healthcare. With a full day of thought-provoking presentations and engaging discussions, the event highlighted AI's growing role in reducing workloads, enhancing diagnostic accuracy, and provided insights on how to navigate complex regulatory landscapes.

MAS/DAS/CAS in Translational Medicine and Biomedical Entrepreneurship 2024-2026 has started
In collaboration with industry partners and the Inselspital, the sitem-insel School was able to grant six scholarships to promising research and development projects in Translational Medicine and Biomedical Entrepreneurship. After a competitive election process, the new cohort has started their two-year Master of Advanced Studies program in fall 2024 at sitem-insel. Joined by the students, from the current 2023-2025 cohorts as well as program faculty members, the day was filled with introductions, project presentations and lively discussions. The sitem-insel School wishes the participants all the best for their upcoming educational journey.

Graduation Ceremony
The sitem-insel School was excited to celebrate the graduation of twelve outstanding study program participants in a formal graduation ceremony at the "Haus der Universität".
The graduates finished their studies in spring term 2024 and have proven great determination, perseverance, and ability to balance their professional careers, personal lives, and academic pursuits throughout their studies. Congratulations on this great accomplishment – we are proud of you!

New MAS/DAS/CAS in Regulatory Affairs and Quality Management
In summer 2024 the University Senate approved a fully revised study program regulation. Starting from spring term 2025, the former continuing education program in "Medical Device Regulatory Affairs and Quality Assurance" will be offered in a modular CAS format, called "Regulatory Affairs and Quality Management". This restructuring demonstrates the School's ongoing commitment to growth and innovation.

sitem-insel School
Freiburgstrasse 3, 3010 Bern

CAS, DAS and MAS Degree Programs

The Faculty of Medicine offers 48 programs of advanced studies. All programs are held by teachers of the Faculty, who transmit practice-oriented and state-of-the-art knowledge. The programs are addressed to professionals with a tertiary education.

Advanced study programs of the Faculty of Medicine

- CAS in Artificial Intelligence in Medical Imaging
- CAS in Biomedical Entrepreneurship
- CAS in Clinical Nutrition
- CAS in Swiss Cardiovascular and Diabetes Therapy
- CAS in Medication Safety
- CAS in Managing Medicine in Health Care Organisations
- CAS in Leadership in Health Care Organisations
- CAS in Clinical Research in Health Care Organisations
- CAS in Specialist Palliative Care
- CAS in Spiritual Care
- CAS in Exercise and Sports Therapy for Mental Illness
- CAS in Exercise and Sports Therapy in Orthopedics, Rheumatology and Traumatology
- CAS in Sex and Gender Specific Medicine
- CAS in Epidemiology and Biostatistics
- CAS in Health Promotion and Prevention
- CAS in Health Systems
- CAS in Health Economics and Health Economic Evaluation
- CAS in Brain Health
- CAS in Human Simulation in Health Professions Education
- CAS in Regulatory Affairs
- CAS in Quality Management in Translational Medicine
- CAS/DAS in Hepatology
- CAS/DAS in Transnational Nephrology
- CAS/DAS in Swiss Exercise Therapy in Sports and Medicine
- CAS/DAS in Translational Medicine
- DAS/MAS in Translational Medicine and Biomedical Entrepreneurship
- CAS/DAS in Advanced Regulatory Affairs
- DAS/MAS in Public Health
- DAS/MAS in Leading Learning Health Care Organisations
- DAS/MAS in Regulatory Affairs and Quality Management
- MAS in Implant Dentistry
- MAS in Cariology, Endodontology and Pediatric Dentistry
- MAS in Oral and Implant Surgery
- MAS in Orthodontics and Dentofacial Orthopedics
- MAS in Periodontology and Implant Dentistry
- MAS in Reconstructive and Implant Dentistry
- MAS in Stroke Medicine
- MAS in Sleep Medicine
- Master of Medical Education (MME UniBe)

New advanced study programs

CAS in Brain Health
The CAS in Brain Health at the University of Bern focuses on equipping professionals with advanced skills in promoting brain health. It comprises four key modules: Introduction to Brain Health, Brain Disorders, Brain Health Risk Factors & Interventions, and Brain Health Implementation. These to equip professionals with advanced skills in promoting and maintaining neurological health.

Brain Health
Certificate of Advanced Studies

CAS Human Simulation in Health Professions Education
The CAS program of the Institute for Medical Teaching at the University of Bern enables participants to plan and conduct teaching and examination events with simulation participants according to the latest scientific practice.

Recently revised study programs

The School for Translational Medicine and Biomedical Entrepreneurship, called the sitem-insel School, offered a continuing education program in Regulatory Affairs and Quality Assurance since 2021. Until now, the program has consisted of 2 DAS and 2 MAS courses covering the entire range of tasks involved in regulation and quality assurance throughout the life-cycle of medical devices. An evaluation of the program has shown that the industry wants shorter continuing education courses tailored to specific job profiles. Therefore, the restructured program now offers several CAS courses, which can be combined to form a DAS or MAS course.

The restructured program now comprises the following courses:

- CAS in Regulatory Affairs
- CAS in Quality Management in Translational Medicine
- CAS in Advanced Regulatory Affairs
- CAS in Regulation in Healthcare
- DAS in Regulatory Affairs and Quality Management
- DAS in Regulatory Affairs for Advanced Students
- MAS in Regulatory Affairs and Quality Management

Research

With over one thousand original first- and last-author publications in 2024, the Faculty of Medicine once again demonstrated its strong research performance at both national and international levels. This section presents a small selection of notable contributions spanning various research fields within our Faculty.
Cutting-edge science also depends on infrastructure. The University of Bern provides state-of-the-art core facilities that integrate high-end technology with expert support. These facilities ensure efficient access to essential research tools and contribute to the optimal use of shared resources. In recognition of their importance, the University Executive Board has increased its share of funding of selected core facilities in medical research. The Faculty of Medicine welcomes this initiative with gratitude.

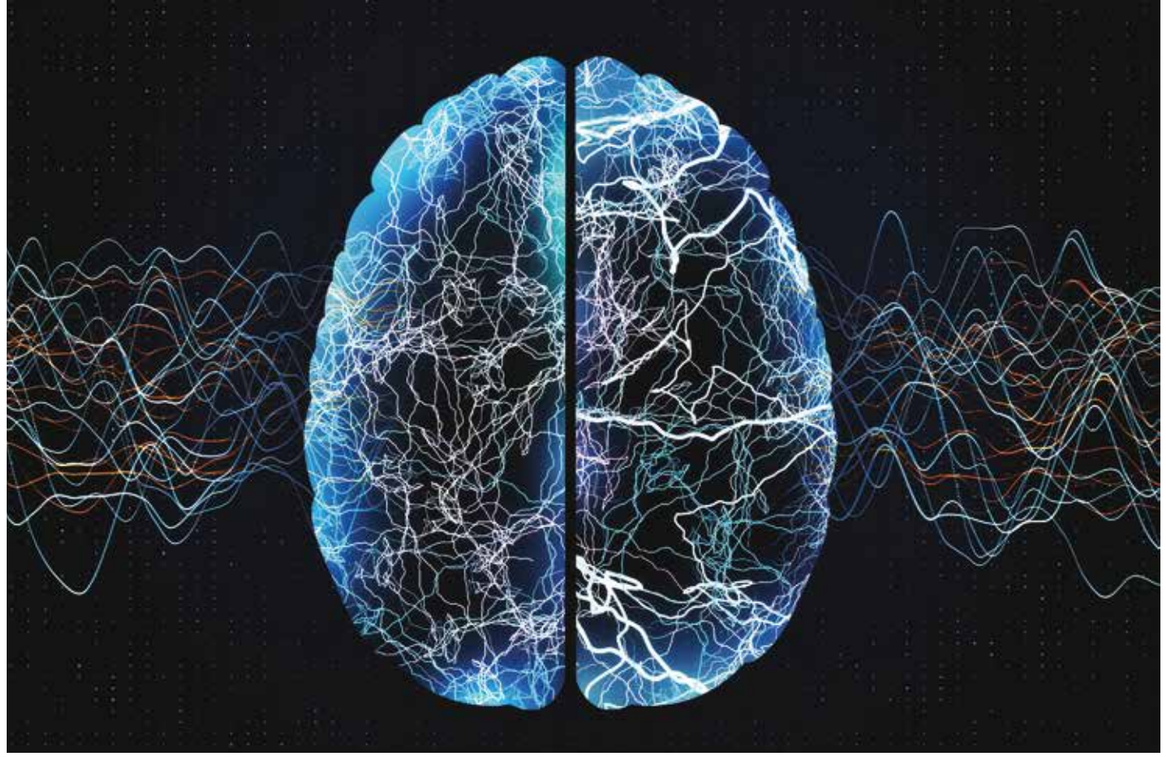
The Swiss National Science Foundation's new call for long-term, strategically relevant research programs marks another important milestone. We are pleased that three projects from our Faculty are currently in the running for the prestigious National Centres of Competence in Research (NCCRs).

The Faculty's vibrant research culture was also on full display at two major events in 2024. The Department for BioMedical Research hosted the 29th Day of BioMedical Research. The event showcased numerous projects across a broad spectrum of biomedical topics; three of the most outstanding contributions are highlighted here. Later in the year, the Department of Clinical Research organized the Second Day and Week of Clinical Research in Bern. This event featured a rich and diverse clinical research program and provided an excellent platform for interdisciplinary exchange and collaboration.

Supporting academic excellence remains a central goal of our Faculty. Through the Faculty Membership on the Basis of Academic Excellence program, we continue to empower outstanding midcareer researchers by offering them not only recognition but also a voice in shaping the Faculty's future, including representation on the Faculty Council.

Prof. Dimitrios Fotiadis
Vice-Dean Research

Content



Faculty Membership on the Basis of Academic Excellence in Research

The Faculty of Medicine supports its outstanding mid-career talents and gives them the opportunity to help shape the future of the Faculty. The Faculty Membership on the Basis of Academic Excellence program offers researchers and lecturers who distinguish themselves in research and/or teaching the chance to have seats on the Faculty Council. This gives the successful candidates three options: (i) participation with voting rights in the meetings of the Faculty Council, (ii) the chance to participate in faculty commissions, and (iii) the chance to benefit from the education and research budget of the applying organizational unit.

Further information on the Faculty website

We are pleased to see growing interest in this funding instrument. In 2024, we received 18 applications for Faculty Membership on the Basis of Academic Excellence in Research, half from women and half from men. The applications of these outstanding researchers are currently being evaluated by the Evaluation and Promotion Commission. The candidates will be assessed on their publication record, external funding, international reputation, support for young researchers, and potential for academic development.

We thank all candidates for their interest and look forward to welcoming the selected candidates to the Faculty Council in 2025.

University Core Facilities

The University of Bern provides state-of-the-art core facilities to support scientific research of the highest quality. They combine cutting-edge infrastructure with expert knowledge, providing researchers with easy access to advanced tools, technologies, services, and specialized support. The core facilities also contribute to the efficient use of resources and infrastructures.

University Core Facilities

The University Core Facilities are of particular strategic importance to the University of Bern. In 2024, the University Executive Board has therefore decided to increase the University's share of funding for selected core facilities related to medical research. The Faculty of Medicine welcomes this initiative and is grateful for the stronger support.

Four Projects in the Running for National Centres of Competence in Research

The Swiss National Science Foundation launched a new call for long-term research projects on topics of strategic importance to Switzerland. Four proposals from the Faculty of Medicine entered the second selection phase.

The National Centres of Competence in Research (NCCR) funding scheme aims to strengthen Swiss research sustainably in areas that are important to the future of science, the economy, and society at large. An NCCR is a research consortium that conducts innovative and outstanding research with a long-term perspective, normally running for 8 to 12 years. Federal funds, disbursed through the Swiss National Science Foundation SNSF, support it with four to five million Swiss francs per year, and this sum is supplemented by contributions from the participating universities, competitive third-party funds raised by the research groups, and contributions from industry.

Fourteen NCCRs are currently ongoing. In November 2023, the SNSF published a call for a new series of NCCRs, which is open to all scientific areas. The available funding will permit the launch of an expected six to nine NCCRs. Every NCCR proposal requires the support of a Swiss higher education research institution that will host the NCCR, develop supporting research positions and infrastructure, and supplement the SNSF funding with its own contributions.

In January 2024, the Faculty of Medicine and the University of Bern backed eight NCCR outline proposals from principal investigators (PIs) in the Faculty. The PIs of four projects submitted full proposals after the SNSF had announced the results of the first evaluation phase in September 2024. The final funding decision by the Federal Department of Economic Affairs, Education and Research is expected at the beginning of 2026.

PRECISE: Precision cardiovascular medicine—enabling personalized diagnosis, risk stratification, and efficient novel therapies

Prof. Katja Odening, Department of Cardiology and Institute of Physiology
Prof. Nadia Mercader, Institute of Anatomy

Other involved institutions: EPFL, UNIL, ETHZ, USI

Prof. Katja Odening

Prof. Nadia Mercader

Stronger evidence for a sustainable healthcare system

Prof. Georgia Salanti, Institute of Social and Preventive Medicine

Other involved institutions: UNIGE, UNIBAS, UZH

Prof. Georgia Salanti

Sleep and health

Prof. Antoine Adamantidis, Center for Experimental Neurology (ZEN), Department of Neurology
Prof. Christoph Nissen, University of Geneva

Other involved institutions: UNIL, UNIFRI, UZH, USZ, ETHZ, UNIBAS, USI, EOC

Prof. Antoine Adamantidis

BLADDER

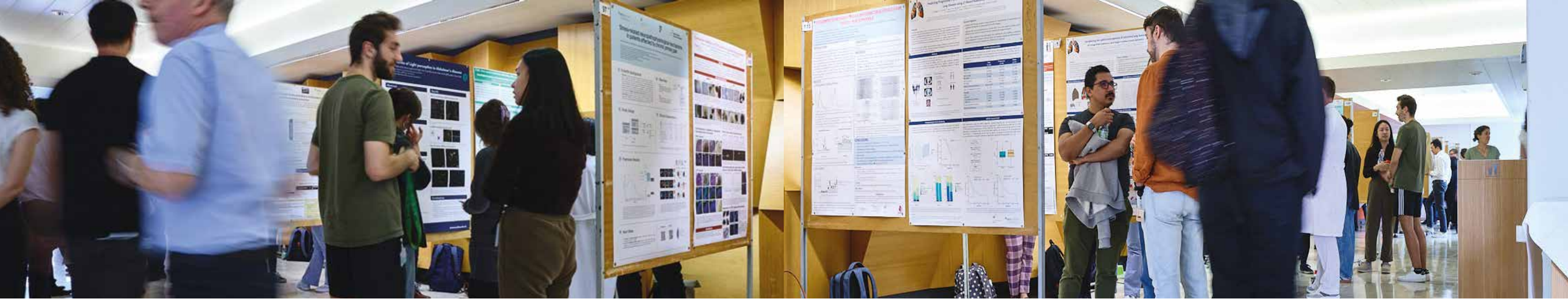
Prof. Beat Roth, Department of Urology
Prof. Marianna Kruithof-de Julio, Department of Urology and Department for BioMedical Research

Other involved institutions: HUG, EPFL, CHUV, UNIL, USB, UZH, ETH, HSLU, SPC, KSSG, AO, IOR

Prof. Beat Roth

Prof. Marianna Kruithof-de Julio

To the NCCR website



Day of BioMedical Research

The 29th Day of BioMedical Research of the Department for BioMedical Research took place on July 3, 2024. Of the numerous research projects and topics on show that day, three highlights are presented here.

Three of the many topics spotlighted on the 2024 Day of BioMedical Research included lung cancer, cardiac arrhythmias, and adrenal hyperandrogenism. This shows that biomedical research at the Faculty of Medicine excels not only in its quality but also in its breadth. The event provided an opportunity to discuss the latest research results from Bern, to honor outstanding achievements with an award, and to welcome an international guest and leading research personality to Bern.

Overcome therapy resistance in lung cancer

In the keynote lecture, Katerina Politi, the Joseph A. and Lucille K. Madri Professor of Pathology at Yale School of Medicine, presented selected highlights from her many years of research in lung cancer. She is particularly interested in the development of resistance to therapy and investigates ways to overcome it. The importance and urgency of this research are underlined by the fact that the cause of resistance is unknown in almost 60% of cases. Although chemotherapy, targeted therapies, and immunotherapies have led to remarkable therapeutic advances over the past 10 to 20 years, new therapeutic approaches are now urgently needed. Katerina Politi reviewed the most promising approaches.

On the trail of sudden cardiac arrest

Katja Odening, Professor of Translational Cardiology, presented the interdisciplinary project PACE, the latest Lighthouse Project of the Bern Center for Precision Medicine. The project aims at a precise, personalized therapy approach for cardiac arrhythmias. In young people, sudden cardiac arrest is often associated with a hereditary ion channel disease. Therefore, Katja Odening and her project partners will identify the disease-causing gene variants in patients' genomes as well as gene variants of unknown significance and possible genetic modifiers. They will then examine the same genes in zebrafish, fruit flies, and rabbits and hope to be able to draw conclusions about the disease-causing mechanisms in humans.

Johanna Dürmüller-Bol DBMR Research Award

Special achievements deserve special recognition. For this reason, several prizes are awarded on the Day of BioMedical Research. An overview of all prizes and winners can be found on page 22 of this annual report.

Johanna Dürmüller-Bol DBMR Research Awardee Dr. Andrea Felser from the Department of Pediatrics

The most prestigious of these prizes is the Johanna Dürmüller-Bol DBMR Research Award, endowed with CHF 30,000. The award is a joint project of the Department for BioMedical Research and the Johanna Dürmüller-Bol Foundation. In 2024, it was awarded to Dr. Andrea Felser from the Department of Pediatrics, who investigates the mechanisms leading to adrenal hyperandrogenism in children. This disorder is characterized by excess secretion of the male sex hormone adrenal androgen, which can lead to polycystic ovary syndrome, a multisystem disorder with severe reproductive and metabolic perturbations. Adrenal hyperandrogenism is poorly understood, and very few treatment options exist.

Many congratulations to Andrea Felser and all the awardees of the 2024 Day of BioMedical Research!

Day and Week of Clinical Research

The second Day and Week of Clinical Research, hosted by the Department of Clinical Research (DCR), took place on November 26—28, 2024, in Bern. Participants were introduced to a very diverse and high-quality clinical research program and had an excellent opportunity to exchange ideas across disciplines.

Following the highly successful inaugural event in 2023, the DCR Day and Week of Clinical Research is now a fixture on the calendar for clinical and translational researchers across the spectrum of health and disease research. The second iteration of the event also provided excellent opportunities for the participants to listen, present, and discuss clinical research and to form new collaborations.

Extensive learning and networking opportunities

The successful multiday event concept has been retained. The 2024 Week of Clinical Research kicked off on Tuesday with the Junior Research Showcase. The participants presented their ongoing or completed clinical studies in Pecha Kucha style and took the opportunity to network across disciplines. The second day focused on practical aspects and useful research tools. In two seminars, experts from the University of Bern shared their knowledge on evidence synthesis and on open access and open research data.

Two international keynote lectures

Thursday's Day of Clinical Research was certainly the highlight of the week and included a very comprehensive program. It started with the Breakfast Talk by Asma Khalil, Professor of Fetal Medicine and the Obstetric Lead at the National Maternity and Perinatal Audit (NMPA) in England, Scotland, and Wales. She gave a personal insight into her career and discussed the challenges of gender equality and work-life balance.

Professor Khalil also opened the afternoon program with her keynote lecture titled "Controversies related to preterm birth in twins." She explained what needs to be considered in practice to assess and reduce the risk of preterm birth and highlighted where substantial gaps in knowledge remain.

The second keynote lecture was delivered by a world-leading expert in liver transplantation for malignant disease. Vincenzo Mazzaferro, Full Professor of Surgery at the Department of Oncology at the University of Milan and Director of the Gastro-Intestinal Surgery and Liver Transplantation Unit at the Istituto Nazionale Tumori in Milan, Italy, gave an impressive presentation on the complexity of liver transplantation in oncological cases. His lecture emphasized the necessity of continuous reassessment and adaptation in managing these challenging conditions.

Bern's multifaceted clinical research

Clinical research in Bern also played an important role in the program. In the Bern Highlights session, senior clinicians presented their outstanding research projects. In the Junior Research Highlights session, the stage belonged to early career clinicians. The event concluded with a lively panel discussion titled "How can we best use patient data in clinical research" and the award ceremony.

An overview of all prizes and winners can be found on page 24 of this annual report. Congratulations to all the awardees!

Prof. Daniel Surbek, Department of Obstetrics and Gynecology; Prof. Eva Segelov, Department of Clinical Research; Prof. Asma Khalil, National Maternity and Perinatal Audit (NMPA), Great Britain; Prof. Luigi Raio, Department of Obstetrics and Gynecology; and Prof. Vincenzo Mazzaferro, Department of Oncology, University of Milan, Italy

Outstanding Publications

Top publications of 2024

The researchers at the Faculty of Medicine published about 1,450 original papers as first or last authors in 2024. This substantial research output cannot be adequately reflected here. However, in a pars pro toto approach, we present a small and by no means exhaustive selection of particularly outstanding publications. Our selection here follows the publishing journals' impact factors.

Top 5 publications in clinical medical sciences

Prof. Urs Fischer
Department of Neurology

Beck J et al., Decompressive craniectomy plus best medical treatment versus best medical treatment alone for spontaneous severe deep supratentorial intracerebral haemorrhage: a randomised controlled clinical trial. LANCET 2024; 403(10442):2395-2404.
DOI: 10.1016/S0140-6736(24)00702-5.

PD Dr. Tatiana Brémovà-Ertl
Department of Neurology

Bremova-Ertl T et al., Trial of N-Acetyl-l-Leucine in Niemann–Pick Disease Type C. N Engl J Med 2024; 390:421-431.
DOI: 10.1056/NEJMoa2310151.

Prof. Johannes Kaesmacher
University Institute of
Diagnostic and Interventional Neuroradiology

Kaesmacher J et al., Time to treatment with intravenous thrombolysis before thrombectomy and functional outcomes in acute ischemic stroke: a meta-analysis. JAMA 2024; 331(9):764–777.
DOI: 10.1001/jama.2024.0589.

Dr. Philipp Jent
Department of Infectious Diseases

Widmer AF et al., Povidone iodine vs chlorhexidine gluconate in alcohol for preoperative skin antisepsis: a randomized clinical trial. JAMA 2024; 332(7):541-549.
DOI:10.1001/jama.2024.8531.

Prof. Stephan Windecker
Department of Cardiology

Siontis GCM et al., Quality and transparency of evidence for implantable cardiovascular medical devices assessed by the CORE-MD consortium. Eur Heart J 2024; 45(3):161-177.
DOI: 10.1093/eurheartj/ehad567.

Top 5 publications in basic medical sciences

Prof. Reto Auer
Institute of Primary Health Care

Auer R et al., Electronic nicotine-delivery systems for smoking cessation. N Engl J Med 2024; 390(7):601-10.
DOI: 10.1056/NEJMoa2308815.

Prof. Christoph Stettler
Department of Diabetes, Endocrinology,
Nutritional Medicine and Metabolism

Lehmann V et al., Machine learning to infer a health state using biomedical signals — detection of hypoglycemia in people with diabetes while driving real cars. NEJM AI 2024; 1(3).
DOI: 10.1056/aioa2300013.

Prof. Orestis Efthimiou
Institute of Primary Health Care and
Institute of Social and Preventive Medicine

Efthimiou O et al., Developing clinical prediction models: a step-by-step guide. BMJ 2024; 386:e078276.
DOI: 10.1136/bmj-2023-078276.

Prof. Lukas Fenner
Institute of Social and Preventive Medicine

Schwab TC et al., Targeted next-generation sequencing to diagnose drug-resistant tuberculosis: a systematic review and meta-analysis. Lancet Infect Dis 2024; 24(10):1162-1176.
DOI: 10.1016/S1473-3099(24)00263-9.

Prof. Adrian Ochsenbein
Department for BioMedical Research and
Department of Medical Oncology

Radpour R et al., IL-9 secreted by leukemia stem cells induces Th1-skewed CD4+ T cells, which promote their expansion. Blood 2024; 144 (8):888–903.
DOI: 10.1182/blood.2024024000.

Most Cited Publications of the Last Three Years

The scientific influence of a given research article can be assessed by the extent to which the article is cited in its field. The Relative Citation Ratio RCR is used to quantify this level of influence. Using this metric, we present the five most influential publications by our researchers from 2021 to 2023. Only original papers whose first or last authors are affiliated with our Faculty were included in the analysis.

2023

Bill R et al., CXCL9:SPP1 macrophage polarity identifies a network of cellular programs that control human cancers. Science 2023; 381(6657):515-524. DOI: 10.1126/science.ade2292.
RCR = 22.44

Koenig J et al., The impact of COVID-19 related lockdown measures on self-reported psychopathology and health-related quality of life in German adolescents. Eur Child Adolesc Psychiatry 2023; 32(1):113-122.
DOI: 10.1007/s00787-021-01843-1.
RCR = 19.42

Dhayat NA et al., Hydrochlorothiazide and prevention of kidney-stone recurrence. N Engl J Med 2023; 388(9):781-791.
DOI: 10.1056/NEJMoa2209275.
RCR = 17.85

Riva T et al., Direct versus video laryngoscopy with standard blades for neonatal and infant tracheal intubation with supplemental oxygen: a multicentre, non-inferiority, randomised controlled trial. Lancet Child Adolesc Health 2023; 7(2):101-111. DOI: 10.1016/S2352-4642(22)00313-3.
RCR = 16.78

Demirel M et al., Translucency, color stability, and biaxial flexural strength of advanced lithium disilicate ceramic after coffee thermocycling. J Esthet Restor Dent 2023; 35(2):390-396. DOI: 10.1111/jerd.12960.
RCR = 15.78

2022

Räber L et al., Effect of alirocumab added to high-intensity statin therapy on coronary atherosclerosis in patients with acute myocardial infarction: the PACMAN-AMI randomized clinical trial. JAMA 2022; 10;327(18):1771-1781.
DOI: 10.1001/jama.2022.5218.
RCR = 31.81

Prenosil GA et al., Performance characteristics of the Biograph Vision Quadra PET/CT system with a long axial field of view using the NEMA NU 2-2018 standard. J Nucl Med 2022; 63(3):476-484. DOI 10.2967/jnumed.121.261972.
RCR = 24.58

Hertenstein E. et al., Cognitive behavioral therapy for insomnia in patients with mental disorders and comorbid insomnia: A systematic review and meta-analysis. Sleep Med Rev 2022; 62:101597.
DOI: 10.1016/j.smrv.2022.101597.
RCR = 20.07

Di Fiore A et al., Comparison of the flexural and surface properties of milled, 3D-printed, and heat polymerized PMMA resins for denture bases: An in vitro study. J Prosthodont Res 2022; 66(3):502-508.
DOI: 10.2186/jpr.JPR_D_21_00116.
RCR = 18.85

Salanti G et al., The impact of the COVID-19 pandemic and associated control measures on the mental health of the general population: A systematic review and dose-response meta-analysis. Ann Intern Med 2022; 175(11):1560-1571. DOI: 10.7326/M22-1507.
RCR = 18.67

2021

Gómez-Ochoa SA et al., COVID-19 in health-care workers: A living systematic review and meta-analysis of prevalence, risk factors, clinical characteristics, and outcomes. Am J Epidemiol 2021; 190(1):161-175.
DOI: 10.1093/aje/kwaa191.
RCR = 51.48

Vicedo-Cabrera AM et al., The burden of heat-related mortality attributable to recent human-induced climate change. Nat Clim Chang 2021; 11(6):492–500. DOI: 10.1038/s41558-021-01058-x.
RCR = 27.46

Hodcroft EB et al., Spread of a SARS-CoV-2 variant through Europe in the summer of 2020. Nature 2021; 595(7869):707-712.
DOI: 10.1038/s41586-021-03677-y.
RCR = 21.40

Valgimigli M et al., Dual antiplatelet therapy after PCI in patients at high bleeding risk. N Engl J Med 2021; 385(18):1643-1655. DOI: 10.1056/NEJMoa2108749.
RCR = 20.59

da Costa BR et al., Effectiveness and safety of non-steroidal anti-inflammatory drugs and opioid treatment for knee and hip osteoarthritis: network meta-analysis. BMJ 2021; 375:n2321.
DOI: 10.1136/bmj.n2321.
RCR = 16.32

Digitalization

Digitalization is transforming medical research and education by enabling data-driven insights that enhance patient care and scientific discovery. At the Faculty of Medicine of the University of Bern, we recognize digital medicine as a unique selling point that positions us at the forefront of innovation.

Over the past five years, we have established ten professorships dedicated to digital medicine, thus reflecting our commitment to integrating cutting-edge technologies into healthcare. However, as digitalization advances, shared challenges emerge, ranging from the need for robust data platforms to fostering collaboration and best-practice exchange.

The Center for Artificial Intelligence in Medicine (CAIM) has proven to be a highly successful hub for interdisciplinary exchange. Building on this foundation, we are now developing a sustainable Department of Digital Medicine (DDN) to further drive innovation, research, and education in this rapidly evolving field of digital medicine.

As Vice-Dean Digitalization, I am dedicated to helping to shape this transformation and to fostering an environment in which digital solutions enhance both scientific excellence and medical practice.

Prof. Aurel Perren
Vice-Dean Digitalization

Content

From Artificial Intelligence to Impact: Establishing the Future of Digital Medicine

The Center for Artificial Intelligence in Medicine (CAIM) has brought together computer scientists, biomedical engineers, and clinical experts in a unique integrated platform. With the establishment of CAIM four years ago, the Bern medical campus laid the foundations for fully exploiting the potential of artificial intelligence in medicine. Since then, the Center has developed so well that the next step is now ahead: transforming CAIM into the Department of Digital Medicine. This is why we are honoring some of CAIM's many achievements here.

In recent decades, artificial intelligence (AI) has profoundly transformed our society, particularly in medicine, by driving unprecedented advancements across medical education, research, and clinical procedures, all of which have shaped the future of personalized healthcare.

To harness this transformative potential, CAIM was founded in 2021 by the by the Faculty of Medicine of the University of Bern and the Insel Gruppe, together with the Bern University Psychiatry Services (UPD) and the Swiss Institute for Translational and Entrepreneurial Medicine, sitem-insel as partners, to pioneer AI-driven solutions in healthcare. CAIM was officially launched on March 19, 2021, with an opening event attended by more than 500 participants, featuring AI leaders, university executives, politicians, and industry stakeholders.

CAIM is a dedicated education, research, and translation platform that has seamlessly integrated AI into medicine through six core pillars: (i) research, (ii) education, (iii) infrastructure, (iv) ethics, (v) diversity, equity and inclusion, and (vi) networking and dissemination. These pillars were designed to foster interdisciplinary collaboration, accelerate innovation, and bridge the gap between AI research and clinical applications. This strategic approach has enabled CAIM to rapidly establish itself as a leading hub in AI-driven medicine bringing together diverse expertise to drive the digital transformation of healthcare.

CAIM Research Symposium 2022

Research and technological advancements

CAIM focuses on AI-driven healthcare, including biosignal analysis, medical imaging, robotics, mobile health, IoT, and precision medicine. It has supported projects with transformative potential to advance innovation from discovery to clinical application.
The CAIM research fund has fostered competitive AI solutions. The first funding round in 2022 selected five projects in cardiology, nephrology, neuroradiology, gerontology, and gynecology from 20 submissions.

The second round in 2024 funded five more in anaesthesiology, cancer care, cardiology, eye care, and pathology from 19 submissions, reinforcing CAIM's impact on medical technology.

CAIM's influence was evident in FDA approvals for two ARTORG AI technologies in 2022: RetinAI's Discovery platform for ophthalmology and Neosoma's AI tumor segmentation tool. These successes positioned Bern as a med tech leader. Since 2021, CAIM researchers have secured significant funding from top institutions to bridge cutting-edge research with clinical applications that drive digital healthcare transformation and improve patient outcomes.

Advancements in education

The MSc in AI for Medicine program, launched by CAIM in 2021, is the first of its kind and is designed to educate the next generation of AI professionals in healthcare. Targeted at students with backgrounds in engineering, informatics, mathematics, and physics, this two-year program covers AI principles and their application in medical and clinical settings. Students gain hands-on experience through rotations in various departments at the Inselspital, Bern University Hospital, which provide direct exposure to medical specialties. The program welcomed its first students in 2022 and has since grown to over 30 students, thus shaping future experts at the intersection of AI and medicine.

Computational advancements and infrastructure growth

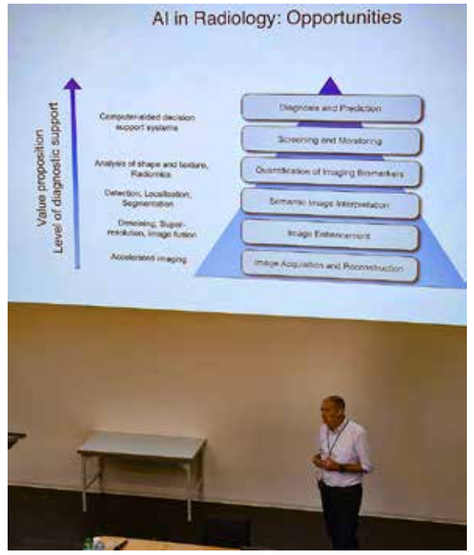
CAIM has been committed to advancing digitalization and AI research by enhancing access to high-performance computing and data infrastructure. To support cutting-edge research, CAIM expanded its computational capabilities with the addition of a 40+ GPU cluster in January 2025.

High-impact networking activities and public engagement

CAIM has promoted knowledge exchange and public engagement through key events. The CAIM Research Symposiums in 2022 and 2024 featured renowned keynotes, including Dr. Andrea Ferrario (ETH Zurich), Prof. Dr. Leo Joskowicz (Hebrew University), and Prof. Daniel Rückert (TUM). Each symposium attracted nearly 100 attendees and showcased highlights from CAIM-funded projects with presentations by CAIM fellows. At the Nacht der Forschung 2022, CAIM engaged the public in AI-driven healthcare through interactive stations on neuroradiology, surgery, cancer care, and AI ethics, reinforcing the importance of ongoing dialogue. With over 40 media features, CAIM has shaped AI-driven medical research and innovation.

Embedded Ethics Lab and Diversity for AI in Medicine

The Embedded Ethics Lab has supported CAIM by providing ethical, policy, and legal guidance for AI in medicine. The initiative has aimed to promote fair and inclusive AI research and ensure responsible AI adoption in medicine. The Midday Ethics Talks, launched in 2021, fostered ethical awareness among researchers.



Keynote by Prof. Daniel Rückert (TUM) on AI and the Future of Radiology at the CAIM Research Symposium 2024

In 2022, CAIM also launched Diversity for AI in Medicine (DAIM) to promote diversity, equity, and inclusion in AI-driven healthcare. DAIM also supports inclusive workplaces, academic excellence, and bias-free algorithm development through networking, mentoring, and scientific talks. The DAIM Young Researcher Award was presented in 2022 and 2024 at CAIM's research symposiums. Recognizing its impact, DAIM received the University of Bern's Prix Lux Equal Opportunities Prize in 2024, highlighting its commitment to fairness and responsible AI development in medicine.

Strategic development into a Department of Digital Medicine

In alignment with the digitalization strategies of the University of Bern and the Faculty of Medicine, CAIM will expand into the new Department of Digital Medicine in 2025. This virtual department will integrate the established professors of CAIM in the field of AI in medicine and the new digitalization professorships introduced in recent years to enhance collaboration, visibility, and impact in digital health research, teaching, and clinical applications. It aims to build on CAIM's successes and solidify our Faculty's leading role in digital medicine sustainably. The Commission for Digital Medicine of the Faculty of Medicine has the task of preparing to inaugurate the new department in 2025.

Center for Artificial Intelligence in Medicine CAIM

Internationalization

Along with the Strategy 2030 of the University of Bern, the Faculty of Medicine continues to implement concrete actions in the field of international cooperation and to further improve its international profile. In 2024, the Faculty expanded its network to several countries and disciplines thanks to the launch of new partnerships, the start of international projects, and activities within university alliances. These initiatives have a broad range of targets from students to established professors and encourage the development of sustainable cooperations.

Prof. Aristomenis Exadaktylos
Vice-Dean Internationalization
and National Networking

Content

Internationalization Grants

In 2024, two internationalization calls were launched to promote international networking at institutional level by supporting the creation of new partnerships and consolidating existing ones. Among the many interesting proposals, the Commission for Internationalization and National Networking selected two projects that strengthen connections with Canada and Zimbabwe.

The call for International Networking Activities in Research aims to build or enhance sustainable academic co-operation with an international research institution. Grantees receive a budget of up to CHF 150,000 per year over three years, with matching funds provided by the partner institution over the same period.

The call for Global Health Initiatives supports projects aiming to build or strengthen sustainable academic links with research institutions located in a country in need of medical development and with a human development index ≤0.611. Grantees receive CHF 300,000 per year for five years. No matching funds are expected.

In 2024, the following two research projects received funding:

International Networking Activities in Research

Prof. José Garcia-Tirado, Department of Diabetes, Endocrinology, Nutritional Medicine and Metabolism

Project title: Elucidate the complexity of diabetes through a strong Precision Metabolic Medicine Network (PM2N) using open science principles and precision medicine

Organized in collaboration with Prof. Vincent Mooser, McGill University, Montreal, Canada, this project focuses on the study of new preventive and therapeutic solutions for patients affected by diabetes and metabolic diseases. The strong knowledge available in Bern in precision medicine will be complemented by the capacities in genomic medicine provided by McGill University. This partnership will foster a sustainable collaborative research network of medical doctors, geneticists, bioinformaticians, engineers, and specialists in public health to advance the frontiers of precision metabolic medicine. At the institutional level, a memorandum of understanding with McGill University has already been signed, and an agreement for undergraduate student exchange will be stipulated in 2025.

Funding of Global Health Initiatives

Prof. Benjamin Misselwitz, Department of Visceral Surgery and Medicine

Project title: Clarify why some Zimbabwean children fail to thrive through an analysis of the microbiota trajectory and intestinal inflammation

Organized in collaboration with the University of Zimbabwe, this project aims to investigate gut microbiota in infants in Subsaharan Africa, where malnutrition, poor hygiene, and infections limit infant development and life expectancy. Working from previous studies, the team will test the hypothesis that disadvantageous nutrition and hygiene disrupt intestinal microbiota maturation early in life and predispose infants to gut and systemic inflammation and failure to thrive. Further, it aims to develop feasible diagnostic markers and a mechanistic understanding that enable targeted interventions. The project provides long-term added values to both parties, such as sustainable support to African children and insights into the generalizability of results through the com-parison of data from varied settings.

New Strategic Partnerships

By creating and strengthening institutional partnerships and research collaborations with academic partners worldwide, the Faculty of Medicine supports international cooperation and scientific exchange that contribute to excellent science and global scientific progress. In 2024, the Commission for Internationalization and National Networking continued to develop the portfolio of cooperations: these are the basis for sustainable developments in medicine, science, and education for all involved parties.

With about 30 active memoranda of understanding (MoU), the Faculty of Medicine has a strong international profile. The Commission for Internationalization and National Networking, headed by the Vice-Dean Prof. Aristomenis Exadaktylos, has worked on the management of such agreements. Firstly, together with the Vice-Rector for International and Academic Careers of the University of Bern, Prof. Andrew Chan, the Commission is standardizing and improving the administrative processes to stipulate MoU. Secondly, the commission works to identify regions in other continents where ongoing collaborations can be strengthened and new ones can be sought.

Prof. Yap Seng Chong, Dean of NUS Yong Loo Lin School of Medicine, and Prof. Claudio Bassetti at the signing of the MoU

Partnership with Yong Loo Lin School of Medicine in Singapore

In 2024, the Faculty was able to continue its work on strategic partnerships in Asia. A major achievement was the launch of a cooperation with the prestigious Yong Loo Lin School of Medicine at the National University of Singapore (NUS), which is ranked among the top 20 medical schools in the world. In addition, two outgoing medical students and an incoming one profited from the Faculty's student exchange agreement with the Nation-al Taiwan University.

A delegation from NUS visited our Faculty on site from January 29 to 31, 2024. Over these days, the NUS delegation was guided through key facilities and centers of the campus and discussed common scientific interests with our Faculty members. This was also the occasion to formalize the partnership by signing two agreements: a memorandum of understanding, which defines the overall framework for future collaborations, and an agreement on student exchange at the MSc level. Since January 2024, virtual and in-person follow-up meetings have been ongoing to discuss concrete collaborations in cardiovascular research, medical technologies and bi-obanks, neurology, sleep medicine, and brain health. On this last topic, Prof. Christopher Chen and Prof. Eve-lyne Law from NUS participated in the Swiss Brain Health Plan meetings in Bern on December 5 to 6, 2024, organized by the Dean, Prof. Claudio Bassetti.

In our student exchanges, we are glad to have planned two incoming NUS students in spring 2025 and two out-going students from the University of Bern in the fall semester 2025.

The NUS delegation together with representatives of the Insel Gruppe

Partnerships to improve brain health in Switzerland and Africa

The Swiss Brain Health Plan (SBHP) was launched in 2022 and is promoted by the Swiss Federation of Clinical Neurosocieties and aligned with the activities of the WHO, European Academy of Neurology (EAN), European Psychiatric Association (EPA), and European Brain Council (EBC). It aims to promote brain health in Switzer-land by raising awareness of neurological and mental conditions, developing prevention strategies, and support-ing research. The long-term goal is to improve the quality of life of our population and reduce the prevalence and impact of brain disorders. The SBHP strategic task force includes over 50 authors of the Swiss Brain Health Plan 2023–2033.

The second stakeholder meeting for the Swiss Brain Health Plan took place on December 5, 2024 with the sup-port of the Faculty of Medicine. The meeting aimed to raise awareness of brain health and launch prevention programs. The event brought together Swiss healthcare representatives, politicians, patients, and promotors of national brain plans from Germany (Prof. Thomas Mokrusch), Italy (Prof. Matilde Leonardi), Norway (Dr. Silja Nicoline Angellses), Cameroon (Prof. Alfred K. Njamnshi), Argentina (Prof. Facundo Manes), Singapore (Prof. Christopher Chen), and UAE (Prof. Riaz Khan) to exchange experiences and create an interna-tional alliance on this topic.

Advancing brain health in Africa

The SBHP is dedicated to supporting brain health in Africa through collaborative research and education. The Brain Research Africa Initiative (BRAIN) and the Faculty of Medicine have established an MoU to formalize their partnership. The MoU aims to promote academic cooperation, sustainability, and mutual understanding with a focus on transdisciplinary research, education, and community engagement in neuroscience to advance brain health and sustainable development in Africa.

A key priority is education and training focusing on brain health and neuroscience through educational programs and capacity-building workshops. This includes student and staff exchanges and advanced studies. The first project was the establishment of scholarships for the Certificate of Advanced Studies in Brain Health (CAS) at the University of Bern, which was launched within the SBHP by Prof. Bassetti and is directed by Prof. Simon Jung and David Tanner in collaboration on the Master's Program in Global Brain Health within the BRAIN Uni-versity Project in Cameroon. The CAS in Brain Health at the University of Bern is the first global, continuing education program devoted entirely to brain health promotion. It offers professionals worldwide the chance to specialize in this underexplored field, and training is also available in low- and middle-income countries. In its first year, 6 of the 37 students are from Africa, 2 from Cameroon and 4 from Ethiopia.
The University of Bern also collaborates with BRAIN Cameroon on the Yaoundé Declaration on the brain economy, brain health, and brain capital through the United Nations.

Prof. Alfred K. Njamnshi, founder and CEO of BRAIN, with Dean Prof. Claudio Bassetti and Prof. Kristina Adorjan

New Global Mental Health Research Center at the University of Bern

On September 20, 2024, the University of Bern launched its Competence Center of Global Mental Health Re-search in collaboration with the World Psychiatric Association (WPA). This initiative focuses on advancing mental health research and education globally with a special emphasis on low- and middle-income countries (LMICs). The Center is a strategic partnership involving the Canton of Bern's Department of Health, Social Ser-vices, and Integration (GSI), the University of Bern's Faculty of Medicine, the Initiative Afrique of the University of Bern, Jimma University in Ethiopia, the Swiss Brain Health Initiative, and the Universitäre Psychiatrische Dienste Bern (UPD).

Empowering regions with limited resources

The Center aims to address global mental health challenges through education, research, and policy develop-ment and by focusing on regions with limited resources. As a WPA Collaborating Center, it will be a hub for research, higher education, and international collaboration. The Center's mission is to empower LMICs by help-ing them build sustainable mental health systems, enhance research capacity, and support long-term progress in mental health care.

Dr. Djouroukoro Diallo, Prof. Hugues Abriel, Prof. Kristina Adorjan, Prof. Danuta Wasserman, Pierre Alain Schnegg, and Prof. Thomas G. Schulze (from left to right)

Supporting Researchers and Students from Ukraine

Ukrainian universities, researchers, scholars, and students remain in need of support to secure their futures and to continue their studies and projects. The Faculty of Medicine and the University of Bern continue to provide solidarity through several measures and by keeping in touch with academics and authorities.

Measures for scholars and students

Since 2022, the Faculty has provided specific support to Ukrainian researchers. The Grant for Visiting Scholars enables visiting professors and postdoctoral researchers to spend up to 5 months at the Faculty. Further, the Faculty has welcomed female Ukrainian researchers who receive support from the Swiss National Science Foundation and the Scholar at Risk organization. At the bachelor and master levels, Ukrainian students with protection status S can enroll in the Faculty of Medicine. Since 2022, three students have been enrolled at our Faculty for several semesters.

Visitors from Zaporizhzhia State University

In November 2024, a delegation from the Zaporizhzhia State Medical and Pharmaceutical University traveled to Bern for a 5-day visit. The three professors from the Departments of Disaster and Military Medicine, Traumatology and Orthopedics, and Psychiatry, Psychotherapy, and Medical Psychology met on the first day with the Dean, Prof. Claudio Bassetti, and the Ambassador Extraordinary and Plenipotentiary of Ukraine to the Swiss Confederation, Ms. Iryna Venediktova. They were then hosted by the Department of Emergency Medicine (Prof. Aristomenis Exadaktylos), the Department of Orthopedic Surgery and Traumatology (Prof. Thomas Lustenberger), and the University Hospital of Psychiatry and Psychotherapy (Prof. Kristina Adorjan), thus matching their expertise. The delegation also had the opportunity to visit the REGA base in Belp and gain insights into the Swiss emergency services and emer-gency medicine. In addition, current and future cooperation in research and education was discussed in detail. Cooperation projects will be implemented under a memorandum of understanding signed during the visit.

Collaboration with Ukrainian authorities

The Faculty enjoys an excellent relationship with the Embassy of Ukraine in Switzerland as well as with other Ukrainian authorities. In May, our Dean met Ms. Maryna Slobodnichenko, Deputy Minister of Health in Ukraine. As mentioned above, Ms. Iryna Venediktova, Ambassador of Ukraine in Switzerland, attended a dinner with the delegation of Zaporizhzhia State University and maintains regular contact with the Faculty.
In 2024, the Faculty also arranged a meeting with Erika Placella, Head of Health Section, Federal Department of Foreign Affairs. This exchange with institutional representatives will consolidate the collaboration and allow targeted support to be provided to Ukrainian scholars and students.

The delegations from Zaporizhzhia and Bern at the meeting with Ambassador Iryna Venediktova (center)

Video on the visit of Zaporizhzhia's delegation in Bern

International Networks

Scientific challenges in medicine and health do not stop at geographical borders. University alliances support international cooperation at the institutional level by promoting an innovative educational and research land-scape. This is why the University of Bern is committed to taking part in carefully selected international net-works. The Faculty of Medicine implements the strategy of the University by playing an active role in two Euro-pean alliances.

ENLIGHT

ENLIGHT envisions Europe as an interconnected campus

Since December 2022, the University of Bern has been an associated partner of ENLIGHT, a European university network of ten universities. ENLIGHT aims to support the free movement of students and staff, lifelong access to the best education environment, and the sharing of knowledge and educational resources as if Eu-rope were a cross-border campus for learners, teachers, and researchers.

Throughout 2024, several proposals were made for the Faculty to participate actively in ENLIGHT. Most requests for collaborative projects received by the University concerned medicine, thus showing the great potential for collaboration that this unique network offers. Face-to-face meetings with other ENLIGHT partners took place early in 2024 during the delegation visits to Bern of the Universities of Uppsala and Groningen. Our Vice-Dean of Internationalization and National Networking, Prof. Aristomenis Exadaktylos, joined the ENLIGHT deans of health meeting in Brussels in November 2024. Furthermore, in Fall 2024, we contacted six ENLIGHT univer-sities to enquire about their interest in establishing student exchange programs with the University of Bern. This exploratory work will be continued in 2025.

In 2024, the alliance launched a call for ENLIGHT Thematic Networks (ETNs). These grants target multidisciplinary academic teams from at least three ENLIGHT universities who want to join forces on a specific topic in research and education with societal relevance and impact. For example, through an ETN, the teams can de-velop new educational programs, prepare grant applications, and engage in knowledge and technology transfer activities.

Dr. Carolina Gutierrez Herrera, Department of Neurology, was awarded an ETN grant for her project BRAIN 24/7: Brain function and mental health in a modern 24/7 society, which will be conducted in collaboration with the Universities of Groningen and Bordeaux. The Faculty of Medicine is involved as partner in a further project, REACT: Research and Education in Ageing Collaborative Team, led by the University of Galway.

The Guild

Africa-Europe Clusters of Research Excellence Africa-Europe CoRE

The Guild-ARUA: a focus on Africa

Since 2017, the Faculty of Medicine actively supports the membership of the University of Bern as member of The Guild of European Research-Intensive Universities. This network addresses European research and education policies in Brussels. Within this alliance, the Guild-ARUA initiative aims at fostering responsible and equitable partnerships between Africa and Europe. In this context, the African Research Universities Alliance (ARUA) and The Guild jointly established sustainable, long-term North-South scientific collaboration, the so-called Clusters of Research Excellence (CoRE). The University of Bern, through the Faculty of Medicine, participated in three CoREs, dedicated to "Genomics for Health in Africa", "Non-Communicable Diseases and Multimorbidity", and "Advanced Infectious Diseases Research and Training".

To the University website about internationalization

Equal Opportunities and Young Academics

At the Faculty of Medicine, we want to shape an inclusive, just, and bright future in academia by promoting equality, diversity, and fostering young talent.

Science and society thrive when all talents can be nurtured, when a diverse environment fosters creativity and innovation, and when we ensure that the next generation acquires the skills and knowledge to succeed by providing targeted programs and mentoring.

To achieve these aims, it is important that we continue to work on these topics and promote them in our communities and organizations.

The following report reflects our endeavors and achievements in 2024.

Prof. Britta Maurer
Vice-Dean Equal Opportunities and Young Academics

Content

Equity

Intrafaculty Commission for Equal Opportunities

The Intrafaculty Commission for Equal Opportunities works to anchor diversity in the organization. In Switzerland's university hospitals, diversity declines with rising hierarchical level. At the beginning of 2024, the proportion of women studying medicine at the University of Bern in the first semester was around 66%, but this proportion falls to 16% at the level of full professorships.

If unaddressed, a lack of gender balance and diversity at the leadership level will inevitably lead to a homogenous group that may not make the most innovative decisions. Many studies have shown that such homogenous groups lose team intelligence and lateral thinking, and new knowledge tends to be generated in a one-sided way. When working in this way, no faculty can optimally fulfill its role as a model and source of inspiration for future generations.

The Intrafaculty Commission for Equal Opportunities seeks to address this imbalance with dedicated measures and create an environment that enables everyone to contribute their skills in an optimal and valued way and to develop new and diverse knowledge.

Equal opportunities should be anchored as a strategic goal.

Renamed Equal Opportunities!
In line with the name change of the Office for Equal Opportunities at the University of Bern and the Federal Program for Equal Opportunities, the Intrafaculty Commission for Gender Equality (formerly IFKG) has changed its name to the Intrafaculty Commission for Equal Opportunities (Innerfakultäre Kommission für Chancengleichheit IFKC). What is the difference? Unlike the concept of equal opportunities, equality implies a critique of social inequality, not just the unequal distribution of opportunities.
Equal opportunities are aimed more at performance and equality at social justice. With the planned measures, the Faculty of Medicine seeks to create a diverse environment in which direct or indirect discrimination has no place. Gender equality is a particular concern here. Diversity contributes significantly to the excellence of Swiss research and teaching.

Last year, the IFKC sought close cooperation with the faculty management and intensified this further. Now that the faculty management has given the IFKC a clear mandate and its backing, future measures will be easier to implement and will lead more quickly to tangible successes.

Our new Vice-Dean Equal Opportunities and Young Academics, Prof. Britta Maurer, is now a permanent representative of the IFKC on the Faculty Executive Board.

Intrafaculty Commission for Equal Opportunities
Murtenstrasse 11, 3008 Bern

Collaboration DCR and IFKC Study
In 2024, the DCR began collaborating with the IFKC on a study titled Career Path Post-Habilitation, which aims to quantify and explain inequalities in academic careers within the Faculty of Medicine. A survey was sent to all individuals who had habilitated or rehabilitated since 2013. In total, 249 people responded, corresponding to a response rate of 42%, and the resultant dataset is currently being analyzed. The survey results have been used to plan a qualitative interview study for February 2025 to better understand barriers and facilitators to academic careers. The IFKC strongly supports this study and provides support, contacts, and knowledge wherever possible. The first results will be available soon.

New Equal Opportunities Plan
In 2024, the Intrafaculty Commission for Equal Opportunities welcomed the new Vice-Dean Equal Opportunities and Young Academics, Prof. Britta Maurer. Together with her and the Dean of Education as representatives of the Faculty Executive Board, the IFKC drafted the new equal opportunities plan for 2025–2028 in several workshops.
Four main topics were developed:

- Networking
- Education, Training & Sensitization
- Reporting
- Reducting hurdles

These four topics were filled with promising measures and will be implemented in the coming years. Indeed, the first measures have already been tackled and implemented.

Annual Review of the Female Empowerment in Life Sciences (FELS) Network
The FELS network is dedicated to actively promoting the academic careers of female scientists at all hierarchical levels. In 2024, FELS organized a series of exciting events, including workshops on habilitation proceedings here in Bern, artificial intelligence in scientific writing, and patient and public involvement. At the yearly retreat in Appenberg, the researchers had lively discussions on the future of FELS with role models Prof. Britta Engelhardt and Prof. Eva Segelov and an exciting workshop titled "The messenger is the message: appear convincingly—convince effectively" to promote effective communication and presentation skills. The FELS network is constantly growing and attracting more and more female researchers to Bern.

To the FELS website

Prix Lux Awardee DAIM: Different Perspectives are Essential for AI

The initiative Diversity for AI in Medicine teaches how to build fair and equitable AI applications that are helpful for humanity. The team behind the initiative has now been awarded the Prix Lux equal opportunities prize by the University of Bern.

Stavroula Mougiakakou, Monika Kugemann, when and why did you and your colleagues launch the initiative Diversity for AI in Medicine (DAIM)?
Stavroula Mougiakakou: We started DAIM in 2022, while ramping up with the Center for Artificial Intelligence in Medicine (CAIM), which virtually regroups all the researchers in Bern active in this field. The initiative was launched in response to global concerns about biases and inequalities in AI applications. We want to foster inclusion and diversity and believe that different perspectives are essential for driving innovation in AI, especially in areas as impactful as healthcare and medicine. We also want to encourage female researchers and researchers from minority groups to pursue a career in AI for medicine.

Who is involved in DAIM?
Monika Kugemann: The initiative is essentially conducted by two bodies: the DAIM committee and the DAIM community. The Committee is composed of three senior AI researchers, as well as an expert in ethics and myself, a communications specialist. We meet to plan and to arrange for the different activities, such as lunch talks or our big annual event in March. We also discuss outreach ideas to raise awareness, including joint events with the CAIM Ethics Lab. The DAIM community is essentially open to everyone active in the field of AI in medicine with an interest in topics like inclusion, fairness or explainability or transparency in AI algorithms. We deliberately keep the focus wider than just «women in AI». We also partner with other initiatives of the Uni Bern, such as KILOF, the Bern Data Science Initiative, «Womxn who start up» and sitem-insel's AI Symposium. Whoever wants to join, just needs to subscribe. The community is growing steadily and now encompasses more than 150 persons. We really want to thank the community for supporting us! Their active participation, their feedback and ideas are an invaluable help all along the way.

The DAIM members Stavroula Mougiakakou, Mauricio Reyes, Inti Zlobec, Rouven Porz, and Monika Kugemann (from left to right) Photo: Manu Friederich

You state on your website that «DAIM aims to promote […] inclusion for the benefit of […] fighting biases in AI development». This sounds great. But it also sounds somewhat intangible.
Mougiakakou: It's not intangible. On the contrary, there is a plethora of examples of AI models that have biases and amplify stereotypes. Such biases are not built by purpose, they often are simply the result of ignorance or lack of attention. With a more diverse pool of people developing algorithms, we increase our chances to reach fair and unbiased solutions.
Kugemann: Sometimes biases in the models arise, because the data on which the AI models are trained is one-sided or skewed: It represents only a part of our society. For example, women during their reproductive years have been excluded from many clinical studies

We launched DAIM in response to global concerns about biases and inequalities in AI applications.
Stavroula Mougiakakou

Even a very diverse team of AI developers will not be able to correct for missing data.
Kugemann: Yes, but being aware of gaps in the data can be a first step to remedy the situation.
Mougiakakou: Yes, on one hand, if you can't avoid biases, you need to communicate them. You have to clearly mention what data has been used and what your model can and cannot do. It is unfair to generate wrong expectations. On the other hand, creating new AI models is a very active research field. We spend a lot of time and energy in developing algorithmic approaches that are able to detect, quantify and correct potential biases in the data they are being fed for training. We are also trying to develop methods that boost interpretability and transparency. We want to create AI models that are able to explain how they work and why they take a certain decision instead of another.

How do you reward approaches that are making progress?
Mougiakakou: There is a dedicated DAIM-award, which is given to research projects that provide innovative solutions to reduce biases and at the same time promote inclusive research practices. The awarded projects are a sort of best case examples showing that our aims are not just theoretical, but that they can be translated and put into practice. It is very important to us to foster and support interdisciplinary cooperation, because successful implementation of AI solutions in healthcare crucially depends on teamwork: The developers of algorithms, the physicians and the patients are like different pieces of a puzzle, and all these pieces need to be put in the right place to solve the puzzle.

What does DAIM do to achieve its goal of equal opportunities?
Mougiakakou: At the end of the day, challenging issues related to discrimination is a matter of culture and of education. We need to create an educational system, in which students learn that all humans have equal rights. Over time, these values will be implemented in the AI solutions that they will develop. Therefore, we created our Master Program «Artificial Intelligence in Medicine», in which the students from the very beginning are concerned with the question of how to build fair and equitable AI applications that are helpful for humanity. The program started in 2021 and, in my eyes, it is a big success, not only because it attracts many students, also from abroad. But also because more than 50 percent of our students are women. This percentage far exceeds the global average, where women make up only 26 percent of the workforce in the field of AI.

Can you explain this high share of women?
Kugemann: We are not entirely sure about the reasons for this extraordinary interest of young women in our Master Program. It likely has to do with the fact that the program offers a unique approach, providing students not only with a strong foundation in AI but also the opportunity to collaborate directly with physicians in the hospital. The master students, which all have a background in either engineering, computer science, mathematics or physics, gain important insights into everyday life on various hospital wards during their rotations at the Inselspital.
Mougiakakou: Maybe the interest is also linked to the fact that we have three female professors teaching in the Master Program. We may be role models and counteract the general perception that computers and algorithms are the domain of men. I don't know if there is a secret ingredient. But in any case, our courses are organized and taught with a lot of care and enthusiasm.

The Prix Lux was awarded by Prof. Virginia Richter, Rector (left) and Prof. Heike Mayer, Vice-Rector Quality and Sustainable Development (right)

Women during their reproductive years were excluded from many clinical studies. Thus, the results of these studies apply to male bodies. This has practical consequences.
Monika Kugemann

Does your goal of equal opportunities apply to researchers? Or also to patients?
Kugemann: The goal applies to both. There are AI applications that assist and empower patients to self-monitor their chronic disease, such as diabetes or different eye conditions. By helping them to better live with the condition, such AI solutions contribute to building equal opportunities for patients.
Other AI applications support good and objective clinical decisions. Even at the end of very long days, AI systems don't get tired or less attentive – and thus allow for a fair and equitable advice for each patient. However, AI is always a tool for the expert and does not replace him or her.

DAIM has now been awarded with the Equal Opportunities Prize of the University of Bern, the Prix Lux. Do you already know what you will use the prize money for?
Kugemann: We are really happy to receive this prize! It is a very nice recognition for the hard work that we – and everyone else in the DAIM community – has put into this endeavor. We will use the money to enhance our portfolio in the next years. For what exactly stays a surprise for now, as the discussions are still ongoing.

The interview was conducted by Ori Schipper, science writer based in Bern.

About the Prix Lux
The Prix Lux of the University of Bern honors commitment to equal opportunities. Groups, smaller or larger units that are committed to equality in the area of "Gender and Diversity" at the University of Bern can be nominated for the prize. The measures applied should stimulate discussion on equality and equal opportunities topics, be innovative, original and sustainable, and have transfer potential.

More about Prix Lux

About DAIM
DAIM is an initiative of the Center for Artificial Intelligence in Medicine (CAIM) of the University of Bern. DAIM aims to promote diversity, equity and inclusion for the benefit of the health and well-being of AI researchers with projects on healthcare applications, academic excellence and innovation through multiple viewpoints in AI research as well as fighting biases in AI development.

DAIM
Diversity for AI in Medicine

More about DAIM

Gender Medicine in Bern and Switzerland

Gender medicine is an innovative field of research that aims to tailor healthcare more effectively to the needs of each gender. Gender medicine advances personalized medicine and improves the quality of treatment for everyone. The Faculty of Medicine is committed to this new interdisciplinary field.

Biological and psychosocial gender influence how an illness develops, presents itself and can be treated. In addition to physical differences, socio-cultural factors also play a decisive role. By researching all these differences, gender medicine contributes to better diagnoses and treatments – and to more precise and efficient healthcare overall.

It is not only internationally, but also in Switzerland, that this new discipline of gender medicine is becoming increasingly significant. With the National Research Program "Gender Medicine and Health" (NRP 83), which was launched in 2023, the federal government is providing 11 million francs for a research phase of 5 years. The aim is to create an evidence-based knowledge base in Switzerland for taking sex and gender into account as factors in the fields of health research, medicine and public health.

Founding member of the Swiss Institute for Gender Medicine
In order to combine their strengths in the field of gender medicine, in 2024 Swiss medical faculties created the first umbrella organization for gender medicine in Switzerland: the Swiss Institute for Gender Medicine. The medical faculties of the Universities of Basel, Bern, Geneva, Lausanne and Zurich have set themselves the goal of further expanding their expertise in research, teaching and care in the field of gender medicine.

First Swiss Gender Medicine Symposium
The Swiss Gender Medicine Symposium is a first initiative to secure the position of gender medicine in academia, but particularly also in practice. The symposium was launched in Zurich on October 30, 2024 with a preliminary event. Prof. Catherine Gebhard, Department of Cardiology, and Prof. Lia Bally, Department of Diabetes, Endocrinology, Nutritional Medicine and Metabolism, participated as representatives of the Faculty of Medicine of the University of Bern.
The Swiss Gender Medicine Symposium serves as a platform for publicising new research findings and promoting exchange between researchers, health professionals, representatives from politics and business, as well as interested members of the public. The first Swiss Gender Medicine Symposium will take place on October 20 and 21, 2025, at the Bern Kursaal.

Endowed professorship for gender medicine planned
The Faculty of Medicine wishes to position gender-specific issues consistently in its research and teaching and thus help findings in this area to be quickly and sustainably incorporated into clinical practice. The University supports this strategic decision of the Faculty and has approved the establishment of an endowed professorship in gender medicine. As a hub connecting research, teaching and practice, the endowed professorship will make a significant contribution to developing and establishing innovative strategies and ideas in the field of gender medicine.

Swiss Gender Medicine Symposium

Talent4Bern

The Talent4Bern funding program supports researchers who wish to apply for an SNSF Starting Grant, an SNSF Ambizione grant, or an ERC Starting Grant. The candidates selected for the program receive support in preparing their grant proposals and interviews with the evaluation body. If successful with their applications, the candidates receive further support from the Faculty.

The Faculty of Medicine has launched the Talent4Bern program in 2022. In the meantime, researchers who applied for a Starting Grant in the second SNSF call have benefited from the program. Due to the success of the program, the Faculty has decided to extend it to applicants for SNSF Ambizione grants. These grants are aimed at early career researchers who wish to conduct, manage, and lead an independent project at a Swiss higher education institution.

As Switzerland will be allowed to participate in the ERC Starting Grants again from summer 2024, these candidates will now also be included in the Talent4Bern program. The Faculty is pleased about the great interest shown by early career researchers in the program and, of course, about the successful grant applications.

Faculty membership for externally funded assistant professors

At the end of 2022, the Faculty Executive Board decided to grant a seat on the Faculty Council to holders of an SNSF Starting Grant or another externally funded assistant professorship. The assistant professors will have the right to vote at Faculty Council meetings, the opportunity to participate in Faculty committees, and to use the platform for networking. The highly qualified young researchers are invited to take advantage of this opportunity to help shape the future of the Faculty.

Mentoring is the core of the program

Mentoring by established researchers with substantial experience from review panels of national and international funding institutions is a core element of the Talent4Bern program. The Faculty of Medicine would like to thank all the mentors. Prof. Robert Rieben and Prof. Andrew Macpherson have been very involved as mentors since the start of the program. On behalf of all the mentors, they explain in the video why they think it is important for experienced researchers to make time for the next generation.

It's a chance to give back something that people in the past have done to help me.

Two Talent4Bern mentors explain in the video why they are engaging in these roles.

More about the Talent4Bern program

Congratulations to our recipients of an SNSF Starting Grant or SNSF Ambizione grant in 2024.

Prof. Sarah C. Brüningk
SNSF Starting Grant

Sarah Brüningk is Head of the Center for AI in Radiation Oncology at the Inselspital and the University of Bern. Her project titled Pediatric digital health towards data-driven precision therapy aims to improve outcomes for children with life-threatening conditions by leveraging multimodal data. Through computational approaches and artificial intelligence, she will investigate personalized therapies, simulate in silico trials, and generate synthetic controls. Specifically, she will employ generative models and contrastive learning, to address data scarcity and heterogeneity in pediatric neuro-oncology and sepsis.

Dr. Mattia Aime
SNSF Starting Grant

Mattia Aime's project titled Cracking the neural code shaping emotional memories during sleep (REMind) focuses on emotional memory processing during sleep. Mattia Aime will establish his own research group at the Institute of Physiology and investigate the neural dynamics of emotion-related regions, uncovering the plasticity mechanisms that govern emotional memory processing during non-REM and REM sleep. New perspectives on the relationship between sleep, memory, and neural plasticity will potentially lead to unlocking crucial therapeutic targets for sleep and affective disorders.

Dr. Federica Maria Conedera
SNSF Ambizione

Age-related macular degeneration (AMD) is a leading cause of irreversible vision loss, linked to immune system involvement. Recent research highlights the role of cytotoxic CD8+ T-cells in retinal degeneration, with correlations between T-cell infiltration and advanced AMD features. In her project titled Targeting the T-cell response as a novel therapeutic strategy for retinal degeneration, Federica Conedera from the Department for BioMedical Research will investigate how CD8+ T-cells exacerbate early-stage AMD through apoptosis and immune checkpoint dysregulation, aiming to identify novel therapeutic targets using innovative techniques.

Dr. Mélodie Derome
SNSF Ambizione

Mélodie Derome is a Postdoctoral Research Fellow at the Translational Research Center of the UPD in Bern and at the Department of Psychiatry of the University of Geneva. Her two-site study (Bern and Geneva) will investigate auditory verbal hallucinations with emotional content (AVH-EC) in schizophrenia using clinical, cognitive, ecological, and neuroimaging measures. It compares AVH-EC to neutral AVH and healthy controls and explores the roles of trauma, dissociation, and emotion dysregulation. In Bern, patients receiving clinical rTMS will be assessed pre/post to identify predictors of treatment response.

Dr. Coral Salvador
SNSF Ambizione

Coral Salvador's project titled IGIA-SETH: Unravelling the impacts of droughts on human health aims to advance knowledge on the global impacts of droughts on health from a holistic approach and clarify mechanisms and vulnerabilities using robust methods in climate epidemiology. Coral Salvador will join the Institute of Social and Preventive Medicine (ISPM) in summer 2025.

Grants for Protected Research Time

With the announcement of grants for Protected Research Time, the Faculty of Medicine supports the possibility of creating clinical research time for young academics in the medical service sector. Four promising new research projects were funded in 2024.

The Dean's Office of the Faculty of Medicine and the Department of Teaching and Research of the Insel Gruppe jointly offer Young Investigator Grants. These are aimed at young assistant and senior physicians who pursue ambitions in research in addition to their clinical activities, as well as PhD students of the Graduate School for Health Sciences (GHS) in the Clinical Sciences Program. The grants for Protected Research Time (PRT) provide the opportunity to create clinical research time for junior academic staff in the medical services sector. The amount granted comprises 20% of the salary for two years for clinicians at the Inselspital or 50% of the salary for two years for PhD students at the GHS.

More about the PRT grants

The Faculty congratulates the five 2024 grantees and wishes them much success in their clinical research projects.

Dr. Cecilia Friedrichs-Maeder
Department of Neurology

Pharmacological modulation of cortical excitability in epilepsy

Dr. Moritz Hundertmark
Department of Cardiology

Improving early detection, treatment decisions and outcomes of transthyretin amyloidosis cardiomyopathy by combining multimodal, advanced cardiac imaging data and artificial intelligence

Dr. Silvan Jungi
Department of Vascular Surgery

Evaluation of a novel magnetically steerable guidewire and a mobile electromagnetic navigation system for stenting of reno-visceral arteries and for reaching facial arteries through a remote operator

Dr. Lilian Salm
Department of Visceral Surgery and Medicine

The local action and systemic effector function of serosal-type mast cells

Dr. Kevin Vallotton
Department of Ophthalmology

A surgical technique for vision correction in keratoconus patients using intrastromal injectables

University Institutes

Content

Department for BioMedical Research

Prof. Mark A. Rubin
Director DBMR

Prof. Volker Enzmann
Deputy Director DBMR

Prof. Marianna Kruithof-de Julio
DBMR Board of Directors

PD Dr. Thomas Marti
DBMR Board of Directors

Prof. Carsten Riether
DBMR Board of Directors

The DBMR is the Faculty's research department in biomedicine. To bridge laboratory-based and biomedical patient-oriented clinical research, the DBMR promotes an integrative perspective to clinical research with a strong emphasis on developing translational approaches.

DBMR Day of BioMedical Research 2024

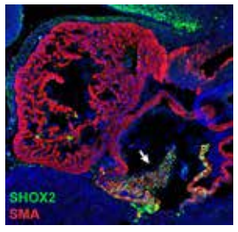
The event was held in July 2024. More than 110 posters were submitted, from which five were selected for the DBMR Poster Prizes, Alumni MedBern Research Prize and Best Cell Stem Poster Prize. Highlights of the event included the lecture of the keynote speaker Prof. Dr. Katerina Politi, Co-Leader, Cancer Signaling Networks, Yale Cancer Center and the announcement of several awards, including the Best DBMR Publication 2023, the Benoît Pochon Prize 2023, the DBMR Prize for Innovative Research Idea 2024, and of Dr. Andrea Felser as the winner of the Johanna Dürmüller-Bol DBMR Research Award 2024 for her project 'The role of mitochondrial energy metabolism in adrenal hyperandrogenism: mechanisms and clinical implications'. Additionally, the DBMR Technician of the Year Award was presented for the first time.

Prof. Mark Rubin and the award winners: (from left to right) Roberta Esposito, Kay-Sara Sauter-Etter, Sara Çaku, Laura Gallucci, Jacopo Soldini, Mark Rubin, Siavash Rahimi, Janine Lux, Anke Augspach, Martina Minoli, Mark Wehrli, Andrea Felser.

To the DBMR website, Day of BioMedical Research

Study funded by SNSF shows how a 'gene desert' regulates embryonic development and cardiac function

A significant study led by Prof. Dr. Marco Osterwalder was published in Nature Communications. In collaboration with Prof. Dr. John Cobb from the University of Calgary in Canada, the Lawrence Berkeley National Laboratory, USA, and other partners, the research team discovered that 'gene desert' adjacent to the Shox2 gene plays an important role in the development of the embryo and the heart in both mice and humans. The study provides further evidence for the significance of gene-free DNA segments in gene regulation and are particularly relevant for the 'mapping' of the human genome.



Mouse embryo heart tissue section. Red -myocardial cells. Green - SHOX2 protein. Blue - embryonic cells' nuclei. © Marco Osterwalder

Abassah-Oppong et al., Nat Commun. 2024

TeX-DisK - Project to develop 3D implants from regenerated silk for intervertebral disc regeneration

Prof. Dr. Benjamin Gantenbein and collaborators have successfully acquired funding for TeX-DisK. This German- Swiss collaboration on tissue engineering of intervertebral disc replacements with silk to address disc-related pain was funded by the SNSF Weave Agency and the German Grant Agency for three years.

Whole scaffold of a fiber-based additive manufactured silk used to mimic an inter-vertebral disc. © Courtesy of Benjamin Gantenbein

To the project page on the SNSF Data Portal

Department of Clinical Research

Prof. Eva Segelov
Director

Dr. Ueli Reber
Head of Business Operations & Head of CTU ad.int.

Carmen Jörg Fetscherin
Head CIU

Dr. Kristin Marie Bivens
Head of Education & Head of PPI

Dr. Felix Rintelen
Head of Clinical Study Management

Miriam Wegmann
Head of Data Management

Dr. Martina Zimmermann
Head of Monitoring

Valérie Progin,
Head of Quality Management

Dr. Lukas Bütikofer
Head of Statistics & Methodology

The Department provides the central organization for expertise, innovation, leadership, contemporary pedagogy, and centralized facilities for supporting clinical researchers. It works across multiple collaborations at the Faculty of Medicine and the university hospitals of Bern.

Ongoing growth of the Department of Clinical Research

In 2024, the Department of Clinical Research experienced significant growth, welcoming several new members and initiatives. Among these was the Global Health research group, led by PD Dr. med. Kristina Keitel, which focuses on utilizing AI and large data models to improve pediatric healthcare worldwide. Additionally, the department expanded its team with the recruitment of 12 new employees, highlighting the increasing demand for our collaborations and research projects. This growth strengthens our ability to advance clinical research and foster innovation.

Part of the DCR team attending a team event in 2024

Day and Week of Clinical Research 2024 – D/WoCR 2024

The second annual DCR Day and Week of Clinical Research, a flagship event for clinical research in the Bern region hosted by Prof. Dr. med. Eva Segelov, showcased academic achievements, featuring keynote lectures by Prof. Dr. Asma Khalil on „Controversies Related to Preterm Birth in Twins" and Prof. Dr. Vincenzo Mazzaferro on „Research Progress in Liver Transplantation." Highlights included a Junior Research Showcase, a poster walk, and interactive discussions with international experts. Prof. Dr. Khalil also shared her experiences and career as a successful academic while addressing the challenges of gender equality and work-life balance in a Breakfast Talk. The event concluded with a panel discussion moderated by Prof. Dr. Urs Fischer on optimizing the use of patient data in clinical research.

D/WoCR 2024: Prof. D. Surbek & Prof. E. Segelov (Organising Committee) &
Prof. A. Khalil, Prof. L. Raio and Prof. V. Mazzaferro (Keynote speaker)

Extended range of educational courses

DCR currently offers an array of courses, including swissethics-recognized Good Clinical Practice and REDCap Database courses, as well as courses designed specifically for clinicians: Medical Grant Writing for Clinicians, Fundamental Statistics for Clinicians (new in 2025), Advanced Statistics for Clinicians (new in 2025), Patient and Public Involvement for Clinicians (new in 2025), Models of Contemporary Excellence in Clinical Research (new in 2025) and Clinical Trials in Action for Clinicians (new in 2025). Our courses align with the Swiss Clinical Research Core Competencies. This expansion provides even more opportunities for clinicians and clinical researchers to enhance their knowledge and skills.

Impression of a 2024 grant writing course at the sitem-insel building

Institute of Anatomy

Prof. Valentin Djonov
Director

Prof. Nadia Mercader Huber
Co-Director

Prof. Benoît Zuber
Co-Director

PD Dr. Edik Babiychuk
Group Leader

PD Dr. Elisabeth Eppler
Group Leader

PD Dr. Ruslan Hlushchuk
Group Leader

PD Dr. Asparouh Iliev
Group Leader

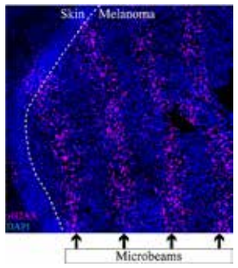
PD Dr. Stefan Tschanz, Central Services Leader

Prof. Johannes Schittny
Group Leader

The Institute is responsible for teaching macroanatomy, histology, and embryology. Research topics and expertise include imaging across scales (electron microscopy, microCT, ligh sheet microscopy), neuroscience, cancer, inflammation, and cardiovascular research.

Microbeams, a novel type of Radiotherapy triggers in situ vaccination for the treatment of melanoma

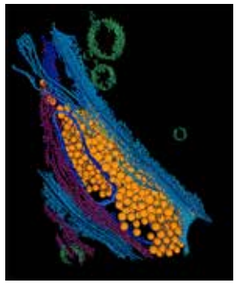
The group of Prof. Valentin Djonov demonstrated that Microbeam Radiotherapy (MRT) activates the host's own anti-tumor immune response in melanoma resembling the effect of in situ vaccination. The beneficial effects of MRT are especially pronounced in combination with immunotherapy, reaching a 40% complete tumor remission. This represents one of the best treatment outcomes reported in preclinical studies..



Trappetti et al., Cancer Lett. 2025

CryoVesNet, a deep learning-based tool for synaptic vesicles segmentation

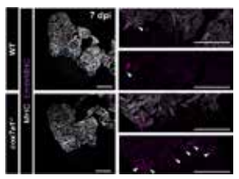
Benoît Zuber's team developed CryoVesNet, a deep learning tool automating synaptic vesicle segmentation in high-resolution images. Led by Amin Khosrozadeh, the study established an efficient, accurate pipeline to identify and analyze these cell communication structures. This innovation accelerates structural cell biology research and facilitates exploration of complex neuronal mechanisms. Published in JCB and featured as the January 2025 cover image, the project was supported by the Data Science Lab at the University of Bern.



Khosrozadeh et al., J Cell Biol. 2025

Metabolic priming by mitochondrial Super Complex disassembly accelerates heart regeneration

The mitochondrial respiratory chain is formed by complexes that can assemble into supercomplexes. The Mercader group, in collaboration with the Enríquez lab (CNIC, Spain) contributed to unravel complex superassembly. They identified cox7a1 as the assembly factor responsible for CIV dimer formation and described that its loss of function leads to metabolic rewiring, consequently accelerating heart regeneration in zebrafish..



Garcia-Poyatos et al., Dev Cell. 2024

Institute of Biochemistry and Molecular Medicine

Prof. Dimitrios Fotiadis
Managing Director

Prof. Jürg Gertsch
Deputy Director

Prof. Wanda Kukulski
Co-Director

Prof. Christine Peinelt
Co-Director

Prof. Hugues Abriel
Vice-Rector for Research and Innovation

Prof. Christiane Albrecht

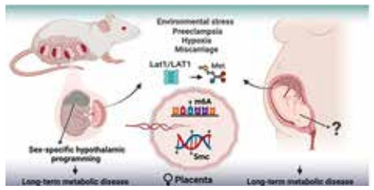
Prof. Thomas Lemmin

PD Dr. Martin Lochner
Lecturer

Research at the Institute focuses on the structure, function, and pharmacology of membrane proteins such as transporters, ion channels, and membrane receptors. A strong emphasis is put on the roles of these membrane proteins in human diseases such as cancer, cardiac disorders, pregnancy diseases, and neuropsychiatric disorders.

LAT1-dependent placental methionine uptake is a key player in fetal programming of metabolic disease

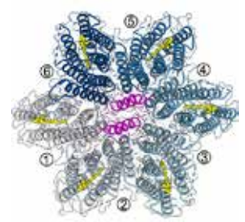
This study reports a major sex-specific global biochemical response to a variety of prenatal stressors affecting placental function, epigenetic programming, and life-long metabolic disease and provide a much-needed insight into early-life factors predisposing females/women to metabolic disorders.



Schroeder et al., Metabolism. 2024

Structural insights into the mechanism and dynamics of proteorhodopsin biogenesis and retinal scavenging

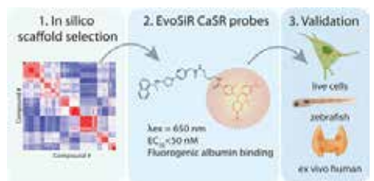
Three research groups of the IBMM collaborated to provide insights into the biogenesis of microbial ion-pumping rhodopsins, including their oligomeric assembly, variations in protomer stoichiometry and retinal incorporation through a potential cofactor scavenging mechanism. The study exemplifies the strength of combining cryo-EM, molecular dynamics and analytics.



Hirschi et al., Nat Commun. 2024

Silicon-rhodamine functionalized evocalcet probes potently and selectively label calcium sensing receptors in vitro, in vivo, and ex vivo

In this interdisciplinary study between the IBMM and the Department of Visceral Surgery and Medicine, a small-molecular probe was developed that can be employed in CaSR-related biomedical analyses where antibodies are not applicable. The study highlights the collaborative translational work towards the development of novel biomedical tools



Bàtora et al., ACS Pharmacol Transl Sci. 2024

Institute of Complementary and Integrative Medicine

Prof. Ursula Wolf
Director

Prof. Stephan Baumgartner (Prof. Univ. W/H, DE) Deputy Director

The Institute combines conventional and complementary medicine in the sense of integrative medicine. In both research and clinical activities, it works on an interdisciplinary and interprofessional basis. By combining research, teaching, and clinical work it contributes to advances in medical knowledge and therapeutic options.

Chronobiology of Viscum album L.: a time series of daily metabolomic fingerprints spanning 27 years

We present a dataset of 19'037 chromatograms of Viscum album L. in daily resolution over 27 years. The chromatograms were evaluated using computerized image analysis, resulting in 12 descriptors, of which one was an annual rhythm. Time series analysis revealed other descriptors having a self-correlation of ~50 days, pointing to further infradian rhythms. The data will be further explored regarding its potential to determine optimal harvesting times to ensure high quality of phytopharmaceutical raw material.

Typical examples of chromatograms of Viscum album extracts with AuCl3 as reagent, used as metabolomic fingerprints.

Guglielmetti et al., Front. Physiol. 2024

A systematic review on phytotherapy and anthroposophic medicine in seasonal allergic rhinitis

Seasonal allergic rhinitis (SAR) is a common condition that impacts quality of life and work productivity. Both European/Western PT and AM demonstrated beneficial effects on nasal and ocular symptoms, with butterbur (Petasites hybridus) being the most studied plant in PT and a lemon-quince extract in AM. The preparations evaluated in studies of sufficient quality were considered safe. This review highlights the potential of herbal preparations to the treatment of SAR.

Braunwalder et al., Int Arch Allergy Immunol. 2024

Online eurythmy therapy for cancer-related fatigue: a prospective repeated-measures observational study

We examined an online application of eurythmy therapy (ERYT), a mindful-movement technique from anthroposophic medicine. Results suggest that ERYT may reduce fatigue, enhance mindfulness, and improve stress and well-being. The online format implies increased affordability and accessibility, especially for individuals unable to leave their homes due to severe symptoms.

Timm et al., Front Integr Neurosci. 2024

Institute of Forensic Medicine

Prof. Christian Jackowski
Director

Prof. Wolfgang Weinmann
Deputy Director, Forensic Toxicology and Chemistry

PD Dr. Sandra Lösch, Physical Anthropology

Dr. Matthias Pfäffli
Traffic Medicine

Prof. Christian Schyma
Forensic Medicine and Imaging (F&E)

Dr. Silvia Utz
Forensic Molecular Biology (DL)

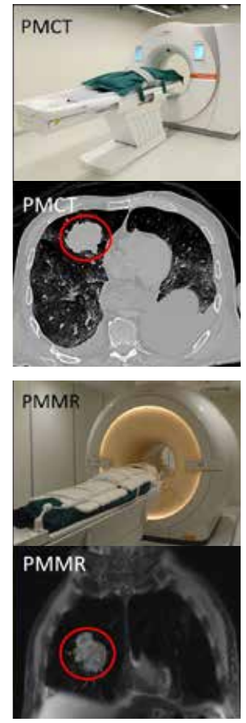
PD Dr. Wolf-Dieter Zech
Forensic Medicine and Imaging (DL)

Dr. Martin Zieger
Forensic Molecular Biology (F&L)

The Institute performs most of its investigative work on behalf of the public prosecutor's office. The findings it documents help facilitate the administration of justice and maintain public safety. Certain services may also be used by other authorities, hospitals, physicians, or even private individuals in exceptional cases.

Evaluation of diagnostic accuracy of state of the art post-mortem imaging compared to clinical autopsy

In the last decades, there has been a constant decline in clinical autopsy rates worldwide as well as in Switzerland. Against the background of clinical autopsy demise, medical experts and scientific literature stress the utmost importance of clinical autopsy for the medical system. The approach of post-mortem imaging (post-mortem computed tomography (PMCT) and postmortem magnetic resonance imaging (PMMR)) has been issued as a means to counterbalance this development. So far, post-mortem imaging has been used mainly in the field of forensic medicine, where it has been established as a valuable adjunct to forensic autopsy. However, the non-forensic field of clinical pathology addresses different questions than forensic medicine, in particular validation of clinical findings and diagnoses. So far, the diagnostic accuracy of combined unenhanced state-of-the-art PMCT and PMMR for answering relevant clinical pathology questions is not yet clarified. Therefore, the IRM Bern and the Institute of Tissue Medicine and Pathology Bern conducted an SNF-funded to address this question. In the project, n=120 clinical autopsy cases underwent PMCT and PMMR before autopsy. An autopsy was set as the gold standard and compared to post-mortem imaging to evaluate its diagnostic accuracy. Our results show that post-mortem CT and MRI cannot be used as an alternative to clinical pathology autopsy in general. However, if the goal of the post-mortem examination is to confirm or look for certain causes of death or certain types of pathological findings postmortem imaging can be used as an alternative to clinical pathology autopsy. A combined use of CT and MRI favors some particular findings, but is not always necessary or useful.



Post-mortem computed tomography (upper picture half) and post-mortem magnetic resonance imaging (lower picture half) visualizing a malignant lung tumor (red circle).

To the project website

Institute for the History of Medicine


Prof. Hubert Steinke
Director


Dr. Pascal Germann
Senior Assistant


Stefan Hächler
Head of Archive


Dr. Manuel Kaiser, Head of Collection

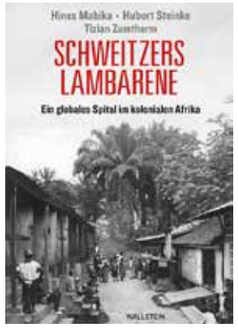

Bruno Müller
Head of Library


Dr. Magaly Tornay
Ethics Project

Research focuses on the practice and theory of medicine in the 18th to 21st centuries. Teaching aims to contribute to the critical reflection and understanding of contemporary medicine from a historical perspective. The Institute houses major collections.

Schweitzer's Lambarene

As a major result of an SNSF funded research project we published a book on Albert Schweitzer's famous hospital in Gabon 1913-1965. Based on a great variety of sources, it describes the medical services, the daily life of patients and the development of an international network of supporters. It shows the entanglements of a great humanitarian project in colonial lines of thought.



Wallstein Verlag, Schweitzers Lambarene

The evolution of ethical guidelines

Together with the Swiss Academy of Medical Sciences, we organized a public symposium "Medical-ethical guidelines in transition". We presented the results of our SNSF funded research project explaining how norms have changed historically and showing the breaks, cycles and continuities to which ethical thinking has been subject. The historical perspective will serve the critical discussion on the definition of ethical guidelines in the future.

Leonardo da Vinci's concept of the soul

The book provides the first comprehensive presentation of Leonardo's concept of the soul. It shows that Leonardo dispensed with any metaphysics, starting from physiological functions and viewing the soul as a visually dominant organ of perception, closely connected to the common sense (sensus communis), and to the medieval doctrine of the cerebral ventricles.

Klaus F. Steinsiepe: Leonardo da Vinci's concept of the soul

Institute for Infectious Diseases


Prof. Stephen Leib
Director


PD Dr. Franziska Suter-Riniker
Deputy Director


Prof. Siegfried Hapfelmeier-Balmer, Deputy Head Research


Prof. Maria Luisa Balmer


Dr. Pascal Bittel


PD Dr. Ronald Dijkman


Prof. Andrea Endimiani


Prof. Carmen Faso


PD Dr. Lucy Hathaway


Prof. Markus Hilty


Prof. Andreas Kronenberg
Head anresis.ch


PD Dr. Christoph Niederhauser


Dr. Alexander Oberli


PD Dr. Alban Ramette


Prof. Parham Sendi


Dr. Katharina Summermatter
Head
Biosafety Center

The Institute integrates research, education and diagnostic services over the full spectrum of microbiology, including virology, bacteriology, mycology, parasitology, molecular diagnostics, and infection serology.

A new in vivo model of intestinal colonization using *Zophobas morio* larvae

In the laboratory of Prof. Andrea Endimiani, ***Zophobas morio*** insect larvae, commonly known as "superworms", have been established as a new model of intestinal colonization with multi-drug-resistant Gram-negative bacteria. This model promises to be a versatile method to study novel gut decolonization strategies in accordance with the 3R principle.

Eddoubaji et al., Front Microbiol. 2024

Eddoubaji et al., J Glob Antimicrob Resist. 2024

Gut bacteria increase toxicity of arsenic in seafood

A new interdisciplinary study from the University of Bern Interfaculty Research Cooperation „One Health" shows that gut bacteria play a crucial role in the conversion of arsenobetaine. This non-toxic compound, commonly found in seafood and previously thought to be harmless, is converted into highly toxic arsenic compounds in the mammalian body through the activity of gut bacteria. The findings raise new questions about the safety of seafood.

Mukherjee et al., J Hazard Mater. 2024

Searching for new bacterial therapeutics amongst microbial neighbours

An article in The Scientist spotlighted a recent discovery by IFIK researchers, led by Dr. Lucy Hathaway: a bacterial peptide that specifically stymies growth of the antibiotic-resistant pathogen Streptococcus pneumoniae.

To the article

Institute for Medical Education

Prof. Sissel Guttormsen
Director IML

Prof. Sören Huwendiek
Department Head AAE

Dr. Kai Schnabel
Department Head AUM

Dr. Sandra Trachsel
Department Head MME

Dr. Philippe Zimmermann
Department Head ASCII

The Institute is a competence center for medical education at the Faculty of Medicine of the University of Bern. It combines expertise and research in teaching, evaluation, and development under one roof. The Institute's interdisciplinary teams provide comprehensive support to the clients and partners.

FRONTLINERS: Evidence based blended learning on Precision Medicine

Teaching precision medicine to primary care professionals: General Practitioners, Pharmacists, Advance practice nurses.

More about the training program

Two great international conferences on medical education in Basel with IML engagement

In 2024, two well-established international health profession education conferences were held in Switzerland, which are also of great importance to the IML: One was the conference of the 'Association for Medical Education in Europe', AMEE, and the '4th World Summit in Competency-Based Education in Healthcare Professions'.

To the article on the IML Website

Paediatrics and Collège A Webinar: Two innovative training formats for paediatricians in Switzerland

Continuous training is essential for paediatricians in order to keep up to date with the latest knowledge. In Switzerland, two formats are available for this purpose: the Paediatrics Webinar and Collège A.

Learn more about Paediatrics and Collège A Webinar

The Art of Assessment: Behind the Scenes of OSCEs and Multiple-Choice Exams

Exams in the health professions serve several important functions. This article describes how they are developed, conducted, and evaluated.

To the article on the IML Website

Institute of Pharmacology

Prof. Carole Bourquin
Director since September

Prof. Hans-Uwe Simon, Director a.i. until August

Prof. Thomas Kaufmann

PD Dr. Georgia Konstantinidou

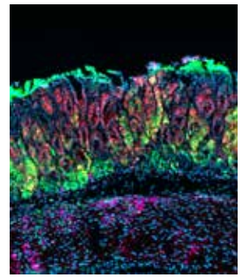
Prof. Stephan von Gunten

Prof. Shida Yousefi
until April

The Institute conducts translational research on the pharmacology of inflammation and cancer, from fundamental mechanisms to patient-oriented research. The Institute commits to educating students in pharmacology to become proficient, responsible health professionals.

Prof. Carole Bourquin is the new director of the institute

Prof. Carole Bourquin is an experimental and clinical pharmacologist with a strong track record in immunopharmacology. She studies the mechanisms that govern immune responses and their pharmacological targeting to improve the efficacy of therapies in inflammation and cancer. As an experienced pharmacologist at the interface between basic, preclinical and clinical research, she brings to the University of Bern an extensive expertise in the translational aspects of immunopharmacology and drug development. Prof. Bourquin has received several awards for her outstanding achievements, including the Egon Naef Prize for 3R research. Her groundbreaking research is funded by the Swiss National Science Foundation, Swiss Cancer Research and Horizon Europe. Prof. Bourquin also has a longstanding commitment towards teaching pharmacology to students in medicine and pharmacy and supporting young talent.



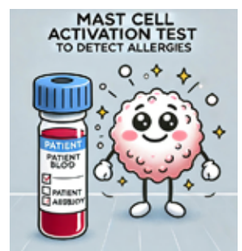
HORIZON-European Innovation Council (EIC) Pathfinder Challenge NUTRIMMUNE

Prof. Dr. Stephan von Gunten and a team of international collaborators were granted support for the EIC Pathfinder Challenge NUTRIMMUNE under Horizon Europe. NUTRIMMUNE addresses the challenges of non-communicable diseases (NCDs) such as type 2 diabetes, cardiovascular diseases and cancers, often linked to chronic inflammation and weakened immunity, particularly in people suffering from overweight or obesity. In this context, the project aims to transform nutrition into an immune prevention tool, via Precision Nutrition (PN) and/or immunotherapeutic approaches. The project aims to identify indicators of good immune health, to verify what types of foods influence immunity, and to understand how our diet interacts with the microbes in our intestine and certain molecules important for the immune system. Using cutting-edge glyco-immunological technologies, the von Gunten subteam aims to reveal unprecedented aspects of glycomics that determine the interplay between nutrition, bacterial glycans, and the immune system of the host.

Clinical utility of a novel in vitro mast cell model for peanut allergy

Research conducted in the lab of Prof. Kaufmann over recent years has been instrumental in developing an advanced mast cell model that outperforms existing models in ‚mast cell activation tests' (MAT) used to assess allergies (DOI: 10.1016/j.jaci.2021.08.006). The cellular model was tested in a clinical utility study led by Prof. A. Eggel (DBMR, University of Bern and Inselspital) and colleagues from the Hospital for Sick Kids in Toronto, Canada. The study demonstrated an exceptionally high diagnostic accuracy of 95% in a cohort of peanut-allergic patients. These promising results strongly support the potential of MAT assays such as this one to eventually replace the complex and risk-associated oral food challenges.

Bachmeier-Zbären et al., Allergy. 2024



Institute of Physiology

Prof. Christian Soeller
Managing Director

Prof. Thomas Nevian
Co-Director

Prof. Walter Senn
Co-Director

Prof. Katja Odening
Co-Director

Prof. Jan Kucera

PD Dr. Nina Ullrich

Ass. Prof. Stéphane Ciocchi

Ass. Prof. Jean-Pascal Pfister

Dr. Mihai Petrovici

Prof. em. Stephan Rohr
Emeritus

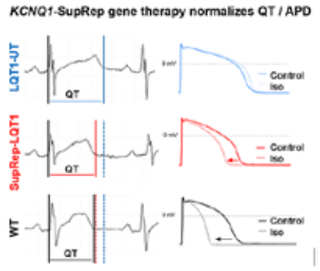
Prof. em Ernst Niggli
Emeritus

Prof. em. Marcel Egger
Emeritus

The Institute provides undergraduate and post-graduate education for students in medicine and life science. It carries out research mainly in the field of heart- and neurophysiology.

First successful gene therapy in long QT syndrome

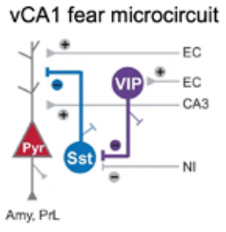
Using a suppression-replacement approach of the mutant KCNQ1 and a cardiac-specific intra-aortic, trans-coronary delivery approach, this first in-animal, proof-of-concept gene therapy study provides evidence for the correction of the LQT1 phenotype: In transgenic LQT1 rabbit models, treatment with KCNQ1-SupRep gene therapy normalized the QT interval in vivo and the cellular APD90 to near WT levels both at baseline and after pro-arrhythmic isoproterenol stimulation, and reduced repolarization heterogeneity. This translational study may impact on future LQT1 patient treatment.



Bains et al., Eur Heart J. 2024

Distinct inhibitory microcircuits regulating anxiety and fear behaviors

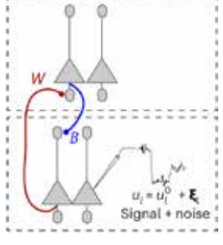
In emotion research, anxiety and fear have always been interconnected, sharing overlapping brain structures and neural circuitry. Here, we show a division of labor in local GABAergic inhibitory microcircuits of the ventral hippocampus, orchestrating the activity of subpopulations of pyramidal neurons to shape anxiety and fear behaviors in mice.



Li et al., Nat Commun. 2024

Noise as a resource: how sensory cortex can learn top-down projections

Models of sensory processing and learning often require weight transport from feed-forward to feedback paths. We propose a model for learning these weights in layered cortical hierarchies by exploiting the ubiquitous noise found in biological systems as an additional source of information.



Max et al., Nat Mach Intell. 2024

Institute of Primary Health Care

Prof. Nicolas Rodondi
Director

Luc-André Guex, Administrative and Deputy Director

Prof. Alice Panchaud
Pharmacy Primary Care

Prof. Reto Auer
Substance Use

Prof. Sven Streit
Interprofessional Primary Care

Prof. Stéphanie Baggio
Statistics & Ethics

PD Dr. Orestis Efthimiou
Clinical Evidence & Guidelines

Dr. Moa Haller
Teaching

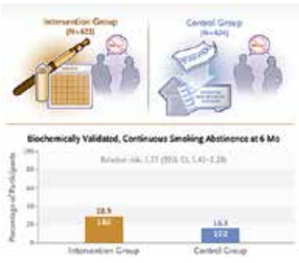
PD Dr. Patricia Chocano Ageing Research

PD Dr Elisavet Moutzouri
Career Development

The Institute is committed to training and promoting the next generation of family doctors, researchers and teachers in primary care. It generates the academic foundations and prerequisites for modern, integratively networked and patient-oriented primary care.

Efficacy and safety of e-cigarettes for smoking cessation, a randomized controlled trial

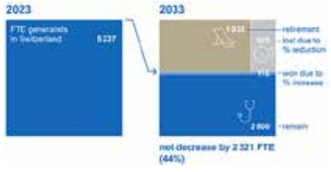
We published the world's largest study on vapes (e-cigarettes), comparing the efficacy and safety of vapes as part of intensive smoking cessation counseling to counseling without vapes. Results showed that vapes are more effective for smoking cessation than counseling without vapes at 6-months, with few side effects.



Auer et al., N Engl J Med. 2024

Current and future workforce of general internal medicine in Switzerland: a cross-sectional study

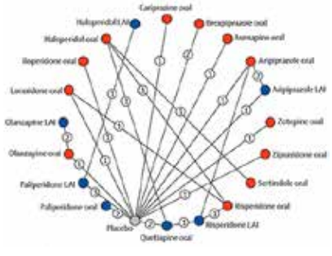
A survey by the Swiss Society of General Internal Medicine predicted that 44% of its workforce may exit by 2033, creating a gap of 2,321 full-time physicians. This endangers healthcare quality and requires action, e.g., improving training, balancing workloads, and supporting work-life balance.



Reinhard et al., Swiss Med Wkly. 2024

Efficacy and effectiveness of antipsychotics in schizophrenia: combining evidence from randomised controlled trials and real-world data

We compared RCT efficacy and real-world effectiveness of antipsychotics for schizophrenia and estimated overall treatment effects. We combined data from 90,000 individuals from Swedish and Finnish registries and 10,000 individuals in 30 RCTs. RCTs were in line with real-world evidence for most drug comparisons. Our results further the understanding of the generalisability of RCTs to clinical practice and may inform guidelines.



Efthimiou et al., Lancet Psychiatry. 2024

Institute of Social and Preventive Medicine


Prof. Marcel Zwahlen
Director


Prof. Claudia Kuehni
Deputy Director


Prof. Annika Frahsa


PD Dr. Christian Althaus


Prof. Matthias Egger


PD Dr. Marija Glisic


PD Dr. Andreas Haas


Prof. Nicola Low


Dr. Mario Morger


Prof. Stephan Reichenbach


PD Dr. Eliane Rohner


Prof. Georgia Salanti


Prof. David Schwappach


PD Dr. Ben Spycher


Prof. Ana Maria Vicedo-Cabrera


Prof. Sofia Zambrano

The Institute provides undergraduate and postgraduate education and carries out interdisciplinary research in the fields of social and behavioral health, clinical epidemiology and biostatistics, and international and environmental health.

Excess mortality in times of COVID-19 in Switzerland: geographical, socioeconomic and political determinants

We estimated excess mortality at the municipal level 2020 in Switzerland and explored associations with characteristics of municipalities, including socioeconomic position and voting behavior in a referendum on COVID-19 control measures. Most affected areas included Ticino, Romandie, and the Northeast. Higher excess mortality was linked to rural areas, cross-border labor markets, lower socioeconomic status, and greater opposition to COVID-19 measures.

Riou et al., Eur J Public Health. 2024

Developing clinical prediction models: a step-by-step guide

This article presents a step-by-step guide to help researchers develop and evaluate a clinical prediction model. The guide covers best practices in defining the aim and users, selecting data sources, addressing missing data, exploring alternative modelling options, and assessing model performance. The steps are illustrated using an example from relapsing-remitting multiple sclerosis. Comprehensive software code is also provided.

Efthimiou et al., BMJ. 2024

Ageing will amplify the health impacts of climate change

In a recent publication in Nature Communications, Chen et al. found that the progressive ageing of the population will amplify the increase in heat-related mortality impacts due to climate change in future decades. Let alone, the increase in old population will counteract the decrease of cold days due to climate change, which will also translate into an increase in mortality due to cold. These findings indicate that population ageing constitutes a crucial driver for future climate change impacts. This study has been co-led by ISPM (Prof. Ana M. Vicedo-Cabrera) with researchers of Yale University and collaborators of the Multi-country Multi-city Collaborative Research Network.

Chen et al., Nat Commun. 2024

Institute of Tissue Medicine and Pathology


Prof. Aurel Perren
Director


Prof. Alessandro Lugli
Deputy Director

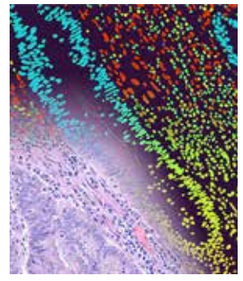

Prof. Inti Zlobec
Head of Digital Pathology


Prof. Philippe Krebs, Head of Experimental Pathology

The Institute covers the entire width of the morphological and molecular diagnostics of tissue samples. The combination of service, teaching, and research under one roof allows for close interaction and mutual inspiration. We additionally offer patient consultation hours since 2024.

HoVer-NeXt: a fast nuclei segmentation and classification pipeline for next generation histopathology

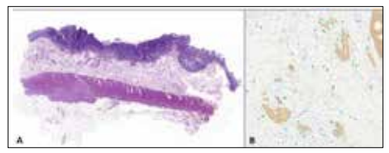
We developed HoVer-NeXt, a fast and accurate nuclei segmentation and classification deep learning model for hematoxylin and eosin-stained whole slide images. HoVer-NeXt performs competitively with state of the-art while processing images five times faster. It can detect, segment, and classify six different cell types, and we additionally incorporate mitosis as a seventh class to be able to investigate the proliferative state of colorectal cancer in context of the immune response.


Instance and semantic segmentation of H&E images by HoVer-NeXt

Baumann et al., OpenReview.net. 2024

Prediction model for lymph node metastases and recurrence in endoscopically resected pT1 colorectal cancer

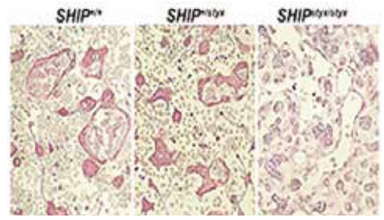
Patients with early-stage (pT1) colorectal cancer are often treated with endoscopic resection, but current guidelines recommend completion surgery with lymphadenectomy for patients with any high-risk histological feature. Prior studies suggest these risk stratifications are overly stringent, resulting in unnecessary surgeries. We present a refined prediction model based on guideline parameters to improve risk estimation for lymph node metastases and recurrence, advancing personalized treatment for early colorectal cancer.



Dawson et al., United European Gastroenterol J. 2024

SHIP1 deficiency causes inflammation dependent retardation in skeletal growth

Inflammation harms bone health, with conditions like post menopausal osteoporosis linked to chronic inflammation., The PI3K pathway supports immunity and bones. Mice without SHIP1, a PI3K regulator, show inflammation, low weight, and altered bone structure. Removing lymphocyties restores their bone health, highlighting the immune systems's role. However, their osteoclasts remain abnormal, showing SHIP1's direct impact on these cells. This study links inflammation, immunity, and bone health.


SHIP1-deficient osteo-clasts (right) exhibit enlarged morphologies compared to controls (left and middle)

Safari et al., Life Sci Alliance. 2024

Theodor Kocher Institute

Prof. Britta Engelhardt
Director and Research Group Leader

Prof. Ruth Lyck
Research Group Leader

Dr. Urban Deutsch
Research Group Leader

Dr. Gaby Enzmann
Principal Investigator

Dr. Steven Proulx
Research Group Leader

The Institute explores molecular mechanisms involved in inflammation, focusing on immune cell migration during immune surveillance and inflammation employing cutting-edge 3D live cell imaging. It teaches immunology, vascular cell biology, transgenic mouse technologies, cell migration, inflammation, and live cell imaging.

Advances and controversies in meningeal biology

With a team of international experts we had the unique opportunity to compile a review summarizing the current knowledge and controversies in meningeal biology. Appropriate consideration of the cellular and molecular composition of the meninges and their barrier properties is prerequisite for the understanding of their contribution to brain health and disease.

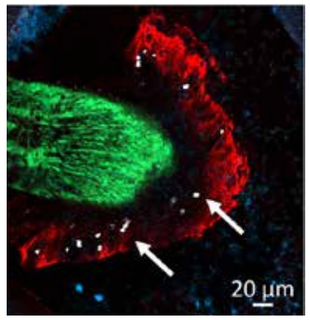
Betsholtz et al., Nat Neurosci. 2024

Hallmarks of meningeal pathophysiology

Clearance of erythrocytes from the subarachnoid space by lymphatics

Subarachnoid hemorrhage is a serious clinical condition associated with high morbidity and mortality. Improving the clearance of extravasated erythrocytes in the early stages after hemorrhage is a promising clinical strategy. However, the mechanisms for how red blood cells get cleared from the subarachnoid space are still unknown. In this publication, we labeled erythrocytes harvested from blood and reinjected them in the cerebrospinal fluid (CSF) of mice. Using near-infrared imaging and decalcification histology, we showed that intact erythrocytes can clear along olfactory and optic nerves to the lymphatic system.

Madarasz et al., EBioMedicine. 2024



Erythrocytes within the optic nerve sheath

Intravital synchroton radiation-based X-ray micro-computed tomography (SRγCT) allows visualization of CNS fluid dynamics

In our SNSF funded Sinergia project entitled “Fluid Dynamics of the Central Nervous System: 3D Functional Anatomy & Pathophysiology in Mouse Models” an important milestone has been achieved in collaboration with the laboratories of Vartan Kurtcuoglu (Zurich) and Bert Müller (Basel). We have established methodology allowing for 4D analysis of CSF flow over time in vivo with a resolution at the cellular level. Our studies will enable significant advancement in the understanding of fluid dynamics in the CNS.

To the project page on the SNSF Data Portal

University Clinics Inselspital

Content

Department of Anaesthesiology and Pain Medicine


Prof. Frank Stüber
Head and Chief Anaesthesiologist


PD Dr. Lutz Lehmann
Chief Anaesthesiologist


PD Dr. Martin Luginbühl
Chief Anaesthesiologist


Prof. Gabor Erdös, Senior Attending Anaesthesiologist


Prof. Dominik Guensch Senior Attending Anaesthesiologist, Head of Research


Prof. Thomas Riva, Senior Attending Anaesthesiologist


Prof. Andreas Vogt, Senior Attending Anaesthesiologist


Prof. Patrick Wüthrich Senior Attending Anaesthesiologist

The Department aims to define the best practices for personalized perioperative patient care, with basic science as a foundation and translational medicine as the vision for the future.

Academic degrees and publications

In 2024, two of our staff anaesthesiologists successfully obtained their venia docendi and one senior lecturer was appointed associate professor in anaesthesiology. In 2024, the Department of Anaesthesiology and Pain Medicine published 72 manuscripts in competitive peer reviewed journals.

https://pubmed.ncbi.nlm.nih.gov

Awards and grants

- PD Dr. Alexander Fuchs was awarded with the best poster prize at the 2024 meeting of the Swiss Society of Emergency and Rescue Medicine.
- At the 2024 congress of the European Association of Cardiothoracic Anaesthesiology and Intensive Care (EACTAIC) Mr. pract. med. Yann Schwerzmann and PD Dr. Kady Fischer won the award for the best and second-best abstract.
- At the 2024 congress of the Swiss Society of Anaesthesiology and Perioperative Medicine (SSAPM) reseachers of our department were awarded with several awards:
  - Prof. Thomas Riva et al.: Best paper award
  - Mr. cand. med. Jacopo Soldini: Best oral abstract presentation
  - Ms. cand. med. Lea Weber: Best poster presentation
- Drs. Debora Hofer and Michael Harnik were awarded with the second prize for their research from the German Pain Society
- Mr. cand. med. Jacopo Soldini won the best poster prize for medical students at the 2024 Day of BioMedical Research (DBMR) of Bern University
- Dr. Markus Huber got the Junior Research Showcase Award at the Day of Clinical Research (DCR) of Bern University


PD Dr. Kady Fischer (left) and pract. med. Yann Schwerzmann (right) at EACTAIC Kongress in Freiburg, Germany


Cand. med. Jacopo Soldini winning the award for best abstract presentation at the SSAPM congress in Interlaken

Riva et al., Lancet Child Adolesc Health. 2023

Hofer et al., Br J Anaesth 2024

Department of Angiology


Prof. Drosos Kotelis, Director and Chief Physician a.i.


Prof. Marc Schindewolf Head of Angiology a.i.


Prof. Yvonne Döring Head of Research


Dr. Rafael Kammer Staff Physician

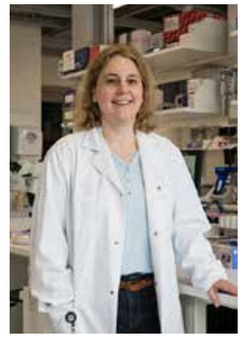

Dr. Maria Schaumeier Senior Physician


Dr. Sarah Bernhard Staff Physician


Györgyi Hamvas Clinical Study Manager

The research activities of the Department focus on congenital vascular malformations, risk factors and their modulation in peripheral artery disease, atherosclerosis and atherothrombosis.

Awards 2024



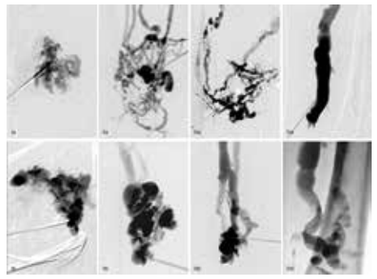
Swiss Heart Foundation Research Prize 2024
Prof. Yvonne Döring has been awarded the Swiss Heart Foundation Research Prize 2024.
The prize was awarded for her work on mechanisms of inflammation driving atherosclerosis.

Swiss Heart Foundation media release

USGG Sponsorship award
"Comparative analysis of serum proteomics in atherosclerosis and giant cell arteritis",
an interdisciplinary project of Dr. med. Lisa Christ (University Department for Rheumatology and Immunology) and Prof. Dr. med. Marc Schindewolf (University Department for Angiology).

A proposal for a revision of the phlebographic classification of congenital venous malformations

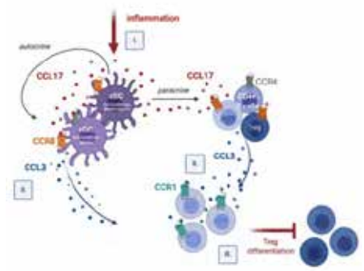
The above mentioned publication focused on distinguishing two different types of venous malformations, a non-lacunar / channel-like "type a" and a lacunar / spongiform "type b" as an adjunct to the current phlebographic classification. This distinction is crucial for interventional treatment planning in order to allow for a better estimation of possible complications due to the volume of sclerosant with probably more toxic effect on endothelial cells in non-lacunar type a and a need for a larger volume in lacunar type b.



Bernhard et al., Cardiovasc Diagn Ther. 2024

Identification of a non-canonical chemokine-receptor pathway suppressing regulatory T cells to drive atherosclerosis

This study reveals a novel CCL17-CCR8-CCL3 pathway that suppresses regulatory T cell (Treg) function and promotes atherosclerosis. In addition to CCR4, CCL17 signals through CCR8, inducing CCL3 expression to impair Tregs. Genetic ablation of CCL3 and CCR8 boosts FoxP3+ Treg numbers and reduces atherosclerosis, while CCL3 administration exacerbates disease. In humans, symptomatic atherosclerotic plaques show increased CCL3 and reduced FoxP3 expression. These findings highlight a non-canonical chemokine axis driving atherosclerosis by suppressing Tregs, suggesting CCL3 and CCR8 as potential therapeutic targets.



Döring et al., Nat Cardiovasc Res. 2024

Department of Cardiac Surgery


Prof. Matthias Siepe
Director and Chief Physician


Prof. Florian Schönhoff
Consultant Cardiac Surgeon, Aortic Surgery


PD Dr. David Reineke, Consultant Cardiac Surgeon, Heart Transplantation


Dr. Emmanuel Zimmer
Specialist Cardiac Surgeon

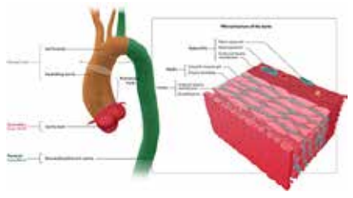

Prof. Sarah Longnus
Leader Translational Research


Hansjörg Jenni, Chief Cardiovascular Perfusionist

The Department is the largest cardiac surgery center in Switzerland. It focuses on coronary artery bypass surgery, valve surgery with valve-preserving reconstruction procedures, treatment of the entire spectrum of congenital heart defects in children and adults, thoracic aortic surgery, rhythm surgery, and heart failure surgery.

Aortic medicine remains an important and successful focus of our clinical and research activities

The new "Guidelines for diagnosing and treating acute and chronic syndromes of the aortic organ" from the European Association of Cardio-Thoracic Surgery and the American Society of Thoracic Surgeons were published with expert contributions from Prof. F. Schoenhoff and Prof. M. Siepe. At the Annual Meeting of the European Society of Cardio-Thoracic Surgery, Dr. M. Bartkevics and Prof. F. Schoenhoff won the 2024 EACTS/STS Award for their study of extracorporeal membrane oxygenation in acute aortic dissection, and Dr. M. Yildiz qualified as a Hans Borst Award finalist for his work on concomitant partial arch repair and valve-sparing aortic root replacement.



Czerny et al., Ann Thorac Surg. 2024

Cardiac surgery training: successful summer school and prestigious European award in graft preservation

Bern was the venue for the highly successful cardiac surgery summer school, jointly organized by the Austrian, German and Swiss societies for cardiac surgery. Early career European surgeons gathered for 2 days of hands-on training guided by expert local and international faculty.
Dr. M. Egle, a recent MD-PhD graduate, won the MMCTS Residents' Tutorial Competition for an outstanding video tutorial entitled "Surgical techniques of cardiac procurement, preparation and perfusion using the Organ Care System (OCS)", with the support of PD Dr. D. Reineke and Prof. S. Longnus.

To the tutorial

Nitric oxide production required for cardioprotective effects of hypothermic, oxygenated perfusion (HOPE)

Ex-vivo heart perfusion has been a focus of the cardiac surgery research team for many years and Bern is at the forefront of introducing this technique for cardiac transplantation in Switzerland. Making use of this approach, we revealed that sustained nitric oxide production is required for HOPE-induced improvements in vascular and ventricular function of grafts obtained with cardiac donation after circulatory death (DCD).

Egle et al., J Am Heart Assoc. 2024

Department of Cardiology


Prof. Stephan Windecker


Prof. Catherine Gebhard


Prof. Christoph Gräni


Prof. Andreas Häberlin


Prof. Lukas Hunziker


Prof. Katja Odening


Prof. Thomas Pilgrim


Prof. Fabien Praz


Prof. Lorenz Räber


Prof. Tobias Reichlin


Prof. Laurent Roten


Dr. Fabienne Schwitz

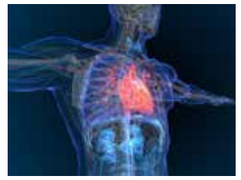

Prof. Stefan Stortecky


Prof. Hildegard Tanner

The Department is a leading center for the diagnosis and treatment of cardiovascular diseases.
In addition to the medical services, the Department is engaged in education, training, and research. From translational to clinical research, projects and studies are carried out across the entire spectrum of cardiology.

Risk stratification in nonischemic dilated cardiomyopathy using CMR Imaging – a systematic review and meta-analysis

In this meta-analysis of 103 studies comprising 29 687 patients with NIDCM, late gadolinium enhancement (LGE) presence and extent were consistently associated with arrhythmic, nonarrhythmic, and mortality end points, whereas left ventricular ejection fraction (LVEF) was not significantly associated with mortality and arrhythmia.



Picture: Shutterstock

Eichhorn et al., JAMA. 2024

Long-term effect of biodegradable vs durable polymer everolimus-eluting stents on neoatherosclerosis in ST-segment elevation myocardial infarction

Neoatherosclerosis is a leading cause of late (>1 year) stent failure following drug-eluting stent implantation. The role of biodegradable (BP) versus durable polymer (DP) drug-eluting stents on long-term occurrence of neoatherosclerosis remains unclear. A total of 178 patients underwent OCT assessment at 3 years. Use of BP-EES for primary PCI in patients presenting with STEMI was not superior to DP-EES regarding frequency of neoatherosclerosis at 3 years.

Neoatherosclerosis

Taniwaki et al., Eur Heart J. 2024

Risk of cardiac arrhythmias among climbers on Mount Everest

This prospective cohort study involved healthy individuals at altitude (8849m) on Mount Everest, Nepal. In this study, more than 1 in 3 healthy individuals experience cardiac arrhythmia during the climb of Mount Everest, thereby confirming the association between exposure to high altitude and incidence of cardiac arrhythmia.

Sherpa et al., JAMA Cardiol. 2024

Department of Clinical Chemistry


Prof. Martin Fiedler
Director


Prof. Carlo Largiadèr
Deputy Director


Prof. Ursula Amstutz


Prof. Alexander Leichtle


PD Dr. Alexander Lämmle


Prof. Mojgan Masoodi


PD Dr. Déborah Mathis

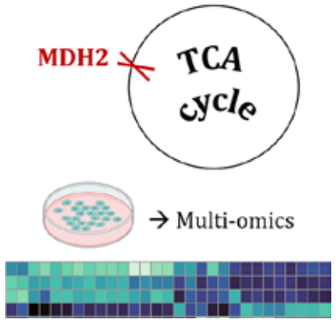

Prof. Michael Nagler


Prof. Jean-Marc Nuoffer

The Department provides clinical services within the Center for Laboratory Medicine, our laboratory specialists ensure a high professional quality of the analyses and effective workflows. A wide range of research services support local clinical research groups and international consortia.

TCA cycle disruption in malate dehydrogenase 2 deficient iPSC-heps and potential basis for triheptanoin treatment

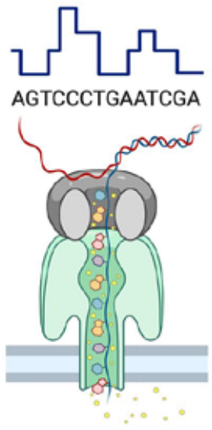
Multiomics technology applied to induced pluripotent stem cell-derived hepatocytes (iPSC-heps) reveals altered expression of mitochondrial pathways including the tricarboxylic acid cycle and changes in metabolite profiles in malate dehydrogenase 2 deficiency. Further, the molecular basis for triheptanoin treatment in this ultra-rare disease was investigated.



Mathis et al., Mol Genet Metab Rep. 2024

Approach for phased sequence-based genotyping of the critical pharmacogene Dihydropyrimidine Dehydrogenase (DPYD)

The study aimed to develop a cost-efficient long-read sequencing method to genotype the DPYD gene, focusing on producing phased genotypes to better understand fluoropyrimidine treatment outcomes. This research addresses a critical issue in cancer treatment where current genotyping methods can detect risk variants but cannot determine the phase, or the cis/trans configuration, when multiple variants are present. The phase is important because different configurations can lead to varying levels of toxicity risk, which influences dosing recommendations.



Ambrodji et al., Int J Mol Sci. 2024

Department of Cranio-Maxillofacial Surgery


Prof. Benoît Schaller
Director and Chief Physician


Prof. Nikola Saulacic
Head of Research Group


Prof. Willy Hofstetter
Scientific Consultant


Dr. Daniel Toneatti
PhD Student


Dr. Ioanna Kalaitsidou
Consultant

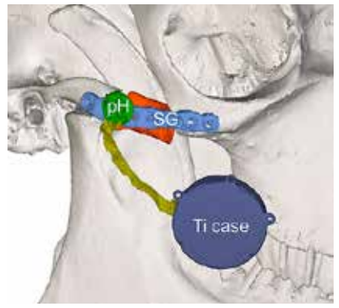

Dr. Sherin Khalil
Resident


Christian Schedeit
Resident

The Department offers the entire spectrum of oral and maxillofacial surgery. This includes detecting and treating diseases, injuries, malformations, and deformities of the face, oral cavity, teeth, and jaw. The Department's research has a strong translational character and focuses on the regeneration of the facial skull bone.

Implantation of sensors for in vivo monitoring

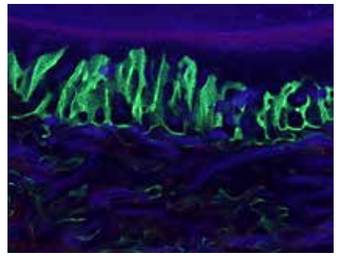
A custom implantable sensor was developed to measure strain, temperature, and pH. It was tested ex vivo and in a sheep midface fracture model, comparing titanium and degradable magnesium plate-screw systems. Near magnesium plates, pH was higher (7.4 ± 0.8) than near titanium (6.6 ± 0.4). Strain was greater on magnesium plates, likely due to their lower Young's modulus, while temperature remained similar (Mg: 37.8 ± 0.8°C; Ti: 38.1 ± 0.6°C).



Rich et al., Bioact Mater. 2024

Vertical alveolar ridge regeneration by means of periosteal activation

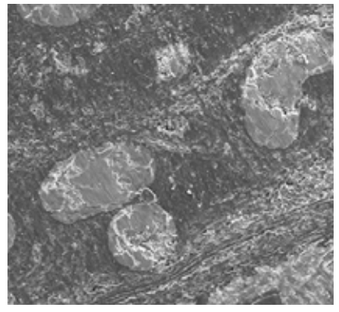
The protocol of periosteal activation by means of alternated activation and relaxation could enhance apposition of new bone. Present findings indicated that this protocol may be successfully applied for the regeneration of vertical alveolar bone deficiencies. Parallel-fibered lamellar bone with bony sprouts within the bone marrow was observed in all sites.
The fluorochrome-labelled lines were orientated parallel to the vector of distraction (Figure). The findings were confirmed histomorphometrically for all area parameters.



Saulacic et al., J Clin Periodontol. 2024

Craniofacial reconstruction using a bone cement with magnesium-fibers

A magnesium-calcium phosphate cement with short, randomly oriented amorphous magnesium fiber reinforcement offers a biocompatible, mechanically stable, yet degradable solution available at the point of care. This study is the material's first in vivo assessment using a critical-sized bone defect model in rabbit calvaria. Clinically, no adverse events or signs of inflammation were present. The magnesium fiber network was radiologically preserved after 20 weeks of healing. Elemental composition analysis of the fibers showed lower magnesium and higher zinc levels compared to preoperatively, indicative of their biodegradation. Histological evaluation is currently ongoing.



Department of Dermatology


Prof. Luca Borradori Chairman


Prof. Laurence Feldmeyer


Prof. Robert Hunger


Prof. Eliane Müller


Prof. Dagmar Simon

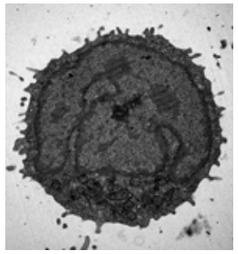

Prof. Christoph Schlapbach


Prof. Nikhil Yawalkar Deputy Chairman

The Department covers the entire spectrum of dermatological diseases. In addition to clinical services and teaching, it conducts high-quality clinical and translational research focusing on the underlying immunological mechanisms of inflammatory and autoimmune skin diseases and the regulation of cytoarchitecture and cell integrity.

Human T_H9 cells rely on PPAR-γ-mediated cystine uptake to prevent lipid peroxidation and bioenergetic failure

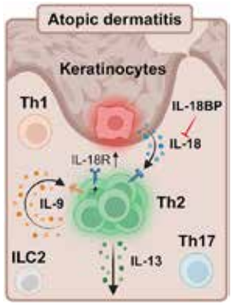
In this study, we explore the metabolic dependencies of human T_H9 cells in the context of allergic skin inflammation. Our research reveals that human T_H9 cells in allergic skin inflammation depend on PPAR-γ-mediated cystine uptake to prevent lipid peroxidation and maintain bioenergetic stability. PPAR-γ promotes SLC7A8 expression, a cystine transporter, while its inhibition leads to SLC7A11 upregulation. Cystine deprivation causes ferroptosis-like cell death in T_H9 cells, suggesting that targeting cystine metabolism could be a potential therapeutic strategy for allergic skin diseases.



Bazzini C et al., Journal of Investigative Dermatology. 2024

IL-9 sensitizes human T_H2 cells to proinflammatory IL-18 signals in atopic dermatitis

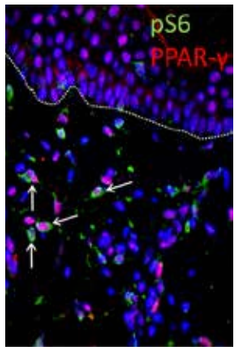
In this study, we investigate the role of IL-18 and IL-9 in the activation of T_H2 cells, which are crucial in the pathogenesis of atopic dermatitis (AD). Our research reveals that IL-9 enhances IL-18 receptor expression on T_H2 cells, increasing proinflammatory cytokine secretion. IL-18R+ T_H2 cells are more prevalent in AD patients' blood and skin. Neutralizing IL-18 reduces pathogenic cytokine expression in AD skin, suggesting it as a potential therapeutic target.



Schärli et al., J Allergy Clin Immunol. 2024

Bern Immunology Club Prize for Best Publication 2023

We are honored to have been awarded the Bern Immunology Club Prize for Best Publication 2023 for our study titled „PPAR-γ regulates the effector function of human T helper 9 cells by promoting glycolysis." In this research, we reveal PPAR-γ's role in enhancing glycolysis in skin TH9 cells, crucial for atopic and allergic contact dermatitis. PPAR-γ-driven glycolysis increases IL-9 expression, which in turn promotes TH9 cell growth in high-glucose environments. Notably, we found elevated glucose levels in inflamed skin, highlighting the metabolic dynamics in affected tissues.



Bertschi et al., Nat Commun. 2023

Department of Diabetes, Endocrinology, Nutritional Medicine and Metabolism


Prof. Christoph Stettler


Prof. Lia Bally


Prof. Regula Everts Brekenfeld


PD Dr. med. Judith Everts-Graber


Prof. José Garcia Tirado


PD Dr. Michel Hochuli


Prof. Lisa Koch


Prof. Markus Laimer


Prof. Zeno Stanga


PD Dr. Roman Trepp


Prof. Lilian Witthauer

The Department is a university service provider in the fields of classic hormonal and metabolic diseases, in particular all forms of diabetes mellitus, thyroid diseases, obesity, and nutritional medicine. It makes an important contribution to the training of medical students and is involved in clinical and biomedical research.

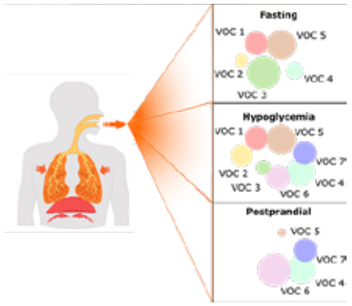
Impact of phenylalanine exposure on brain structure in adults with phenylketonuria

Phenylketonuria (PKU) is a rare metabolic disease that leads to a buildup of the amino acid phenylalanine, which can affect the brain if untreated. In our study, a 4-week period of high phenylalanine intake temporarily reduced grey matter thickness in adults with PKU. These changes reversed after the intervention, highlighting the brain's plasticity in response to phenylalanine fluctuations.

Muri et al., Brain. 2024

Breath volatile organic compounds for noninvasive hypoglycemia detection in Type 1 Diabetes

This study utilized gas chromatography-ion mobility spectrometry to identify volatile organic compounds (VOCs) in breath as biomarkers for hypoglycemia in type 1 diabetes. Ten participants underwent induced hypoglycemia, with breath samples collected. Machine learning models showed high accuracy classifying glycemic states, identifying key VOCs such as isoprene and acetone.



Nicolier et al., Diabetes Obes Metab, 2024

Automated glucose control in patients experiencing major abdominal surgery-related stress hyperglycaemia

This two-centre controlled trial (Uni Hospitals Bern and Basel) evaluated fully closed-loop insulin delivery in patients undergoing abdominal surgery with stress hyperglycaemia. Compared to usual care, FCL achieved superior glycaemic control without increasing the risk of hypoglycaemia. This study highlights the potential of automated insulin delivery systems to mitigate hyperglycaemia in surgical populations.

Krutkyte et al., Ann Surg. 2024

University Institute of Diagnostic and Interventional Neuroradiology


Prof. Jan Gralla
Chairman and Physician in Chief


Prof. Roland Wiest
Deputy Chairman


PD Dr. Eike Piechowiak
Lecturer & Attending Physician


Dr. Ruben Encinas
Attending Physician


Michela Mordasini
Head of Medical Technical Neuroradiology

The Institute covers the entire diagnostic and interventional neuroradiology spectrum using state-of-the-art equipment. Its research priorities are aligned with the other neuro-oriented research groups of the University and the Inselspital. They can be divided into clinical projects (neurovascular research) and basic research.

Neuronal current imaging of epileptic activity: an MRI study in patients with a first unprovoked epileptic seizure

This study evaluates the performance of a novel MRI sequence to map responses to interictal epileptic activity in the human cortex. As a main finding, neuronal current imaging discriminated seizure patients from seizure mimics and healthy controls with high specificity relative to existing screening tests. In particular, structural and advanced MRI, as well as EEG demonstrated a limited sensitivity in the emergency setting in first seizure patients.

Jin et al., Epilepsia Open. 2024

No-reflow phenomenon in stroke patients: a systematic literature review and meta-analysis of clinical data

Systematic review and a meta-analysis of clinical data on definition, rates and impact of the no-reflow phenomenon after reperfusion therapy demonstrated a no-reflow phenomenon in one third of stroke patients with successful macrovascular reperfusion. A pooled analysis showed that no-reflow was consistently associated with reduced rates of functional independence. It remains unclear whether no-reflow is an epiphenomenon of the infarcted parenchyma or causes infarction despite macrovascular reperfusion. Future studies should focus on standardizing the definition of no-reflow with more consistent reporting definitions of successful macrovascular reperfusion and experimental set-ups that are able to shed light on the causality of the observed findings.

Mujanovic et al., Int J Stroke. 2024

Cortical thickness and grey-matter volume anomaly detection in individual MRI scans

Normative modeling of healthy brain shape, its development and aging have great potential to support clinical routine assessment of suspected pathologies in neuroradiological MRI exams. The in-house developed software DL + DiReCT provided similar results to widely used and validated software, accelerated by the factor 15. DL + DiReCT is a new software for clinically oriented morphometry evaluation and normative modelling, when time and computing power are limiting factors.

Romascano et al., Neuroimage Clin. 2024

Department of Diagnostic, Interventional and Pediatric Radiology


Prof. Johannes Heverhagen
Director


Prof. Jessica Bastiaansen


Dr. Michael Brönnimann
Senior Physician


Prof. Andreas Christe
Chief Physician


PD Dr. Keivan Daneshvar
Senior Consultant


Prof. Lukas Ebner, Senior Consultant


PD Dr. Rainer Josef Egli
Senior Physician


Prof. Adrian Huber Senior Consultant


Dr. Till Lerch
Senior Resident Physician


Prof. Verena Obmann
Senior Consultant


Dr. Alan Peters
Senior Physician


Prof. Alexander Pöllinger
Senior Consultant


PD Dr. Thomas Ruder Senior Consultant


Dr. Nico Ruprecht
Project leader DBMR Lab


Dr. Florian Schmaranzer
Senior Resident Physician

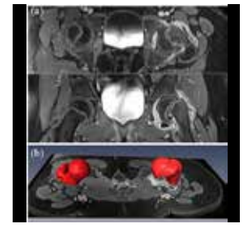

Prof. Hendrik v. Tengg-Kobligk
Deputy Director

The Department fulfills the tasks of a university institution in patient care, teaching and research, and also provides outpatient care services. These include individual cutting-edge medical services, namely in interventional radiology.

Getting the phase consistent: the importance of phase description in balanced steady-state free precession MRI of multi-compartment systems

Plähn et al., Magn Reson Med. 2024

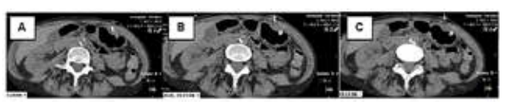
MR-based Bony 3D models enable radiation-free preoperative patient-specific analysis and 3D printing for SCFE patients



T1-weighted post contrast MR images and 3D models of a female patient with SCFE.

Lerch et al., J Child Orthop. 2024

Fluoroscopic-Guided vs. Multislice Computed Tomography (CT) Biopsy Mode-Guided Percutaneous Radiologic Gastrostomy (PRG) —Comparison of Interventional Parameters and Billing



MS-CT BM-guided PRG output displaying images from 3 slices, with image (B) representing the center, (A) and (C) corresponding to the cranial and caudal positions.

Brönnimann et al., Diagnostics (Basel). 2024

Person-based design and evaluation of MIA, a digital medical interview assistant for radiology

Dennecke et al., Front Artif Intell. 2024

Department of Ear, Nose and Throat Diseases, Head and Neck Surgery


Prof. Marco Caversaccio
Chairman


Prof. Roland Giger


Prof. Georgios Mantokoudis


Prof. Martin Kompis


Prof. Eberhard Seifert


Prof. Stefan Weder


Prof. Lukas Anschütz


PD Dr. Urs Borner


Dr. Philipp Aebischer


Prof. Wilhelm Wimmer
TUM Munich

The Department comprises several highly specialized units. It focuses on diagnosing and treating diseases in its field and is intensively involved in research projects that allow these diseases to be better understood and treated. Experts in audiology, medicine, physics, and engineering conduct practice-oriented research.

Robotic precision in cochlear implantation

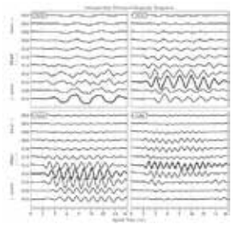
Robotic assistance offers a precise solution for cochlear implant placement near the delicate inner ear structures. Our work focuses on developing and validating a force-measuring insertion tool that delivers high-resolution, real-time feedback. Additionally, we conduct quantitative evaluations of clinically available tools to assess their benefits and limitations, guiding their optimal use in practice.

Aebischer et al., Int J Comput Assist Radiol Surg. 2024

Aebischer et al, IEEE Trans Biomed Eng. 2024

Electrocochleography in cochlear implant recipients: correlating maximum response with residual hearing

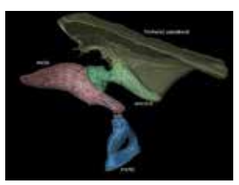
This study aimed to objectively determine intraoperative cochlear microphonic (CM) amplitude patterns and correlate them with residual hearing in cochlear implant recipients. We found a statistically significant negative correlation between maximum CM amplitudes and preoperative hearing thresholds. We could enhance the understanding of cochlear health and overcome the obstacles of current ECochG analysis.



Andonie et al., Ear Hear. 2024

Dynamic X-ray microtomography vs. laser-doppler vibrometry: a comparative study

There are challenges in understanding the biomechanics of the human middle ear, and established methods show limitations. We evaluated a novel dynamic imaging technique based on synchrotron X-ray microtomography by comparing it to laser-Doppler vibrometry. Our results demonstrate the suitability of dynamic synchrotron-based X-ray microtomography in studying the middle ear's biomechanics.



Ivanovic et al., Res Sq [Preprint]. 2024

Department of Emergency Medicine


Prof. Aristomenis Exadaktylos
Chairman


Dr. Beat Lehmann
Deputy Chairman


Prof. Wolf Hautz
Head of Research


Prof. Juliane Kämmer
SNSF Professor


Prof. Gert Krummrey
Health IT


Prof. Martin Müller
Method Lab


Prof. Thomas Sauter, MME
Tele-emergency Medicine


PD Dr. Tanja Birrenbach
Virtual Reality


PD Dr. Stefanie Hautz
Decision Support


PD Dr. Sabrina Jegerlehner
POC Diagnostics

The Department is highly involved in research and teaching at the University of Bern. It currently has five interdisciplinary working groups dedicated to key topics in emergency medicine, usually in collaboration with international partners. The focus is on the practical application and clinical relevance.

More or less oxygen for trauma patients?

Today, international guidelines recommend the application of additional oxygen for patients after severe trauma. In an international study lead by the University of Copenhagen, the Department of Emergency Medicine and REGA Swiss Air Rescue investigated whether a more restrictive strategy would result in better patient outcome. In 1508 trauma patients, we did not find any differences in patient outcome. This study is the first to question the decade old practice of liberal oxygen application after trauma, and a major logistical milestone in our ability to successfully conduct complex interventional clinical trials in the prehospital and in-hospital emergency setting.

Arleth et al., JAMA. 2024

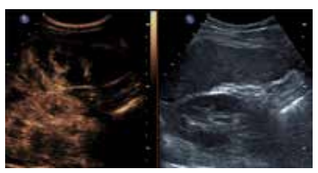
Strengthening Bernese Tele-Emergency Medicine

Thomas Sauter, emergency physician and associate professor at the Department of Emergency Medicine at Inselspital Bern, researches evidence-based applications of digital tools in acute medicine. His TCS Foundation Professorship has been extended by two years.

To the article of the University

Surgical repair or splenectomy after trauma?

This study highlights the critical importance of spleen-preserving approaches in trauma care, demonstrating that splenic repair during laparotomy for severe traumatic splenic injuries is independently associated with significantly lower in-hospital mortality compared to splenectomy. These findings underscore the need to prioritize splenic preservation when clinically feasible to improve patient outcomes.



Jakob et al., JAMA Netw Open. 2024

Department of General Internal Medicine

Prof. Drahomir Aujesky
Director

Prof. Nicolas Rodondi
Chief Physician

Dr. Martin Perrig
Chief Physician

Prof. Carole Aubert

PD Dr. Tobias Tritschler

Prof. Manfred Essig
Chief Physician

Prof. Maria Wertli

PD Dr. Manuel Blum

Prof. Manuel Haschke
Chief Physician

Prof. Carla Meyer-Massetti

Prof. Evangelia Liakoni

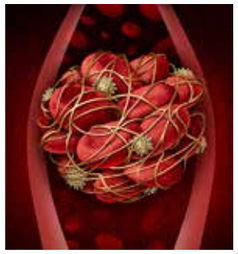
PD Dr. Felix Hammann

PD Dr. Stefan Weiler

The Department focuses on caring for patients with multiple diseases (multimorbidity) and complex conditions requiring targeted diagnostics and multidisciplinary therapy. It contributes to the development of the medicine of the future through research and a broad, practice-oriented educational program.

Oral anticoagulation in older adults

Older adults with atrial fibrillation and venous thromboembolism face higher risks of morbidity, mortality, and complications due to age-related changes frailty and polypharmacy. In a narrative review, we described the limited evidence suggesting that direct oral anticoagulants may be safer and more effective than vitamin K antagonists in such patients, though evidence comes from subgroup analyses and observational studies. More inclusive research is needed to optimize dosing, treatment duration, and safety profiles in this population.



Stuby et al., Thromb Res. 2024

Goal-directed mobilization (GDM) in medical inpatients

Low mobility during hospitalization is a wide-spread problem. GDM includes personal goal setting and education. In a randomized controlled trial (RCT), GDM and standard care in inpatients, improved physical functioning similarly. No significant differences were observed in secondary outcomes. Enhancing physical activity in hospitalised patients remains challenging. The INTOMOB cluster RCT currently ongoing in our department is testing a multilevel intervention focusing on patients, healthcare professionals and the environment to address this issue.

Liechti et al., BMJ Open.2024

Patient perspectives on statin use for cardiovascular (CV) prevention

Statins are controversial in older people in primary CV prevention. In a mixed-methods on this topic, 41% of older people were reluctant to discontinue statins, while 22% were open to discontinuation, prioritising reduced medication burden and low self-estimated CV risk. Many patients felt uncertain about deciding due to limited expertise, unclear indications, and fear of CV events. Most patients preferred their physician to make the decision. The STREAM trial will help answer the need for statin use in older adults in primary CV prevention.

Brunner et al., Patient Prefer Adherence. 2024

Department of Geriatrics

PD Dr. Anna K. Eggimann

Dr. Dominic Bertschi

Dr. Franz Fäh

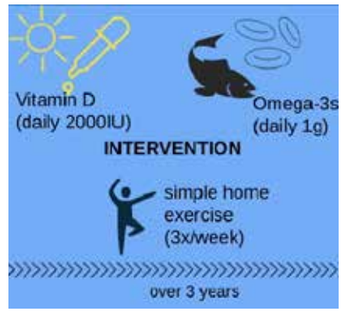
Maria Herzam, study coordinator

Jemima Künzler, study nurse

The Department provides integrated medical services for older people in acute care, rehabilitation, and long-term care settings to ensure and promote independence and quality of life. The specific clinical services include acute care at Inselspital and inpatient rehabilitation and long-term care at the hospital of Belp.

Muscle health in older people

A collaborative paper of the multinational trial DO-HEALTH from the University of Zurich (Prof. Heike A. Bischoff-Ferrari) and University of Bern (PD Dr. med. Anna Eggimann) found that muscle mass and incident sarcopenia were not improved by Vitamin D, Omega-3 fatty acids and a simple home exercise program among healthy, physically active in older adults over three years. A collaborative paper from the University of Basel (Prof. Dr. med. Reto Kressig) and University of Bern (Dr. Dominic Bertschi) investigated quantification of muscle mass in clinical settings where imaging technologies are not available. The study found that in such situations, simple calf circumference measurement may be used as a dependable indicator for low muscle mass in older adults.



Eggimann et al., J Am Geriatr Soc. 2024

Orthogeriatric care

Orthogeriatric care is a key clinical service at the Bern University Hospital providing optimal care on an interdisciplinary and interprofessional basis including nurses, therapists, nutritionists and social workers.
A scoping review demonstrated (PD Dr. med. Anna Eggimann) that point-of care ultrasound is a promising and valid diagnostic tool in the diagnostic work-up of sarcopenia in older patients. Ongoing studies are investigating the implementation of a muscle screening based on ultrasound and a bone screening to the geriatric assessment in hospitalized patients.

Staempfli et al., Clin Interv Aging. 2024

Award for ageing research

PD Dr. med. Anna K. Eggimann, senior consultant and lead clinical research at the Department of Geriatrics, received the award for ageing research 2024 from the University of Bern for Senior Citizens (Seniorenuniversität Bern). She was honored for her habilitation in geriatrics at the Dies academicus of the University of Bern presented by the first female rector, Prof. Dr. Virginia Richter.

To the website of the University

Department of Hematology and Central Hematology Laboratory

Prof. Anne Angelillo-Scherrer, Director

Prof. Alicia Rovó, Deputy Director

Prof. Sara Meyer Head of Hemato-Oncology

Prof. Vera Ulrike Bacher Academic Head of Morphology & Hematological Immunepheno-typisation

Prof. Johanna A. Kremer Hovinga Head Reference Center Hemophilia & Academic Head Hemostasis Laboratory

PD Dr. Michael Daskalakis Head of Trans-fusion Medicine, Apheresis & Cell Therapy Laboratory

PD Dr. Monica Schaller Tschan Coordinator undergraduate teaching & Graduate School for Cellular and Biomedical Sciences

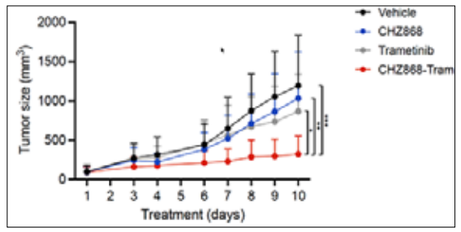
PD Dr. Ramanja-neyulu Allam Group Leader

Dr. Nicola Andina Head of MDS Center of Excellence

Hematology includes the diagnosis, treatment, and prevention of benign and malignant diseases of the hemato-poietic and lymphatic system, blood coagulation, and thrombosis. The Department covers this entire field, offers comprehensive diagnostics and treatment at the highest level, and is also committed to teaching and research.

Resistance to JAK2 inhibition occurs via AXL kinase and is targetable

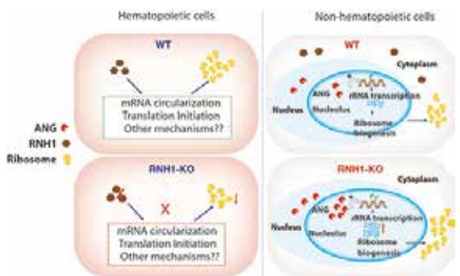
Resistance to JAK2 inhibitors in myeloproliferative neoplasms (MPN) occurs via upregulation of AXL kinase, which activates MEK-ERK signaling. Inhibiting AXL or combining JAK2/MEK inhibitors (CHZ868 / Trametinib) resensitizes MPN cells to therapy and prevents resistant tumor growth, highlighting AXL as a key mediator of acquired resistance.



T. Codilupi et al., Clin Cancer Res, 2024

Ribonuclease inhibitor and angiogenin: key regulators of cell-type-specific global translation

Translation of mRNAs is a key process in all cells, but recent studies show it can be regulated in a cell type-specific manner. Deleting the ribosome-associated protein RNH1 reduces global translation selectively in hematopoietic cells, linked to angiogenin-induced ribosomal biogenesis. This highlights the presence of cell-type-specific regulators of global translation in vertebrates.



Stilinovic et al., Sci Adv, 2024

Worse outcomes in chronic myelomonocytic leukemia (CMML) versus myelodysplastic syndromes (MDS) after stem cell transplantation

CMML patients have worse survival and relapse outcomes than MDS patients after allogeneic hematopoietic cell transplantation, though non-relapse mortality is similar. The results suggest a need for tailored treatment recommendations for CMML patients.

Rovó et al., Am J Hematol, 2024

Department of Human Genetics

Prof. Christiane Zweier Director and Chair

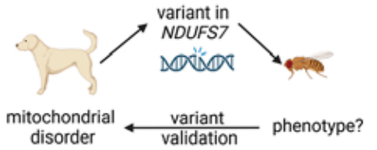
PD Dr. André Schaller

PD Dr. Anne Gregor

The subject of research in human genetics is the genetic basis of diseases. Research at the Department focuses on elucidating and understanding the molecular basis of mainly monogenic diseases and the clinical characterization of disease patterns and genotype-phenotype correlations.

Validation of a canine NDUFS7 variant in Drosophila melanogaster

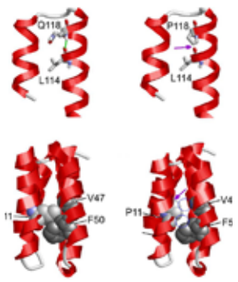
In collaboration with Tosso Leeb's group (Vetsuisse), we followed up a missense variant in NDUFS7 which was identified in dogs with progressive ataxia, dystonia, increased lactate levels and MRI anomalies. In humans, NDUFS7 variants are associated with Leigh syndrome, a mitochondrial disorder. We overexpressed wildtype or mutant canine NDUFS7 in flies with ubiquitious knockdown of the fly ortholog ND-20. A lethality phenotype resulting from knockdown of ND-20 could be partially rescued by overexpressing wildtype NDUFS7 but not by the mutant construct, indicating loss of function and thus pathogenicity of the NDUFS7 missense variant. This study shows the potential of Drosophila for canine disease allele validation and confirms a causative role of NDUFS7 variants for canine Leigh syndrome.



Christen*, Gregor* et al., Scientific Reports, 2024

Further delineation of the SCAF4-associated neurodevelopmental disorder

Mostly de novo truncating variants in SCAF4 were identified to cause a variable neurodevelopmental disorder in 2020. By international collaboration, we now assembled 50 novel cases and further characterized the molecular and clinical spectrum of the SCAF4-associated neurodevelopmental disorder.



Schmid et al., Eur J Hum Genet.2024

Conferences, events and new projects in 2024

- In January, we started the BCPM lighthouse project "Precision Diagnosis and Therapy in Cardiac Channelopathies (PACE)". Our subproject focuses on the identification of genetic modifiers in long-QT syndrome and their functional validation and characterization in Drosophila as a model system for genetic interactions.
- In May, we hosted the annual meeting of the Swiss Society of Medical Genetics (SSMG/SGMG) in Bern in the Auditorium Ettore Rossi with > 150 participants and sponsors and with nine young investigator and four invited presentations.
- In June, PD Dr. Anne Gregor successfully completed her Habilitation and Dr. Franziska Langhammer successfully defended her PhD thesis.
- In November, we started the SNSF funded project "Multiple Diagnoses as a window into pathomechanisms of Rare Diseases".

Department of Infectious Diseases

Prof. Andri Rauch
Chief Physician

PD Dr. Christine Thurnheer
Consultant Physician

Dr. Philipp Jent
Consultant Physician

PD Dr. Cornelia Staehelin
Consultant Physician

Prof. Gilles Wandeler
Consultant Physician

Dr. Lukas Bauman
Attending Physician

Dr. Eugénie Colin-Benoit,
Attending Physician

Dr. Lauro Damonti
Attending Physician

Dr. Anna Eichenberger
Attending Physician

Dr. Anna Hachfeld
Attending Physician

PD Dr. Cédric Hirzel
Attending Physician

Dr. Eveline Hofmann
Attending Physician

Dr. Yonas Martin
Attending Physician

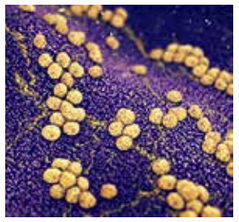
PD Dr. Bernard Surial
Attending Physician

PD Dr. Laura Walti
Attending Physician

Scientific research is a high priority in the Department. The knowledge gained is implemented in everyday clinical practice. The active contribution to science makes it possible to treat patients optimally and according to the latest scientific knowledge.

Iodine vs chlorhexidine for preoperative skin antisepsis: a randomized clinical trial

This randomized clinical trial included 3360 patients with elective abdominal or cardiac surgery. Povidone iodine in alcohol as preoperative skin antisepsis was noninferior to chlorhexidine gluconate in alcohol in preventing surgical site infections.



Widmer et al., JAMA. 2024

Perioperative antibiotic prophylaxis duration in patients undergoing cystectomy with urinary diversion: a randomized clinical trial

The findings of this randomized clinical trial demonstrate noninferiority of 24-hour perioperative antibiotic prophylaxis (PAP) vs extended-duration PAP in preventing surgical site infections following cystectomy.

Thurnheer et al, JAMA Netw Open. 2024

Hospital-acquired and ventilator-associated pneumonia early after lung transplantation

In this large prospective cohort study, 9.5% of lung transplant recipients were diagnosed with pneumonia in the first 30 days following transplantation. Pulmonary hypertension and immunosuppression use pre-transplant were associated with pneumonia

Walti et al., Clin Infect Dis. 2024

Department of Intensive Care Medicine

Prof. Joerg C. Schefold
Director
Chief Physician

Franziska Tschannen
Head of IIMC Nursing

Brigitte Hämmerli
Head of ICU Nursing

Felix Zürcher
Head of Management Services

Prof. Carmen A. Pfortmueller
Head of Research

Dr. Philipp Venetz
Head of Human Resources

The Department is responsible for the intensive medical care of all temporarily life-threatening adult patients of the Inselspital as well as patients in need of intensive care in the region. Medical treatment is provided on an interprofessional basis by highly trained specialists using the latest technologies and procedures.

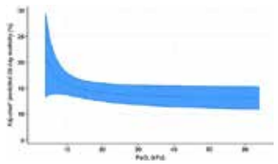
The environmental impact of laboratory measurements in high-resource ICUs

Healthcare accounts for about 5% of global annual greenhouse gas (GHG) production. Within hospitals, ICUs are carbon hotspots, generating 3x GHG emissions as acute care units per bed day. Tailoring laboratory tests potentially results in patient, economic, and environmental gains.

Ostermann et al., Intensive Care Med. 2024

Hyperoxaemia in acute trauma is common and associated with a longer hospital stay: a multicentre retrospective cohort study

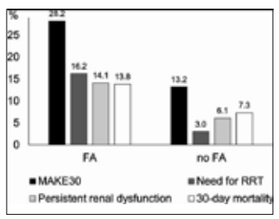
Hyperoxaemia was not associated with an increased 28-day mortality when compared to normoxaemia. However, both moderate and severe hyperoxaemia is frequently observed in trauma patients, and the presence of severe hyperoxaemia showed a tendency with extended hospital stay compared to normoxaemia patients.



Iten et al., Scand J Trauma Resusc Emerg Med. 2024

Influence of fluid accumulation on major adverse kidney events in critically ill patients – an observational cohort study

Fluid accumulation (FA) was independently associated with MAKE30 in a mixed cohort of critically ill patients. This association was independent from pre-existing CKD and strongest in patients with AKI stage 3. FA substantially and independently influences short- and mid-term creatinine trajectory over 3 or 30 days after ICU admission.



Hofer et al., Ann Intensive Care. 2024

Department of Medical Oncology


Prof. Adrian Ochsenbein


Prof. Thomas Pabst


Prof. Jörg Beyer


Prof. Urban Novak


Prof. Martin Berger


Prof. Carsten Riether


PD Dr. Attila Kollár


PD Dr. Berna Özdemir


PD Dr. Sabine Schmid


PD Dr. Dilara Akhoundova


Dr. Simon Häfliger


Dr. Marc Wehrli


Dr. Ferdinando Cerciello

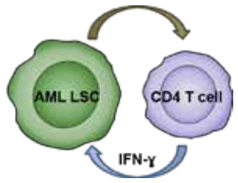

Dr. Julian Wampfler


Dr. Ruben Bill

The Department provides a wide range of therapies, clinical trials, and support services for cancer patients and their relatives. The Department's experts adapt these interventions to the patient's individual situation. The research focus is on translational medicine in the fields of immuno-oncology and hematooncology.

IL-9 secreted by leukemia stem cells (LSCs) induces Th1-skewed CD4+ T-cells, which promote their expansion

In this study, we showed that acute myeloid leukemia (AML) LSCs shape their own immune microenvironment by secreting IL-9, which induces Th1 differentiation of CD4+ T cells and the secretion of IFN-γ and TNF-γ. Both cytokines induce the expansion of LSCs and correlate with disease progression. Blocking this paracrine loop my offer a novel strategy to target AML LSCs.



Radpour et al., Blood. 2024

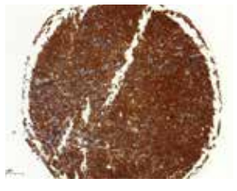
Improving lung cancer care with miRNA liquid biopsy

In this study, we focused on Non-Small Cell Lung Cancer (NSCLC) and investigated circulating microRNAs as non-invasive biomarkers (liquid biopsy) for early detection and prediction of therapeutic responses. We analyzed plasma samples from NSCLC patients and healthy individuals; we validated our findings in a large dataset of over 4,000 patients. Our findings suggest that miRNA signatures in blood can significantly enhance NSCLC diagnosis, prognosis, and treatment planning.

Abdipourbozorgbaghi et al., Br J Cancer. 2024

The preferential targeting of ULK1 inhibition in GCB-DLBCL provides a rationale as a new therapeutic approach

We identified that GCB patients treated with the standard chemotherapy R-CHOP exhibited increased autophagy signatures that are relevant for the outcomes. Inhibition of ULK1-mediated autophagy sensitised GCB cells to ibrutinib, a BTK inhibitor. In contrast, ULK1 inhibition in cells of the ABC subtype of DLBCL promoted immunogenic-dependent cell death and increased NF-κB transcripts.



Mandhair et al., Leukemia. 2024

Department of Nephrology and Hypertension


Prof. Bruno Vogt
Clinic Director


Prof. Daniel Fuster
Consultant Physician


Prof. Uyen Huynh-Do
Consultant Physician


PD Dr. Fabienne Aregger
Consultant Physician


Prof. Daniel Sidler
Consultant Physician


Dr. Stefan Rudloff
Head of Research Lab


Dr. Simeon Schietzel
Attending Physician


Dr. Matteo Bargagli,
Resident Physician

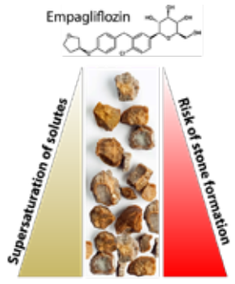

Dr. Nathalie Hammer
Resident Physician


Sabine Herzig,
Nursing Specialist
APN, MScN

The Department is the leading internal medicine center for kidney disease and hypertension in the canton of Bern, offering top-tier diagnostics and treatment. It houses Switzerland's largest dialysis unit and is actively engaged in basic, translational, and patient-focused research.

SWEETSTONE trial successfully completed

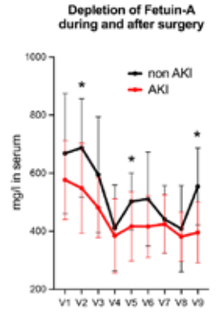
Kidney stones are a surprisingly common health issue, with up to 20% of men and 11% of women experiencing them in their lifetime and a frustratingly high recurrence rate of 30%-80% within ten years. Despite this, effective ways to prevent stones from forming or coming back remain limited. The key culprit in stone formation is urinary supersaturation, where dissolved substances in urine exceed their theoretical solubility limits (in water), acting as a warning sign for future stones. Inspired by the success of SGLT2 inhibitors in slowing kidney disease progression and reducing cardiovascular risk, we set out to explore in the SWEETSTONE trial (NCT04911660) whether Empagliflozin could lower urinary supersaturation in non-diabetic kidney stone patients, potentially offering a new way to prevent these painful recurrences. In this single-center, randomized, double-blind, placebo-controlled crossover study, 46 patients with calcium or uric acid kidney stones received 25 mg Empagliflozin or placebo daily for 14 days, with a 2-6 week washout period before switching treatment. Using advanced statistical modeling, we found that Empagliflozin significantly reduced the supersaturation of brushite (calcium phosphate) and uric acid compared to placebo, without altering urine volume. These exciting findings are published in Nature Medicine.



Anderegg et al., Nat Med. 2025

First results of the multi-clinical, interprofessional PEAK study

Acute kidney injury (AKI) is a critical complication of major surgeries, especially for frail and elderly patients, yet targeted treatments remain largely unavailable. Thus, in July 2024, we launched the PEAK study (PrEcision medicine in the management of cardiovascular surgery-associated acute kidney injury; NCT06471621) in collaboration with the departments of Cardiac Surgery, Vascular Surgery, Intensive Care Medicine, and Anesthesiology and Pain Medicine. This investigator-initiated, observational study builds on our promising preclinical AKI research in mice conducted in collaboration alongside industrial partner CSL Behring AG and aims to identify patients who may benefit from a novel Fetuin-A-based treatment to mitigate CVS-AKI. We analyze perioperative Fetuin-A kinetics, other biomarkers, and frailty as a patient-reported outcome up to 3 months after surgery. In October 2024, after the enrollment of the first 30 of 100 patients, an interim analysis was performed. Patients with AKI exhibit a distinctly different perioperative profile of Fetuin-A and other potential biomarkers compared to those without AKI. These findings thus pave the way for personalized AKI prevention.



Department of Neurology


Prof. Urs Fischer
Clinic Director


Prof. Kaspar Schindler
Deputy Clinic Director


Prof. Andrew Chan
Extraordinarius


Prof. Antoine Adamantidis
Extraordinarius


Prof. Bogdan Draganski
Extraordinarius


Prof. Athina Tzovara
Extraordinaria


Prof. Marcel Arnold


Prof. Simon Jung


Prof. Mirjam Heldner


Prof. Paul Krack


Prof. Iris-Katharina Penner


Prof. Vincent Pernet


Prof. Christoph Schankin


Prof. David Seiffge


Prof. Werner Z'Graggen


Ass. Prof. Maxime Baud

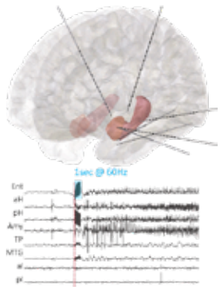
The Department offers an integrated range of medical services and is the largest neurological clinic in Switzerland. Its specialist teams diagnose and treat people with diseases of the central and peripheral nervous system, neuromuscular transmission, and muscular system.

FDA-approved drug N-Acetyl-L-Leucine is beneficious in patients with Niemann-Pick type C

M. Niemann-Pick type C (NPC) is a rare neurometabolic disease that leads to a progressive loss of neurological function. Our double-blind, placebo-controlled, cross-over study with N-acetyl-L-leucine (NALL) in 60 patients with NPC showed a significant improvement in neurological symptoms compared to placebo over a period of 12 weeks. A longitudinal study evaluating NALL disease-modifying effect is ongoing (funded by IntraBio Inc; NCT05163288).

Bremova-Ertl et al., N Engl J Med. 2024

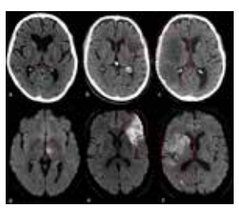
The critical dynamics of hippocampal seizures



In this large translational neuroscience study, we verified experimentally the predictions of a dynamical model of seizures in neurology patients and mice, using electrical and optogenetics neurostimulations. We found that seizures emerge from sudden shifts in the dynamical regime of hippocampal circuits and were able to measure and predict the likelihood of such shift with minute stimulations.

Lepeu et al., Nat Commun. 2024

Early vs late anticoagulation in minor, moderate, and major ischemic stroke with atrial fibrillation



A sub-analysis of the randomized-controlled ELAN trial (Early versus Late initiation of direct oral Anticoagulants in stroke patients with atrial fibrillation) investigated the association of infarct size with the treatment effect. While many clinicians feared potential adverse effects in people with major strokes, the study showed that those seem to benefit even more from an early start of treatment (5-7 days after stroke) than people with minor and moderate strokes.

Goeldlin et al., JAMA Neurol. 2024

Department of Neurosurgery


Prof. Andreas Raabe


Prof. Werner Z'Graggen


Prof. Claudio Pollo


Prof. Philippe Schucht


Prof. Kathleen Seidel


PD Dr. Ralph Schär


Prof. David Bervini

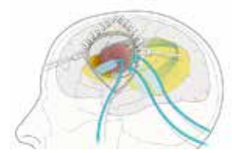
The Department is an internationally renowned clinic for surgical treatment of brain and spine diseases. Its clinical research commitment is driven by the need to improve and refine neurosurgical operations and perioperative management.

SNSF project grant for PD Dr. Ralph Schär

PD Dr. Ralph Schär together with colleagues from the Department of Orthopedics, Radiology and the Empa have been granted project funding with CHF 806,761 by the Swiss National Science Foundation (SNSF) in support of their project "Novel Biomechanical Markers based on Dynamic Biplane Radiographic Imaging and Paraspinal Muscle Morphometry for Enhanced Decision Making in the Management Of Lumbar Spinal Stenosis".

In the planned study, the newly opened Dynamic Imaging Center (DIC) at SITEM will investigate the degree of instability in degenerative spinal canal stenosis with spondylolisthesis of the lumbar spine. This common clinical picture is associated with severe chronic back and leg pain. At international level, there is disagreement as to whether supplementary fusion is necessary in addition to surgical decompression. With the new project, PD Dr. Schär and colleagues will shed more light on this important question. The project will be supported for 4 years.

Cortico-cortical evoked potentials to assess language tracts in minimally in glioma surgery



We investigated the feasibility of recording cortico-cortical evoked potentials (CCEPs) in patients with low- and high-grade glioma. We were able to proof that those signals are not artefact but true neurophysiological correlates of assessed language pathways. We compared CCEPs during awake and asleep surgery, as well as those stimulated from the functional Broca area and recorded from the functional Wernicke are and vice versa. We also analyzed CCEP properties according to tumor location, histopathology, and most important clinical outcome of language function.

Seidel, Wermelinger, Alvarez-Abut et al., Clin Neurophysiol. 2024

Cerebrovascular Neurosurgery

The cerebrovascular team mainly focuses on clinical research projects based on large local databases. The current research projects, funded by peer review grants, focus on the role of screening and new imaging technologies in the diagnosis of intracranial aneurysms, as well as the search for biomarkers in carotid steno-occlusive diseases. The group is also involved in different translational projects in the biomedical field in collaboration with the ARTORG Center at the University of Bern.

Department of Nuclear Medicine

Prof. Axel Rominger
Director

Prof. Ali Afshar-Oromieh
Deputy Director

PD Dr. Federico Caobelli

Prof. Paul Cumming

PD Dr. Eleni Gourni

PD Dr. Thomas Pyka

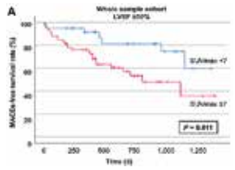
PD Dr. Robert Seifert

Prof. Kuangyu Shi

The Department is one of the largest and most advanced nuclear medicine departments in Switzerland. It offers the entire spectrum of modern nuclear medicine examina-tion and treatment methods, with emphasis on diagnostics using state-of-the-art PET/CT and SPECT/CT hybrid scanners, as well as nuclear medicine therapy procedures.

Prognostic Value of [99mTc]Tc-DPD SPECT/CT in patients with suspected and confirmed ATTR-CM and preserved LFEV

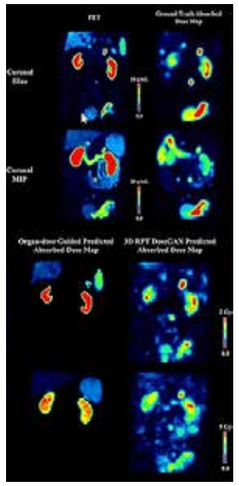
We aimed to analyze the predictive value of quantitative [99mTc]Tc-DPD SPECT/CT in patients with suspected or confirmed amyloid transthyretin-related cardiomyopathy and preserved left ventricular ejection fraction, representing an early disease stage. It could be shown that quantitative [99mTc]Tc-DPD SPECT should be considered to improve early-stage risk stratification.



Caobelli et al., J Nucl Med. 2024

Pre-therapy PET-based voxel-wise dosimetry prediction by characterizing intra-organ heterogeneity in PSMA-directed radiopharmaceutical theranostics

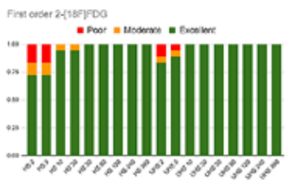
This study aimed to characterize the intra-organ theranostic heterogeneity and utilize artificial intelligence techniques to localize them. It could be demonstrated that the intra-organ heterogeneity of pharmacokinetics may complicate pre-therapy dosimetry prediction. Deep learning has the potential to bridge this gap for pre-therapy prediction of voxel-wise heterogeneous dose map.



Xue et al., EJNMMI. 2024

Long-axial field-of-view PET/CT improves radiomics feature reproducibility

This exploratory study investigated the influence of LAFOV-PET/CT systems in radiomics feature retrieval in clinical oncology subjects under real-life clinical conditions. The improved feature reliability at longer acquisition times in high sensitivity LAFOV systems could be demonstrated in comparison to standard PET scanner acquisitions.



Alberts et al., EJNMMI. 2024

Department of Ophthalmology

Prof. Martin Zinkernagel
Director

Prof. Beatrice Früh
Anterior Segment

Prof. Jan Darius Unterlauft
Glaucoma

PD Souska Zandi, Ocular Fibrosis Research

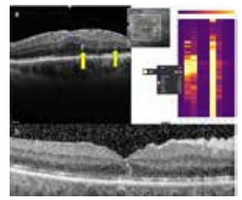
Prof. Volker Enzmann
Research Laboratories

Prof. Pascal Escher
Ophthalmogenetics

The Department was founded in 1834 and is today a reference center for the diagnosis, conservative treatment, and microsurgery of eye diseases and ophthalmological emergencies. It offers state-of-the-art examination techniques and therapeutic procedures and covers the entire conservative and surgical spectrum of ophthalmology.

Artificial intelligence-enhanced OCT biomarkers analysis in macula-off rhegmatogenous retinal detachment patient

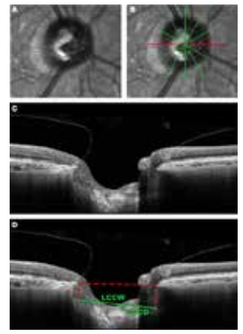
The study underscores the role of novel biomarkers like HF in understanding visual function in macula-off RRD.



Ferro Desideri et al., Transl Vis Sci Technol. 2024

Long-term changes in Lamina Cribrosa Curvature Index after trabeculectomy in glaucomatous eyes

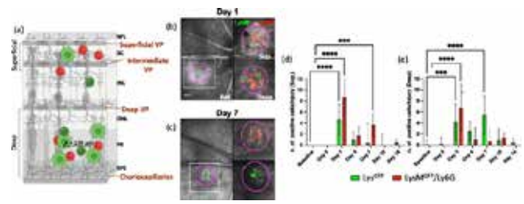
Glaucomatous eyes undergoing trabeculectomy demonstrated reductions in the LCCI after a mean follow-up of over 3 years. Greater long-term LCCI reduction was associated with younger age, lower mean IOP during follow-up period, greater spherical equivalent refractive error, and preoperative LCCI.



Shang et al., Invest Ophthalmol Vis Sci. 2024

Macrophages coordinate immune response to laser-induced injury via extracellular traps

Our data offer novel insights into innate immunity's role in responding to retinal damage and potentially help developing innovative immunotherapeutic approaches that can shift the immune response from maladaptive to beneficial for retinal regeneration.



Conedera et al., J Neuroinflammation. 2024

Department of Obstetrics and Gynecology

The Department is a leading medical center of Obstetrics and Fetomaternal Medicine, Gynecology and Gynecologic Oncology, and Reproductive Medicine / Gynecologic Endocrinology. The Department is at the international forefront of clinical as well as translational research in these specialized fields.

Division of Obstetrics and Feto-Maternal Medicine

Prof. Daniel Surbek
Director Research and Teaching

Prof. Luigi Raio
Deputy Director Group Leader

PD Dr. Marc Baumann
Group Leader Coordinator

Sofia Amylidi-Mohr MD, Group Leader

Prof. Andreina Schoeberlein
Co-Director Research Laboratory

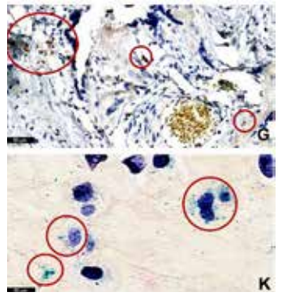
PD Dr. Anda Petronela Radan
Group Leader

Jarmila Zdanowicz, MD
Group Leader

Amanda Brosius Lutz, MD, PhD
Group Leader

SARS-CoV-2 replicates in the placenta after maternal infection during pregnancy

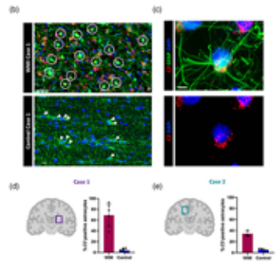
We show for the first time evidence of active in vivo SARS-CoV-2 replication in the placenta after maternal infection in pregnancy.



Radan et al., Front Med (Lausanne). 2024

Neuroinflammatory reactive astrocyte formation correlates with adverse outcomes in perinatal white matter injury

Our data show that astrocytes express a neuroinflammatory molecular signature in white matter injury both in mouse model and in human tissue.



Renz et al., Glia. 2024

Vaginal dinoprostone insert compared with two different oral misoprostol regimens for labor induction in nulliparous and multiparous women

Erhardt et al., Acta Obstet Gynecol Scand. 2024

Role of recombinant factor VIIa in the clinical management of severe postpartum hemorrhage: consensus among European experts.

Surbek et al., J Matern Fetal Neonatal Med. 2024

All but Small: miRNAs from Wharton's Jelly-Mesenchymal Stromal Cell Small Extracellular Vesicles Rescue Premature White Matter Injury after Intranasal Administration

Tscherrig et al., Cells. 2024

Hybrid cord blood banking in private-public-partnership: Women's perspectives.

Laue et al., Transfusion. 2024

Division of Gynecology and Gynecological Oncology

Prof. Michael Mueller
Director and Head Research

Prof. Annette Kuhn

PD Dr. Franziska Siegenthaler

Dr. Anna Sophie Villiger

Dr. Flurina Saner

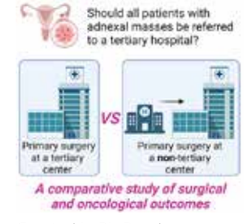
Dr. Flavia Pagano

Dr. Diana Höhn

Dr. Thomas Andrieu

Incidental findings of borderline ovarian tumor or ovarian cancer

The study examined the outcomes of patients with borderline ovarian tumours or ovarian cancer who were diagnosed incidentally following surgery. The patients were referred to a specialised centre and underwent a two-stage surgical procedure. The results showed that if ovarian cancer is unexpectedly diagnosed intraoperatively in a small hospital and the patient is transferred to a tertiary centre in a timely manner, there is no impact on surgical and oncological outcomes. (by Dr. F Siegenthaler)

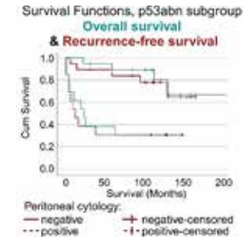


Created in BioRender. Andrieu, T. (2025) https://BioRender.com/b57j513

Joder et al., Front Oncol. 2024

Reviving peritoneal cytology

Our study investigated the prognostic significance of positive peritoneal cytology among the different molecular subgroups in endometrial cancer (EC). 250 EC patients were followed for an average of 128.7 months. Presence of positive peritoneal cytology was associated with worse oncologic outcomes in p53 abnormal (p53abn), and non-specific molecular profile (NSMP) EC. Positive peritoneal cytology was identified as an independent predictor of recurrence and death among patients with p53abn EC. (by Dr. AS Villiger)



Villiger et al., Gynecol Oncol. 2024

Connecting the dots: Exploring appendiceal endometriosis in women with diaphragmatic endometriosis

Pagano et al., Eur J Obstet Gynecol Reprod Biol. 2024

Single-Cell RNA Sequencing of PBMCs Identified Junction Plakoglobin (JUP) as Stratification Biomarker for Endometriosis

Andrieu et al., Int J Mol Sci. 2024

Sentinel node mapping in high-intermediate and high-risk endometrial cancer: Analysis of 5-year oncologic outcomes

Cuccu et al., Eur J Surg Oncol. 2024

The impact of Substantial LYMphovascular space invasion on sentinel lymph nodes status and recurrence in Endometrial Cancer patients: SLYM-EC a multicenter retrospective study

Buda A et al., Eur J Surg Oncol. 2024

Department of Orthopedic Surgery and Traumatology


Prof. Moritz Tannast
Chairman


Prof. Christoph E. Albers


PD Dr. Helen Anwander


Prof. Johannes D. Bastian


PD Dr. Moritz C. Deml


Prof. Benjamin Gantenbein


PD Dr. Kate Gerber


Dr. Nicolas Gerber


Dr. Emanuel Liechti


Prof. Thomas Lustenberger

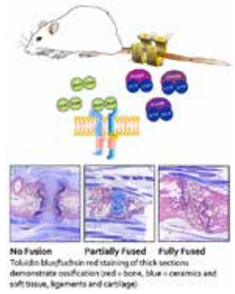

PD Dr. Michael Schär


PD Dr. Simon D. Steppacher

Through a tiered care model, the Department ensures that each patient receives optimal care and has access to the latest developments and methods. The aim of a university clinic is to combine research, teaching, and service. Scientific activity has a high priority and the knowledge gained is implemented in daily clinical practice.

BMP2 analogue L51P could decrease BMP-2 doses in spinal fusion surgery

Through close collaboration between basic research, the team of Prof. Dr. Benjamin Gantenbein, and the clinics, Prof. Dr. Chistoph Albers, we could demonstrate that the cytokine L51P together with low dosages of BMP-2 has the potential to increase ossification in spinal fusion surgery significantly. These show the results of a recent in vivo rat tail study involving X-ray, µCT, and histology.



Toluidin blue/fuchsin red staining of thick sections demonstrate ossification (red = bone, blue = ceramics and soft tissue, ligaments and cartilage)

Gantenbein et al., Acta Biomater. 2024

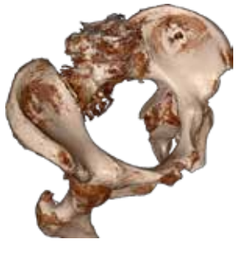
Dynamic biplanar radiographic analysis of shoulder instability

To improve the diagnosis and treatment planning of rotator cuff tears, we have developed deep learning based methods for automatic 3D modelling and analysis of the shoulder joint, including the soft tissues from MRI for the first time. Combined with dynamic biplanar radiography (Dynamic Imaging Center, sitem-insel), our methods are currently being used to study the biomechanical effect of bony lesions and muscle activation on joint stability in patients with anteroinferior shoulder instability within an SNF funded project (grant 10000342).

Oswald et al., Front Bioeng Biotechnol. 2024

Advancing orthogeriatrics with AI-based diagnosis

Traditional acetabular fracture classification systems, such as Letournel's, lack reliability among non-experts and fail to address the growing prevalence of geriatric fractures, including new patterns within this cohort resulting from demographic shifts and low-energy trauma. Within a SNF funded project (grant 10000351), we are developing an automated AI-based system using 3D CT and deep learning to improve classification accuracy, incorporate emerging fracture patterns, and enhance clinical decision-making.



To the project page of the SNSF

Department of Pediatrics


Prof. Matthias Kopp
Director


Prof. Philipp Latzin


Prof. Christa Flück


Prof. Andrea Klein


Prof. Rhoikos Furtwängler


Prof. Christoph Aebi


Prof. Klaus Tenbrock


Prof. Regula Everts


Prof. Thomas Riedel


Prof. André Kidszun


Prof. Sebastian Grunt


Prof. Amit Pandey


Prof. Michele Bernasconi


Prof. Karen Lidzba

As one of the leading Children's hospitals in Switzerland, the Department not only offers outstanding medical care, but also conducts internationally recognized, cutting-edge research. Research teams from a wide range of disciplines are committed to advancing pediatric medicine.

Development of cognitive and psychosocial functions in patients with pediatric cancer

This longitudinal study presents evidence that around half of pediatric cancer patients show stable or improved cognitive and psychosocial development during the course of cancer recovery, while others experience declines. These results highlight the need for early, personalized monitoring and interventions.

Schuerch et al., Pediatr Res. 2024

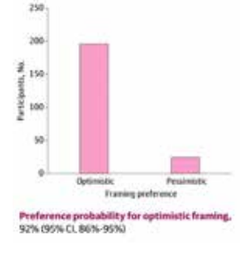
Outcome of synchronous bilateral Wilms Tumour in the SIOP WT 2001 study: report from the SIOP Renal Tumour Study Group

This international multicenter study proved that few neoadjuvant cycle(s) of only Dactinomycin and Vincristine (AV) without cardiotoxic anthracyclines are sufficient to facilitate nephron-sparing surgery and achieve convincing survival rates in most patients. Results further suggest that only 4 weeks of adjuvant AV might be sufficient for bilateral stage I intermediate-risk WT patients in contrast to ≥ 27 treatment weeks.

Sudour-Bonnange et al., Br J Cancer. 2024

Do parents of very preterm infants prefer optimistic or pessimistic message framing when informed of a serious complication?

In this crossover randomized trial, 220 parents of very preterm infants with severe intraventricular hemorrhage watched two video vignettes showing a neonatologist discussing prognosis. The vignettes framed identical outcomes either optimistically (survival and no impairment) or pessimistically (risk of death and impairment). We found that a clear majority of parents preferred the optimistic framing.



Preference probability for optimistic framing, 92% (95% CI, 86%-95%)

Forth et al., JAMA Netw Open. 2024

Department of Pediatric Surgery


Prof. Steffen Berger


PD Dr. Elizaveta Fasler-Kan

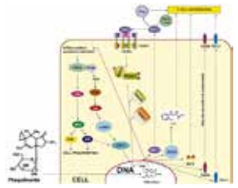

PD Dr. Kai Ziebarth


PD Dr. Ulf Kessler

The Department participates in University teaching programs for students of medicine. Our research focuses on oncobiology, necrotizing enterocolitis of the newborn, pediatric fracture traumatology and hip orthopedics, and non-invasive pain reduction in outpatient procedures.

Activation of immune evasion machinery is a part of the process of malignant transformation of human cells

Malignant transformation of human cells is associated with their re-programming which results in uncontrolled proliferation and in the same time biochemical activation of immuno-suppressive pathways which form cancer immune evasion machinery.
This work suggested that cancer immune evasion machinery is activated during malignant transformation of human cells regardless the presence of immune cells in microenvironment.


Mechanism of ptaquiloside-induced malignant trans-formation associated with activation of immune evasion machinery.

Abooali et al., Transl Oncology, 2024

Low rate of avascular necrosis and complications in unstable SCFE after treatment with a modified Dunn procedure

The risk of developing avascular necrosis (AVN) in the setting of an unstable slipped capital femoral epiphysis (SCFE) that is undergoing treatment with the modified Dunn procedure is not well understood.
Kaplan-Meier survivorship free from AVN was 93% (95% CI 87% to 100%) and survivorship free from any reoperation was 75% (95% CI 64% to 88%) at 10 years. Although the modified Dunn procedure is technically challenging, patients with who have demonstrated epiphyseal-metaphyseal discontinuity can be treated with a low risk of AVN and subsequent surgery.

SCFE in 12 years old patient before (A) and 2 years after modified Dunn procedure (E, F).

Ziebarth et al., Clin Orthop Relat Res, 2024

Long-term pulmonary outcome of children with congenital diaphragmatic hernia: side-specific MRI assessment of lung function

Data indicate impaired overall lung function with particular limitation of the ipsilateral side in patients with a large congenital diaphragmatic hernia (CDH). Matrix-pencil-MRI is a promising tool to provide valuable side-specific functional information in the follow-up of patients with CDH.

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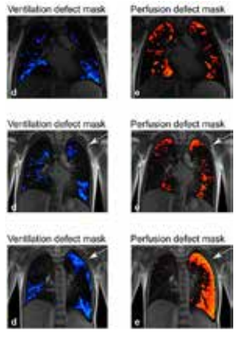


MP-MRI ventilation and perfusion deficit masks in healthy control (upper), small CDH (middle) and large CDH (lower).

Streibel et al., European Radiology. 2024

Department of Plastic and Hand Surgery


Prof. Mihai Constantinescu Co-Director


Prof. Esther Vögelin Co-Director


PD Dr. Radu Olariu, Deputy Chief Physician Plastic Surgery


PD Dr. Ioana Lese Senior Physician Plastic Surgery


Dr. Dominique Nellie Merky Deputy Chief Physician Hand Surgery


Dr. Esin Rothenfluh Senior Physician Hand Surgery

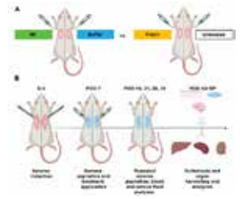

Dr. Damian Sutter Senior Physician Hand Surgery


Dr. Bernadette Tobler Senior researcher Hand Therapy

In its current structure, the Department covers the entire spectrum of plastic, reconstructive and aesthetic surgery, hand surgery, and peripheral nerve surgery. As a so-called tertiary treatment center, the Department receives complicated cases from other hospitals for further treatment.

Bioglass/ceria nanoparticle hybrids for the treatment of seroma: a comparative long-term study in rats

Seroma formation is a common postoperative complication. Nanoparticle (NP)-based tissue glues, using 'nanobridging,' have emerged as an alternative to fibrin glues. Compared to fibrin and control groups, NPs significantly reduced early seroma, showed anti-inflammatory effects, and increased long-term adhesion formation, suggesting reduced seroma recurrence. These findings highlight the adhesive properties of NPs and their potential in clinical therapy


Experimental design for seroma induction, formation, aspiration, and treatments in Lewis rats (n=20)

Pais et al., Front Bioeng Biotechnol. 2024

Cat bite injuries to the hand and forearm: the impact of antibiotic treatment on microbiological findings and clinical outcome

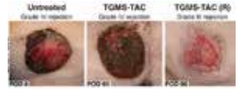
Cat bite injuries often result in deep wounds prone to infection, though 43% of swabs show no bacterial growth. This study of 102 patients found no link between antibiotic or surgery timing and microbiological outcomes. Bacterial detection did not impact complications, hospital stay, treatment duration, or costs. Findings suggest timing of antibiotics or surgical debridement does not affect microbiological or clinical outcomes in hand and forearm cat bite injuries


Cat bite injuries resulting in deep wounds prone to infection

Wangler et al., F Arch Orthop Trauma Surg. 2024

A local drug delivery system prolongs graft survival by dampening T cell infiltration and neutrophil extracellular trap formation in vascularized composite allografts

Vascularized composite allotransplantation (VCA) restores function but is limited by immuno-suppression's side effects. In a porcine VCA model, intra-graft delivery of tacrolimus-loaded hydrogel prolonged graft survival, increased local tacrolimus levels, and reduced toxicity over 90 days. Neutrophil extracellular traps (NETs) were identified in VCA rejection, revealing a novel innate immune mechanism. These findings underscore the potential of targeted drug delivery systems to improve clinical VCA outcomes.



Representative images of graft changes at endpoint (macroscopic grade IV re-jection or POD90) with their corresponding grading.

Hoyos et al., Front Immunol. 2024

Department of Pneumology, Allergology and Clinical Immunology


Prof. Thomas Geiser


Prof. Manuela Funke-Chambour


PD Dr. Gunar Günther


PD Dr. Anne-Kathrin Brill


PD Dr. Lukas Jörg


PD Dr. Sabina Guler


PD Dr. Amiq Gazdhar


PD Dr. Fabian Blank

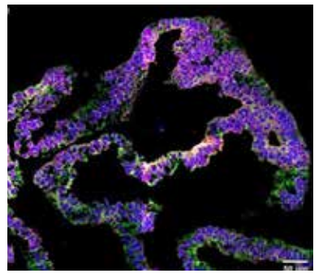

Dr. Tiziana Cremona


Prof. Olivier Guenat

The Department offers comprehensive clinical services for patients with lung diseases, respiratory and allergic disorders. It conducts experimental (primarily in cell and tissue cultures) and clinical research and strives to bridge the gap between these fields to bring new knowledge from experimental-translational research to the patients.

Multicellular alveolar organoids from induced pluripotent stem cells

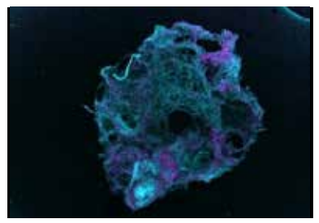
By using a controlled microenvironement, we established a complex multicellular lung organoid derived from pluripotent stem cells, mimicking the distal lung. This advanced in vitro-model will allow to study disease mechanisms and novel treatments and will be helpful in drug screening processes.



Ozan et al., Stem Cell Rev Rep. 2024

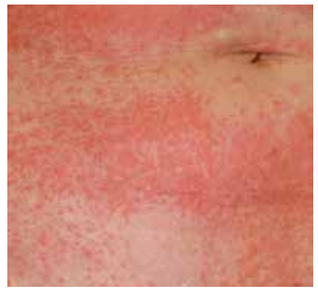
2nd prize of best poster abstract presentation at the Swiss Society for Pulmonology (SSP/SGP) congress to Namrata Kewalramani (Prof M. Funke-Chambour, PI) for their project using precision-cut lung slices

We have developed an ex vivo model using human precision-cut lung slices (PCLS) and heme-induced lung injury to model acute respiratory distress syndrome (ARDS). Heme exposure resulted in reduced tissue viability and significant inflammation. Human PCLS represents a valuable model to study heme-driven injury in ARDS.



Sanofi Innovation Award 2024

PD Dr. Lukas Jörg has won the Sanofi Innovation Award in Type 2 Inflammation 2024 for his research project "Deciphering Drug-Induced Maculopapular Exanthema through Cytokine Profiling in the Acute and Resolution Stages of Delayed Drug Hypersensitivity Reactions."



Sanofi Innovation Award

Department of Radiation Oncology


Prof. Daniel M. Aebersold Director


Prof. Steffen Eychmüller


PD Dr. Kristina Lössl


Prof. Olgun Eliçin


PD Dr. Mohamed Shelan


Dr. Hossein Hemmatazad


Dr. Emanuel Stutz


Dr. Nikola Cihoric


Dr. Ekin Ermis


Dr. Fabio Dennstädt


Prof. Peter Manser


Prof. Michael K. Fix


Prof. Yitzhak Zimmer †


PD Dr. Michaela Medova

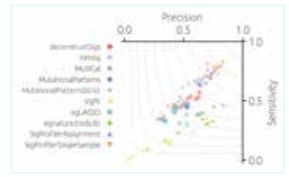

PD Dr. Matúš Medo


Prof. Mauricio Reyes

The Department is one of the leading providers of radiation therapy in Switzerland. We conduct extensive research programs in the fields of clinical research, technology development, medical physics, radiobiology, data science and artificial intelligence..

A comprehensive comparison of tools for fitting mutational signatures

Various biological and chemical processes leave characteristic patterns, mutational signatures, in the genome. We assessed tools for fitting mutational signatures and found that they are all prone to underfitting due to unknown signatures.

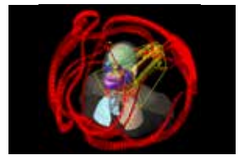


Performance of various fitting tools in synthetic tumor samples with low mutational burden.

Medo et al., Nat Commun. 2024

Robustness analysis of dynamic trajectory radiotherapy and volumetric modulated arc therapy plans for head and neck cancer

Robustness for Dynamic Trajectory Radiotherapy is evaluated for head and neck cancer showing better organ-at-risk sparing than conventional treatment techniques like VMAT even under uncertainties like patient setup and machine positioning.



Dynamic trajectories for a head and neck cancer case.

Loebner et al., Phys. Imaging Radiats. Oncol. 2024

Award for innovative breast cancer research

Dr. Fabio Dennstädt received the „Best Scientific Study Award" at the World Cancer Congress 2024 in Geneva. His award-winning study introduced a data-driven framework to support personalized radiotherapy decisions for breast cancer patients.

Dr. med. Fabio Dennstädt

To the report of the Inselspital

New SNSF funded projects

Feasibility of Total Neoadjuvant Treatment with Hyperthermia in high-risk sarcoma: A multi-center phase II trial

Adaptive Mechanisms of Receptor Tyrosine Kinases in Brain Development

ADMIRA: Adaptive Dynamic and MIxed-beam RAdiotherapy

Department of Rheumatology and Immunology


Prof. Britta Maurer


Prof. Martin Bachmann


Prof. Monique Vogel


Prof. Alexander Eggel


Prof. Mona Mohsen

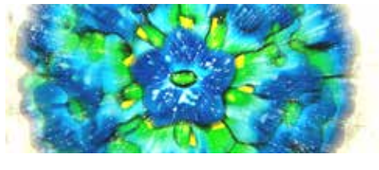

PD Dr. Kerstin Klein


Dr. Janine Gote-Schniering

The Department covers the entire field of rheumatology, immunology, allergy and vaccinology. This includes the diagnosis, treatment, and prevention of inflammatory and non-inflammatory diseases of the musculoskeletal system, systemic autoim¬mune diseases, autoinflammatory syndromes, unclear systemic inflammatory diseases, immunodeficiencies, ageing and neurodegenerative diseases.

Probing novel epitopes on the plasmodium falciparum circumsporozoite protein for vaccine development

The classical malaria vaccines are based on parts of the circumsporozoite protein fused to the virus-like particles. However, important protective linker regions are missing. Here we generated and evaluated novel vaccine candidates containing these potentially important regions.



Krenger et al., NPJ Vaccines. 2024

Radioproteomics stratifies molecular response to antifibrotic treatment in pulmonary fibrosis

This study combined radiomic and proteomic profiling to evaluate whether radiomic signature changes can stratify antifibrotic responses to nintedanib in pulmonary fibrosis. Radioproteomics revealed distinct response phenotypes tied to key molecular pathways like extracellular matrix remodeling, wound healing, and metabolism. These findings suggest delta radiomics as a promising noninvasive tool to stratify molecular treatment responses, paving the way for future personalized treatments and better patient outcomes.

Lauer et al., JCI Insight. 2024

Low iron diet improves clinical arthritis in the mouse model of collagen-induced arthritis

To study the effectiveness of blocking iron uptake in inflammation and the additive clinical effect of the limited availability of dietary iron in immune-mediated inflammation, we restricted nutritive iron availability in collagen-induced arthritis (CIA). This dietary intervention ameliorated arthritis, although ferroptosis was not affected in the inflamed joints. Preliminary data indicate that tissue inhibitor of metalloproteinases type 1 (TIMP-1) concentration was affected in a way that could provide a plausible explanation for the therapeutic effect.

Scholz et al., Cells. 2024

Department of Thoracic Surgery


PD Dr. Patrick Dorn


PD Dr. Oemer Senbaklavaci


Dr. Michail Galanis


Dr. Konstantinos Gioutsos


Dr. Thanh-Long Nguyen


PD Dr. Sergio Bruno Sesia

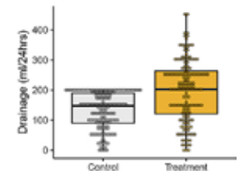

Prof. Ren-Wang Peng


PD Dr. Thomas M. Marti

With its expertise, technical and medical equipment, and rapid integration of the latest research and study results into medical practice, the Department operates at the highest level. Thoracic surgery treats diseases and injuries of the chest wall and all organs within the chest cavity except the heart and aorta.

Randomized controlled trial of thresholds for drain removal after anatomic lung resection

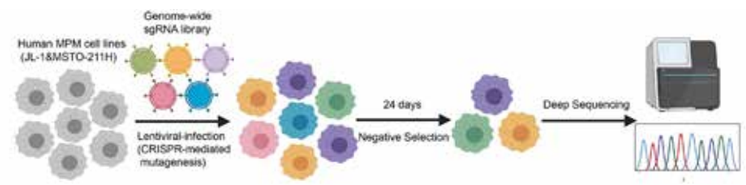
The criteria for chest drain removal after lung resections remain vague and rely on personal experience instead of evidence. Because pleural fluid resorption is proportional to body weight, a weight-related approach seems reasonable. We examined the feasibility of a weight-adjusted fluid output threshold concerning postoperative respiratory complications and the occurrence of symptomatic pleural effusion after chest drain removal.



Gioutsos et al., Ann Thorac Surg. 2024

CRISPR-mediated genome editing reveals a preponderance of non-oncogene addictions as targetable vulnerabilities in pleural mesothelioma

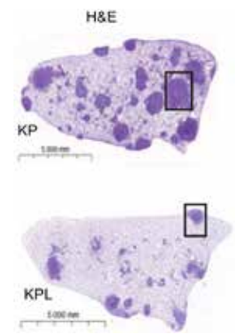
Pleural mesothelioma (PM) is an aggressive cancer with limited treatment options. We interrogate the PM genome using CRISPR-mediated gene editing to systematically uncover PM cell susceptibilities and identify novel gene dependencies that are highly enriched for non-oncogenic pathways involved in DNA damage repair and transcriptional dysregulation. Our findings suggest that non-oncogenic signaling plays a key role in PM initiation and progression and provide a functional blueprint for the development of targeted therapies against this formidable disease.



Xu et al., Lung Cancer. 2024

Inhibition of LDHB suppresses the metastatic potential of lung cancer by reducing mitochondrial GSH catabolism

Metastasis, the leading cause of cancer death, is closely linked to lactate metabolism. Lactate dehydrogenase B (LDHB) mainly catalyzes the conversion of lactate to pyruvate. Silencing LDHB inhibits lung cancer migration and invasion by reducing GSH catabolism. Targeting LDHB suppresses lung cancer metastasis in preclinical models. Thus, our study identifies LDHB as a potential therapeutic target for metastatic lung cancer treatment.



Ge et al., Cancer Lett. 2024

Department of Urology


Prof. Beat Roth


Prof. Bernhard Kiss


Prof. Fiona Burkard


Prof. Marianna Kruithof-de Julio


Prof. Katia Monastyrskaya


Dr. Sofia Karkampouna

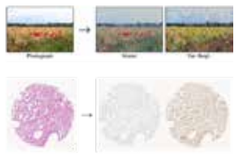

Dr. Panagiotis Chouvardas


Dr. Ali Hashemi

The Department offers a wide range of diagnostic and therapeutic services for all urological diseases. Many complex examinations and special procedures are performed on a regular basis, such as tumor surgery on the bladder, prostate, and kidneys, minimally invasive prostate therapies, or minimally invasive endoscopic procedures.

Generative AI takes on clinical predictions in cancer

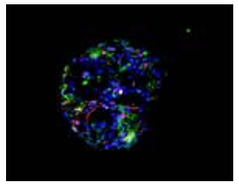
We have developed and published in Nature Machine Intelligence an advanced artificial intelligence (AI) model capable of creating virtual colorations of cancer tissue. This study, in collaboration with Prof Rapsomaniki from the University of Lausanne, is a significant step forward in enhancing pathology analysis and diagnostics of cancer.



Pati et al., Nat Mach Intell. 2024

NEREUS: Network-based drug response and repurposing at single cell

Tumor microenvironment (TME) has emerged as one of the most important drivers of tumor heterogeneity and remains incompletely understood in the context of bladder cancer. Our goal is to characterize the genomic, transcriptomic and epigenetic landscape of the bladder cancer ecosystem and, based on this atlas, develop an Artificial Intelligence (AI) framework to advise bladder cancer patient treatment care. This will be achieved by combining state-of-the-art technologies that include single-cell profiling, organoid chemo-response, and AI approaches. .



Functional Urology: defining the molecular signature of lower urinary tract dysfunction for diagnostics and therapy

Gene expression changes in the bladders of patients with LUTD reveal stages of bladder dysfunction. SOX21 and its target THBS4 act as biomarkers for an optimal intervention point to mitigate loss of contractility in the obstructive LUTD. A three-mRNA signature TPPP3, FAT1, and NCALD, emerged as a robust classifier for non-ulcerative bladder pain syndrome (BPS), and significant dysregulation of the DNA repair pathways is a hallmark of detrusor overactivity.
To facilitate biomarker discovery, we developed a novel computational tool Machine Learning Made Easy (MLme) that streamlines the use of ML in research, specifically focusing on classification problem

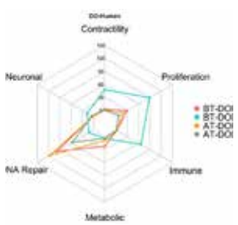
Akshay et al., BMC Urol. 2024

Akshay et al., Int J Mol Sci. 2024

Akshay et al., Gigascience. 2024

Novel antimicrobial strategies for antibiotic prophylaxis and bioifilm eradication on urinary stents: the randomized, double-blind phase I/II UROPOT trial

UROPOT tests a novel antimicrobial strategy based on „metabolic potentiation" for prophylaxis enabling aminoglycoside dose reduction and targeting biofilm activity. The anti-biofilm effect may prove beneficial, particularly in patients who have a permanent stent in situ needing recurrent endourological manipulations strategies in preventing infections and achieving sustained microbiological eradication in pre-stented patients.



Stritt et al., Trials. 2024

Department of Vascular Surgery


Prof. Drosos Kotelis
Director


Prof. Vladimir Makaloski
Endovascular Surgery, Lead Aortic Center


Dr. Michel Bosiers
Endovascular Surgery


PD Dr. Salome Weiss
Lead Clinical Research

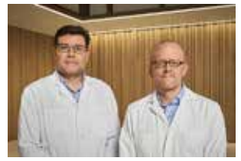

Dr. Corinne Kohler
Lead Medical Education (until 09/24)


Dr. Silvan Jungi
Lead Medical Education (from 09/24)

The Department is the largest vascular surgery center in Switzerland, performing over 300 aortic procedures annually at the Swiss Aortic Center Bern and providing comprehensive vascular care in collaboration with the Angiology at the University Vascular Center Bern.

University Vascular Center Bern established at Inselspital

The University Departments for Angiology and Vascular Surgery have established the University Vascular Center Bern to enhance patient care through closer collaboration. Led by Prof. Drosos Kotelis and Prof. Marc Schindewolf, the center offers comprehensive vascular medicine, ranging from conservative to surgical treatments, with interdisciplinary teams working in a joint outpatient clinic and the Interdisciplinary Center for Vascular Interventions. Key goals include reducing limb amputation rates and integrating cutting-edge research into patient care. Available 24/7, the center prioritizes personalized, high-quality treatment with standardized workflows, daily meetings, and advanced training programs.


Prof. Drosos Kotelis and Prof. Marc Schindewolf

Re-certification as SIWF Category A training clinic

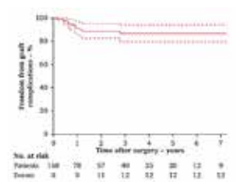
The Department for Vascular Surgery at Inselspital has been successfully re-certified as a Category A training center by the Swiss Institute for Continuing Medical Education (SIWF). This recognition underscores its commitment to excellence in medical education, providing high-quality, competency-based training for both undergraduate and postgraduate medical professionals. The re-certification reaffirms its role as a leading institution for advanced vascular surgical training and our dedication to fostering the next generation of specialists in the field.

Advancing aortic interventions with electromagnetic technology

In collaboration with Nanoflex Robotics, an ETH Zurich spin-off, the University Department for Vascular Surgery in Bern conducted an initial study to evaluate an innovative system that uses a steerable electromagnetic field to remotely control wires within blood vessels. Designed to enable remote interventions that are less time-consuming and more precise while reducing radiation exposure, the system was originally developed for neurovascular procedures and is now being adapted for complex endovascular aortic interventions. A large-animal study is planned to further assess its performance under realistic conditions. The project is backed by a grant of the sitem-insel support fund.

Bovine pericardial aortic grafts: a european multicenter study

With physician-made bovine pericardial grafts increasingly used in aortic infections, this study, initiated by the University Department for Vascular Surgery in Bern, provides multicenter evidence confirming their long-term durability. Additionally, a Delphi consensus document on the treatment and follow-up of infective native aortic aneurysms aims to address the absence of established guidelines for this rare condition.



Weiss S et al., Eur J Vasc Endovasc Surg. 2024

Wyss et al., Eur J Vasc Endovasc Surg. 2024

Department of Visceral Surgery and Medicine

Prof. Daniel Candinas
Managing Director and Chief of Surgery

Prof. Andrew Macpherson
Director and Chief Physician Gastroenter-ology

Prof. Annalisa Berzigotti
Director and Chief Physician Hepatology

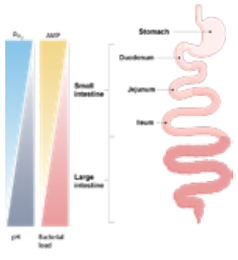
The Department provides an interdisciplinary service in the field of visceral surgery and medicine. In the context of highly specialized medicine, it primarily treats patients with tumors and other complex abdominal diseases.

Biomarkers for cirrhosis regression

Cirrhosis regression detection is challenging, and requires liver biopsy. The hepatology research group at the Department of Visceral Surgery and Medicine, in collaboration with the Institute of Clinical Chemistry and the Medical University of Vienna, conducted a pilot study to identify bio-markers linked to fibrosis regression in compensated advanced chronic liver disease (cACLD). The study analysed clinical, genetic, and metabolic factors in patients showing fibrosis regression compared to those without improvement after therapy. Factors associated with lower regression likelihood included obesity, higher liver stiffness, and the GCKR rs1260326 variant. Through deep metabolic profiling, the researchers identified a specific lipid signature, validated in an independent cohort, that could serve as a non-invasive marker for detecting cirrhosis regression.

Mendoza et al., J Hepatol. 2024

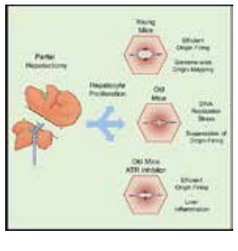
Microbiome research



This has addressed i) how colonization of the intestines in early life shapes the composition and function of immunity and other organ systems; ii) how mucosal resident T memory inflation by non-pathogenic intestinal bacteria; and iii) how bacterial and phage alter host immunity and physiology.
Both Bahtiyar Yilmaz and Tim Rollenske were awarded SNF St Grants (ERC equivalent) in 2023.

Yilmaz et al., Nature Rev Gastroenterol Hepatol. 2024

In vivo DNA replication dynamics unveil aging-dependent replication stress



A team of researchers from the Inselspital/University Hospital Bern (Prof. D. Candinas), the University of Bern (Prof. D. Stroka) and the University of Geneva (Prof. T. Halazonetis) has discovered that hidden defects in specific areas of DNA are responsible for the ageing of certain tissues. The researchers from Bern and Geneva jointly investigated the possible link between the faster ageing of the liver and the lower frequency of DNA replication in its cells. The results were published in the journal Cell. Commented by B. Vogelstein: «Best paper I've read this year."

Rossetti et al., Cell. 2024

University Clinics UPD

Content

University Hospital of Old Age Psychiatry and Psychotherapy


Prof. Stefan Klöppel


Prof. Jessica Peter


Prof. Michael Orth


PD Dr. Anna-Katharine Brem

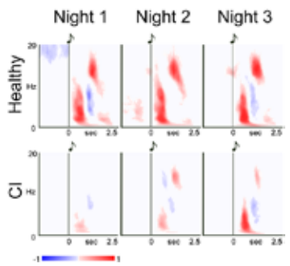

PD Dr. Jacob Lahr


PD Dr. Severin Pinilla


Dr. Marc Züst

A large number of studies show that older people need adapted treatment. The University Hospital of Old Age Psychiatry and Psychotherapy is unique in German speaking Switzerland as it includes a full professorship specifically for old-age psychiatry and psychotherapy in the role of department head.

Multi-night acoustic stimulation links to better sleep, memory and amyloid dynamics in older adults with cognitive impairment

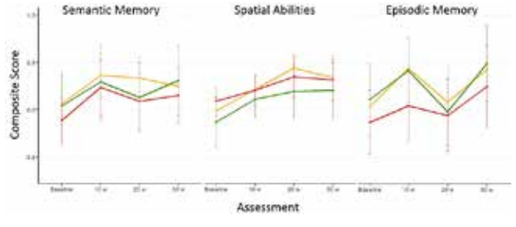


Impaired slow wave sleep (SWS) is an early, modifiable risk factor for cognitive decline and dementia. The relationship between cognitive decline and SWS impairments is bi-directional, forming a vicious cycle that accelerates both issues. Fortunately, SWS can be enhanced non-invasively using phase-locked acoustic stimulation (PLAS) during SWS - a promising approach to disrupt this harmful cycle. Here, both healthy and cognitively impaired (CI) older adults underwent three consecutive nights of PLAS. Results showed that in the CI group, the spectral response to PLAS increased progressively over the three stimulation nights compared to the baseline night (see figure, bottom row). In contrast, healthy older adults maintained a consistent response throughout the intervention (see figure, top row). Furthermore, memory performance improved with the magnitude of this response in the healthy group, while the CI group only showed a delayed effect. Additionally, only the CI group exhibited a link between physiological responsiveness and beneficial Aβ changes across the intervention. The buildup of physiological response and delayed memory effect in CI older adults suggest that longer interventions might be necessary to compensate for declining brain integrity.

Zeller et al., Geroscience. 2024

Serious game-based computerized cognitive training improves subjective cognitive performance in older adults

This bi-centric randomized controlled trial examined the impact of serious game-based computerized cognitive training (CCT) on cognitive decline in older adults (n = 160), including individuals with subjective cognitive decline (SCD) and mild cognitive impairment (MCI). Participants in the CCT group underwent 3-months of CCT (5 sessions per week à 24 minutes each) aimed at enhancing cognitive domains, compared to an active control group (watching documentaries) and a waitlist group. While objective cognitive performance and gray matter volume did not show significant differences between the groups after three months, the CCT group experienced improvements in subjective cognitive perception and dementia worries, suggesting that the intervention had a positive effect on the subjective patient-reported outcome measures (PROM), even in the absence of measurable changes in cognitive tests or brain structure. The clinical relevance of these PROMs is substantial, as individuals with SCD and MCI often experience cognitive impairments that are not fully captured by conventional neuropsychological assessments or neuroimaging techniques. In this context, PROMs become a crucial measure of patient well-being, quality of life and potential delay in the progression of cognitive decline.



Brill et al., BJPsych Open. 2024

University Hospital of Child and Adolescent Psychiatry and Psychotherapy


Prof. Michael Kaess
Clinical Director and Chair


PD Dr. Maria-luisa Cavelti
Head of Research and Group Leader

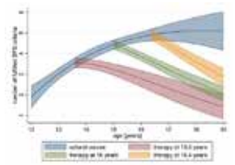

Prof. Annekatrin Steinhoff
Group Leader


Prof. Leila Tarokh
Group Leader


PD Dr. Chantal Michel
Group Leader

As a leading institution in Switzerland, the University Hospital of Child and Adolescent Psychiatry and Psychotherapy provides outpatient, intensive outreach, day-patient, and inpatient psychiatric care as well as emergency care for all children and adolescents in the area it serves. As a university hospital, it has an extended mandate in supra-regional specialized care as well as in education and research.

Age dependent effects of early intervention in adolescent borderline personality disorder (BPD)



This study explored the impact of age on the effectiveness of early intervention for BPD in 626 adolescents recruited from a specialized outpatient service. A parameterized model showed significant therapeutic effects across all ages: Younger adolescents demonstrated symptom stabilization, while older adolescents experienced symptom reduction over time. These findings suggest that early intervention is effective across the course of adolescence.

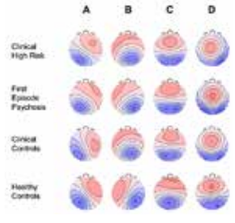
Kaess et al., Psychol Med. 2024

Symptom shifting from nonsuicidal self-injury to substance use and borderline personality pathology

Findings of this cohort study suggest that many adolescents initially presenting to clinics with nonsuicidal self-injury (NSSI) increasingly engage in substance use. Growth mixture models revealed that a decline in NSSI that was paired with a sharp increase in substance use was associated with a relatively high number of borderline personality disorder symptoms. Implications of these findings include that a decrease in NSSI alone may be insufficient to indicate treatment success.

Steinhoff et al., JAMA Netw Open. 2024

EEG microstate D as psychosis-specific correlate in adolescents and young adults with clinical high risk for psychosis and first-episode psychosis



The present study used 74-channel EEG to investigate effects of a specialized EEG marker (microstates) as potential biomarker for risk for and manifest psychosis. A large, young (9-35 years) sample of patients with clinical high risk for psychosis (n = 100), first episode psychosis (n = 33), clinical controls (CC, n = 18), as well as age-matched healthy controls (HC, n = 68) was measured. The study shows that while microstate C seems an unspecific disease marker, microstate D is specific to the psychosis spectrum. Interestingly, age did not influence the results. These findings strengthen the role of microstate D as potential biomarker for psychosis, as early as in adolescence and already in clinical high risk status.

Liebrand et al., Schizophr Res. 2024

University Hospital of Psychiatry and Psychotherapy


Prof. Kristina Adorjan


Prof. Thomas Dierks


Prof. Sebastian Walther


Prof. Katharina Stegmayer


Prof. Franz Moggi


Prof. Daniela Hubl


Prof. Leila Maria Soravia


Prof. Tobias Bracht

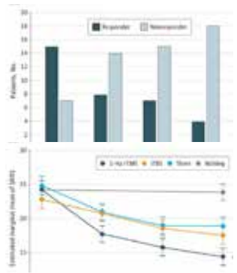

Prof. Leila Tarokh


Prof. Thomas König

The University Hospital of Psychiatry and Psychotherapy provides primary psychiatric care and specialized treatment programs for adults. It is divided into specialized centers, each with outpatient, day-patient, and inpatient facilities.

Novel brain-stimulation treatment for psychosis

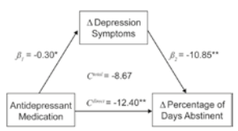
To ameliorate debilitating psychomotor slowing in schizophrenia patients, this randomized controlled trial tested multiple protocols of repetitive transcranial magnetic stimulation (rTMS) on the premotor cortex for three weeks. Daily administration of inhibitory 1 Hz rTMS proved superior to other treatments, including excitatory iTBS, sham, or waiting list. Thus, a novel form of effective nonpharmacological treatment may soon be available for schizophrenia.



Walther et al., JAMA Psychiatry. 2024

Antidepressants may increase risk of relapse in patients with AUD

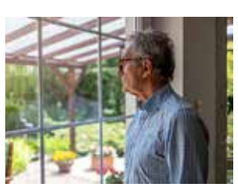
In the multicenter, longitudinal study we investigated how antidepressants affect relapse risk in patients with alcohol disorder (AUD) and depression. Patients whose depression symptoms improved during residential AUD programs by taking antidepressants reported a higher percentage of abstinent days at three-month follow-up compared to those whose depression symptoms did not improve. The study underscores the need for personalized treatment.



Jäger et al., Alcohol Clin Exp Res. 2024

Sociodemographic and clinical characteristics of older adults with suicide-related Emergency Department (ED) presentations

This retrospective study analyzed 392 ED patients aged 65+ with suicidal ideation/behavior. Most had medical conditions (74.5%), chronic multimorbidity (71.2%), depressive disorders (50%). Social stress affected 40.1%. Intoxication was noted in 35.7% and dementia in 20% of those 75+. These findings underscore the complex needs of older adults, highlighting the necessity for tailored care approaches.



Gysin-Maillart et al., Journal of Aging and Health. 2024

University Hospital for Forensic Psychiatry and Psychology


Prof. Leila Maria Soravia


Dr. Peter Wermuth


Dr. Thomas Schulte-Vels

The new University Hospital for Forensic Psychiatry and Psychology was founded on February 1, 2024. It provides specialized care for patients with psychiatric disorders in custody or court-mandated treatment and contributes to advancing forensic psychiatry and psychology. In addition, the clinic is involved in teaching and research in its area of expertise.

Implementation and evaluation of the SLEEPexpert treatment program in a correctional setting

The prevalence of insomnia disorders is much higher in incarcerated individuals than in the general population, with pharmacotherapy being the primary treatment in prisons—raising concerns about dependency. Prof. Dr. Christoph Nissen developed SLEEPexpert, a pragmatic behavioral program empowering psychiatric inpatients to manage their sleep health. In collaboration with Prof. Nissen's research group at the University of Geneva, we are now implementing and evaluating this program among female prisoners at Hindelbank correctional facility.

Hindelbank Correctional Facility

Evaluation of the baseline report in JVA Thorberg

Newly admitted inmates at JVA Thorberg spend two weeks in the Assessment Center (AC) before transitioning to the general prison population. During this period, a standardized assessment is documented in the Baseline Report to improve case understanding, risk management, and correctional planning. The evaluation of the Baseline Report aims to provide well-founded insights into its relevance and effectiveness for correctional planning and risk differentiation.

JVA Thorberg

Institute of Dental Medicine

Institute of Dental Medicine

Prof. Vivianne Chappuis
Clinic of Oral Surgery and Stomatology

Prof. Christos Katsaros
Clinic of Orthodontics and Dentofacial Orthopaedics

Prof. Hendrik Meyer-Lückel
Exec. Director Clinic of Restorative, Preventive and Pediatric Dentistry

Prof. Martin Schimmel
Clinic of Reconstructive Dentistry and Gerodontology

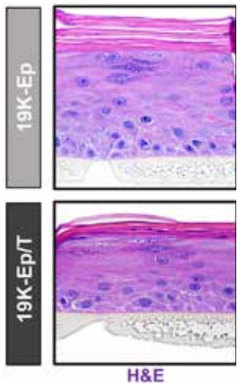
Prof. Anton Sculean
Clinic of Periodontology

Prof. Ralf Schulze
Head of Division of Oral Diagnostic Science

The Institute of Dental Medicine (ZMK) is internationally well-known for education, research, and treatments for patients. Besides its focus on patient satisfaction, clinically oriented research, training of young dentists, and further education of colleagues in private practice play an important role.

Laboratory for Oral Molecular Biology, Department of Orthodontics and Dentofacial Orthopedics

The leading source for creating individualized and therapeutically relevant human in vitro models is patient-derived cells. Such cells are routinely isolated and biobanked in our laboratory from regularly discarded lip tissues. To prevent the depletion of valuable and unique primary cell cultures and to simplify the practicability of working with primary cells, we immortalized lip keratinocytes derived from a healthy individual receiving treatment for a lip laceration and from a patient having corrective cleft lip surgery by simultaneously introducing the catalytic subunit of telomerase and a shRNA targeting the cell cycle inhibitor p16INK4A. The newly created cell lines exhibited all the typical traits of their parental counterparts, in addition to having an extended and immortal existence. Additionally, with the help of these cells, we produced 3D lip models that may be regularly used for numerous upcoming investigations in a variety of medical specialties, such as dermatology, skin care, congenital craniofacial malformations, dentistry, oncology, and lip biology. The availability of immortalized lip keratinocytes enables the modeling and investigation of lip-associated abnormalities, which is a significant step toward the development of novel treatment alternatives free from animal testing.

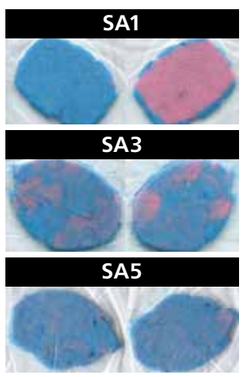


Immortalized healthy lip keratinocytes (19K-Ep/T) have an extended lifespan compared to their primary counterparts (19K-Ep) and can be used for 3D models.

Mansour et al., Front. Cell Dev. Biol. 2024

A comparison of oral function in older in- and outpatients: an observational study

Insufficient data exist on oral function in older Europeans. This study compared oral function among older inpatients and outpatients in Switzerland, analyzing predictors of low masticatory performance. Sixty-two patients (mean age 81.9 years; 62.9% female) underwent assessments of teeth count, denture support, bite force, and masticatory performance. Low masticatory performance (63.9%) correlated strongly with low bite force (62.9%) and fewer than 10 teeth (50%). While bite force and teeth count were similar across settings, outpatients had more denture support zones. Multivariate analysis identified low bite force (OR 7.4, $p < 0.01$) and few teeth (OR 7.8, $p < 0.01$) as predictors of impaired chewing function. Screening these parameters could improve detection of oral dysfunction in older adults.



Example of visual assessment of masticatory performance displaying pictures of patients by subjective assessment categories (SA1–SA5).

Eggimann et al., Int. J. Environ. Res. Public Health 2024

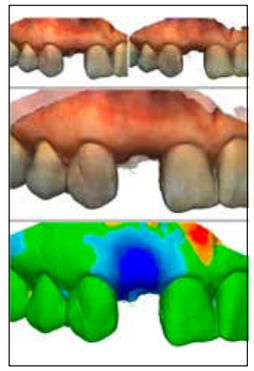
A content-aware chatbot based on GPT 4 provides trustworthy recommendations for Cone-Beam CT guidelines in dental imaging

The pre-trained transformer models based on GPT-3.5-Turbo and GPT-4 were trained using the German S2 guidelines on safe use of CBCT. A query engine was configured and all consensus guideline recommendations were transferred into respective questions. The queries were also provided to four expert practitioners. Their answers were compared to those from the transformer models. GPT-4 based chatbot provided 100% correct recommendations and superior explanation quality compared to the one based on GPT3.5-Turbo (87.5% vs. 57.5% for GPT-3.5-Turbo; $p = 0.003$). It was concluded that the large language model (LLM) based on ChatGPT4 provided recommendations according to current consensus guidelines in. The LLMs' ability to provide sufficient accurate, relevant and trustworthy explanations based on the expertise incorporated into its system marks a notable improvement over its predecessor GPT-3.5-Turbo.

s2k-Leitlinie: Dentale digitale Volumentomographie.(in German)

Interproximal soft tissue height changes after unassisted socket healing vs alveolar ridge preservation therapy

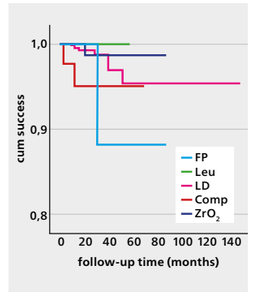
This study aimed to evaluate the effectiveness of alveolar ridge preservation (ARP) versus unassisted socket healing (USH) in reducing interproximal soft tissue atrophy following maxillary single-tooth extraction. Surface scans and CBCT assessed interproximal soft tissue height and facial bone thickness (FBT). Among 96 patients (49 USH; 47 ARP), ARP significantly reduced papillae loss: -2.0 ± 0.9 mm mesially for USH vs -1.0 ± 0.5 mm for ARP; -1.9 ± 0.7 mm distally for USH vs -1.1 ± 0.5 mm for ARP ($P < 0.0001$). Thin FBT (≤1 mm) was associated with greater papillae atrophy, but ARP better-preserved papillae height, especially with thin bone.



Couso-Queiruga et al., Int J Periodontics Restorative Dent. 2024

Longevity and risk factors of CAD-CAM manufactured implant-supported all-ceramic crowns – a prospective, multi-center, practice-based cohort study

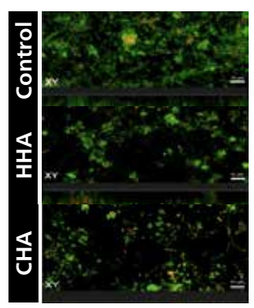
This prospective, multi-center, practice-based cohort study evaluated the longevity and success factors of CAD-CAM manufactured implant-supported all-ceramic crowns. Data from 907 crowns placed between 2008 and 2023 by 54 dentists were analyzed. The crowns exhibited high success rates of 97% over a mean follow-up period of 2.5 years (maximum: 12 years), with an annual failure rate of 0.74%. Key failure types included decementation and fractures. Notably, crowns fabricated in a laboratory showed significantly lower failure rates than chair-side-fabricated crowns. After 5 years, no patient-or implant-level factors, but operative-level factor (i.e.fabrication method, use of silane/etching) were significantly associated with failure.



Wierichs et al., Dent Mater. 2024

In-vitro effects of different hyaluronic acids on periodontal biofilm-immune cell interaction

The focus of the Laboratory of Oral Microbiology is translational research, in particular the evaluation of new treatment options. One interesting target is hyaluronic acid (HA) in different molecular weights and modifications. A high-molecular weight HA (cross-linked (CHA) and not cross-linked (HHA)) is able to inhibit biofilm formation. HHA acts anti-inflammatory whereas HA of low MW stimulates inflammatory response. Moreover, HHA inhibits in vitro invasion of *P. gingivalis* in epithelial cells.



Zhu et al., Front Cell Infect Microbiol. 2024

University and Faculty Centers

Content

ARTORG Center for Biomedical Engineering Research


Prof. Raphael Sznitman, AIMI


Prof. Stefan Weber, IGT


Prof. Philippe Zysset, MSB


Prof. Tobias Nef, GER


Prof. Olivier Guenat, OOC


Prof. Dominik Obrist, CVE


Prof. Stavroula Mougiakakou, AIHN


Prof. Mauricio Reyes, MIA


Prof. Philippe Büchler, CBE


Prof. Manuela Eugster, RMM


PD Dr. Francesco Clavica, UGE


Dr. Philipp Aebischer, HRL

The Center creates innovative healthcare technology by bringing together the biomedical engineering and medicine departments of the University of Bern. Technical and clinical experts lead ARTORG's multidisciplinary research units, addressing the unmet needs of patients, doctors, and nurses at the interface of technology and medicine.

Amith Kamath wins falling walls competition

Amith Kamath, a PhD researcher at ARTORG's Medical Image Analysis lab, developed an AI-powered solution to drastically shorten the time from glioblastoma diagnosis to radiotherapy—reducing it from two weeks to "instant radiotherapy." His innovation won the Falling Walls Competition in Fribourg, earning him the opportunity to represent Switzerland at the Falling Walls Science Summit in Berlin.

To the ARTORG site about Amit Kamath winning this competition

ValTech wins Venture Kick Stage 3

ARTORG spin-off ValTech Lifesciences, co-founded by Shaokai Zheng, PhD, and Dominik Obrist, received CHF 150,000 from Venture Kick Stage 3. Their innovative next-generation heart valve prostheses aim to significantly improve cardiovascular patient outcomes, marking a major step forward in advanced heart health solutions.

To the ARTORG site about the Venture Kick first stage

Reflecting on "Avoiding Bias in AI" – tackling inequality in healthcare

In March, we gathered at sitem-insel to discuss how AI impacts gender and socio-economic biases in medicine. With insightful contributions from Virginia Richter (Rector, University of Bern), Saniye Gülser Corat (NoBiasAI founder, former UNESCO Director for Gender Equality), Enriqueta Vallejo-Yagüe (expert in sex and gender in healthcare), Berna Özdemir (medical oncologist), and Şerife Seda Kucur Ergünay (CTO & Co-Founder, PeriVision), we explored AI's potential to reduce bias. A thought-provoking exchange that fueled our commitment to making AI a tool for equity, not inequality.

To the ARTORG site about the event

Center for Artificial Intelligence in Medicine


Prof. Raphael Sznitman Director


Prof. Stavroula Mougiakakou Digitalization & AI Education


Prof. Roland Wiest Digitalization & AI Education


Prof. Mauricio Reyes Network & Outreach


Prof. Alexander Leichtle Computational Facilities


Prof. Kuangyu Shi Research Project Fund


Prof. Inti Zlobec Research Project Fund


Prof. Claus Beisbart Ethics Lab


Prof. Martino Mona Ethics Lab


Prof. Rouven Porz Ethics Lab


Prof. Fritz Sager Ethics Lab

The Center approaches AI from the perspective of healthcare providers and addresses real-world clinical needs for the benefit of patients. It was founded in 2021 by the University of Bern and Bern University Hospital to shape the digital healthcare future.

Diversity for AI in Medicine wins Prix Lux 2024

Our initiative, Diversity for AI in Medicine (DAIM), won UniBE's 2024 Prix Lux equal opportunities prize, which is awarded to groups that are committed to equality of gender and diversity. The DAIM initiative promotes diversity, equity and inclusion for the benefit of a multi-perspective and inclusive workspace, academic excellence through multiple viewpoints and fighting biases in AI development. The initiative encompasses activities in networking, mentoring, research and public relations.

To the report on the CAIM website

New research fellows

CAIM supports young researchers' projects through two-years fellowships. From a highly competitive pool of applications, 5 projects were selected in a multi-step process including external and internal review, pitches, and final evaluations to award from both clinical and technological viewpoints. Amjad Khan, Eva Peper, Markus Huber, Miguel Ariza and Pablo Marquez-Neila are advancing research in anaesthesiology, cancer care, cardiology, eye care and pathology.

Introducing five new research fellows on the CAIM website

CAIM Research Symposium: Young Researcher Awards

At the CAIM Research Symposium, the CAIM Young Researcher Award was presented to Zahira Mercado in the category translation in recognition of her strong exposé "From Contours to Care: Advancing Radiotherapy with AI-Based Dosimetric Insights". Adnan Mujanović won the DAIM Young Researcher Award in the category diversity for his work "External Validation of a Model for Persistent Perfusion Deficit in Patients with Incomplete Reperfusion after Thrombectomy."

CAIM Research Symposium on the CAIM website

Bern Center for Precision Medicine


Prof. Mark Rubin
Director


Prof. Carlo Largiadèr
Vice-Director


Prof. Inti Zlobec


Prof. Christiane Zweier


Prof. Sven Rottenberg


Dr. Rémy Bruggmann


Dr. Dominique Furrer


Prof. Marianna Kruithof-de Julio
Chair of the Scientific Review Board

The Center is dedicated to advancing precision medicine approaches by fostering the research and development of medical treatments and therapy methods. It provides an interdisciplinary platform for researchers and clinicians from different departments and faculties. It is active in research, networking, and education.

Successful research projects

As of 2024, out of 198 submitted proposals, the BCPM has funded 34 pilot projects that were competitively reviewed by international experts. The calls were coupled with additional goals such as establishing young researchers, interdisciplinarity, innovation, and seed funding. As verified in 2024, many of these goals could be reached:

- Using the preliminary findings and data from the BCPM-funded projects, BCPM members submitted 63 external research applications. 39 of these were approved, resulting in CHF 20'791'042 third-party funding. This is a research investment leverage of 456%.
- 35% of the projects reported translation between fundamental research and clinical integration with patients at the Inselspital/Bern University Hospital.
- 36 scientific publications could be made, 7 more are in the review phase, and 25 are in preparation. 70% of the project teams presented their results at research conferences, and 82% could expand their research network.
- 80% of the projects involved young researchers (46% at the PhD/Postdoc level, 32% at the MSc level, 22% other).
- Three precision medicine projects were invited to submit a full NCCR proposal to the Swiss National Science Foundation (SNSF). The BCPM lighthouse project (channelopathies and sudden cardiac death, Katja Odening et al.) was also among these projects.

Successful master module, start of the PhD specialization

The master module entered its fourth year. It was extended to two tracks (one for medicine, biomedicine, pharmacy, and the other for bioinformaticians). With 43 students, it has a new participation record. In the meantime, the PhD specialization in Precision Medicine started with its summer school, which was organized together with the Institute of Pharmacology and the Graduate School for Cellular and Biomedical Sciences (GCB).


Summer School 2024

Multidisciplinary Center for Infectious Diseases


Prof. Volker Thiel (Co-Chair 1)


Prof. Carmen Faso (Co-Chair 2)


Prof. Rudolf Blankart (Chair, Economics)


Prof. Nicola Low (Chair, Epidemiology)


Prof. Stephanie Ganal-Vonarburg (Chair, Immunity)


Prof. Stephen Leib (Chair, Microbiology)


Prof. Volker Heussler (Chair, Neglected Diseases)


Prof. Manuela Funke-Chambour (Chair, Patient-Focused Research)


Prof. Claus Beisbart (Chair, Society and Law)

The MCID is the strategic center of the University of Bern dedicated to the study and mitigation of risks from infectious diseases. It brings together high-impact academic researchers with the aim of determining the origins of infectious disease risks and preparing for and managing these risks.

Launch of the BEready Cohort main study

2024 saw the launch of the main study of the MCID BEready Cohort, a long-term study that seeks to contribute to effective responses to future pandemics, epidemics and infectious disease threats. The cohort will involve 1500 households (including pets) in the Canton of Bern, with more than 500 households having now enrolled.

To the MCID BEready website

Symposium on the revision of the Swiss Epidemics Act

In January 2024, the MCID Ethics and Policy Lab (EPL) held a symposium on the Revisions of the Swiss Epidemics Act, an ongoing process in which the EPL has played an active role. The symposium included presentations on the revision process by University of Bern and Federal Office of Public Health experts and a panel discussion.

About the symposium

CAS One Health, an MCID-supported continuing education offer

Registration is now open for CAS One Health, to begin in Autumn 2025. This Certificate of Advanced Studies course has been developed by the UniBE Veterinary Public Health Institute, with support from the MCID, and seeks to provide theoretical and practical training on One Health, taking an interdisciplinary and cross-sectional approach.

To the CAS One Health program

Swiss Institute for Translational and Entrepreneurial Medicine

Dr. Simon Rothen
CEO

Dr. Julie Risse
CBO

Prof. Rudolf Blankart
Director sitem-insel Regulation

Vivienne Rassaerts
CCO

Anita Newby
CFO and HR

sitem-insel is a National Center of Excellence for Translational Medicine that accelerates and supports research for the benefit of patients, society, and science. Located on the Insel Campus Bern, a wide variety of units from clinics, industry, research, and education network under one roof.

2nd Swiss Translational Medicine Conference

The Conference focused on translational journeys in oncology, highlighting the UK's and Switzerland's innovation and translational landscape. Renowned speakers presented innovative examples of how basic research evolved into practical applications. They presented the various steps required along the translational journey, culminating in products or services that benefit society. On this occasion, the Swiss Society for Translational Medicine was founded by sitem-insel, ETH Zürich and the Medical Faculty of the University of Bern.

A very successful and insightful 2nd Swiss Translational Medicine Conference

sitem-insel *InnoMeter*

The sitem-insel ***InnoMeter*** highlights the innovation contribution of the Community since 2019:

- We conducted 884 R&D projects with a total of CHF 124.8 million in funding.
- 1502 publications were (co-)authored in top journals.
- We awarded 248 educational degrees, filed 56 patent applications and 443 employees worked in the building.

Measuring the Impact of Innovation: sitem-insel InnoMeter

Continuing education at the sitem-insel School and CATR

The sitem-insel School introduced the new Regulatory Affairs and Quality Management curriculum that offers three new CAS programs with the opportunity to also obtain a DAS/MAS degree. In addition, the team relaunched the CAS in Artificial Intelligence in Medical Imaging program. The Clinical Anatomy Training and Research unit hosted more than 80 courses and workshops in clinical surgical training and R&D.

Our Expertise

Research Platforms, Clusters and Networks

Content

Cardiovascular Research Cluster

Prof. Sarah Longnus
CVRC Coordinator

Prof. Katja Odening
CVRC Coordinator

Dr. Maria Arnold
CVRC Scientific & Administrative Manager

Daniela Castillo Robles, CVRC Administrative Assistant

The Cardiovascular Research Cluster (CVRC) Bern is a local network of researchers at the University of Bern and the Inselspital with an interest in cardiovascular research. It aims to reinforce Bern's position as a leading center for cardiovascular research locally, nationally, and internationally.

CVRC Annual Meeting 2024

The annual meeting of the Cardiovascular Research Cluster Bern (CVRC) took place on January 24, 2024. Approximately 140 research scientists, clinicians and students from the many different Bernese institutes and departments involved in cardiovascular research participated. A total of 45 abstracts were presented in the form of flash talks and posters, and prizes were awarded for the two best clinical and fundamental presentations (see photo). The meeting was divided into sessions on various cardiovascular topics with key invited presentations from senior researchers and was a great success.

To the website of CVRC Annual Meeting 2024

Collaborative grant writing effort: NCCR application

Several groups from the CVRC have joined forces and came together for an NCCR application for Precision Cardiovascular Medicine under the direction of Prof. Dr. Katja Odening (Physiology / Cardiology) and Prof. Dr. Nadia Mercader (Anatomy). Our outline proposal was ranked in the 1st quintile of the Life Science Panel and received a recommendation from the Swiss National Science Foundation to submit a full proposal. The preparation of the full proposal is currently ongoing and is supported by the CVRC.

PhD Specialization Program in Cardiovascular Research

As part of the PhD Specialization Program in Cardiovascular Research, various activities were organized, such as a workshop entitled "How can you identify your career goals?", which was led by Monika Sattler in June 2024. The aim was to provide tools to help the development of junior researchers.

Following the success of our first Cardiovascular Student Retreat, the invitation was extended to additional Swiss universities and doctoral programs with the aim of bringing together junior researchers in the field of cardiovascular research to foster exchanges and symbioses.
On November 29 and 30, 2024, 35 students from five universities took part in our first Swiss Cardiovascular Student Retreat in Ascona, Ticino. The students presented their research in the form of flash and poster presentations, and Prof. Manuel Mayr, Professor of Cardiovascular Proteomics from Imperial College, London, UK, gave a stimulating keynote session.

In 2024, four students of the PhD Specialization Program in Cardiovascular Research successfully defended their PhD / MD-PhD thesis and by the end of 2024, 15 students were enrolled in the program.

Cardiovascular Research PhD Program

Clinical Neuroscience Bern

Prof. Mirjam Heldner
President

Prof. Tobias Nef
Vice President

Prof. Maxime Baud, Executive Committee Member

Prof. Jessica Peter
Executive Committee Member

Prof. Philippe Schucht
Executive Committee Member

Prof. Daniela Schweizer
Executive Committee Member

PD Dr. Maria Stein
Executive Committee Member

Prof. Roland Wiest
Executive Committee Member

Prof. Benoît Zuber
Executive Committee Member

Clinical Neuroscience Bern (CNB) is an interdisciplinary consortium of research groups from different fields. The main purpose is to connect neuroscientific researchers, promote research quality, increase the clinical impact at Bern, and facilitate junior scientists.

Brain Week Bern 2024, March 11-14, 2024

The Brain Awareness Week (BAW) 2024 in Bern focused on the theme „Gute Zeiten und schlechte Zeiten für das Gehirn," emphasizing brain and mental health as central aspects of well-being. The event featured a variety of lectures that highlighted recent advances in brain research and provided practical advice on maintaining brain health. Monday's and Tuesday's sessions addressed the effects of stress and trauma and were followed by engaging discussions with the audience. On Wednesday, a movie screening of Girl, Interrupted at Cinema Rex explored mental health challenges and sparked thought-provoking conversations. The week concluded with a panel discussion on „Myths and Truths," where experts clarified common misconceptions about the brain and mental health.

Brainweek Bern

19th CNB Annual Meeting 2024, September 6, 2024

This year's Annual Meeting was held at the Inselspital in the Ettore Rossi Auditorium. The first keynote speakers, Prof. Manuela Eugster and Prof. Stefan Weber, explored the advancements in medical robotics and their impact on surgical capabilities and patient care. Young researchers presented their work on topics such as fear-related memories, adolescent brain development, and metabolic brain aging. The second keynote lecture by Prof. Eggen and Prof. Boddeke from Groningen provided insights into the role of microglia in Alzheimer's disease using advanced multi-omics approaches. The afternoon featured a poster session, lunch, and several parallel symposia, offering diverse perspectives on cutting-edge neuroscience research..

More information about CNB, activities, and events on our website or in the CNB newsletter

Safe the date for the upcoming events:

- Brain Week 2025: March 10-13, 2025
- Researchers' Night: March 12, 2025
- 20th CNB Annual Meeting: September 5, 2025

Clinical Neuroscience Bern

NeuroTec


Prof. Urs Fischer
Chairman
Strategic Board


Prof. Claudio Bassetti
Senior Consultant


Prof. Kaspar Schindler
Director


Prof. Tobias Nef
Vice-Director


Prof. Athina Tzovara
Research Group Leader, Assistant Professor

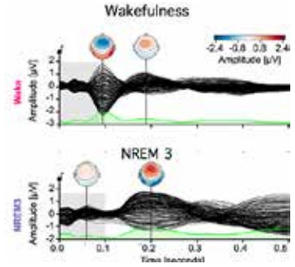

SNF Prof. Maxime Baud
Research Group Leader, SNF Professorship


Dr. Markus Schmidt
Research Group Leader

At the research and development platform NeuroTec, physicians, engineers, and data scientists test new devices and methods that allow the recording of digital biomarkers in the everyday out-of-hospital life of patients with neurological disorders – for personalized diagnostics and therapies.

Characterising neural dynamics of auditory processing in sleep

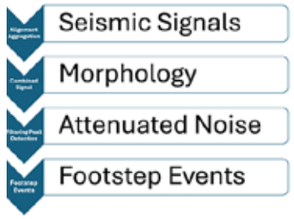
The human brain has an astonishing capacity to process sounds even when we fall asleep. Yet, the electrophysiological characteristics of how our brain reacts to sounds during sleep remain elusive. In this study, Alnes and colleagues show that the complexity of neural auditory responses is reduced during sleep, and that their spectral characteristics are altered. These results have future applications to studies of auditory stimulation probing neural functions in states of reduced consciousness.



Alnes et al., Eur J Neurosci, 2024.

Earthquake sensors for extracting gait parameters in hospital rooms

Earthquake sensors are the latest addition to the NeuroTec Loft. These seismographic sensors measure micro-earthquakes triggered by the patients' footsteps. Through high-resolution measurements, gait parameters such as step length, gait symmetry, and walking speed can be extracted, providing valuable insights for assessing patients' fall risk. We are currently working on further developments to enable the measurement of ground reaction forces as well. The sensors are developed and tested in the NeuroTec Loft before being deployed in the patient rooms of the neurorehabilitation unit (Simon Jung et al., Wilhelm Fabry Haus) and the geriatric psychiatry ward (Stefan Klöppel et al., UPD Waldau).



Single et al., Sci Rep., 2024.

University Comprehensive Cancer Center Inselspital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Twelve organ-specific cancer centers constitute the core of the UCI – supported by interdisciplinary services and expert groups focusing on special aspects of cancer care. The UCI is embedded in the structure of the Faculty of Medicine and the Inselspital Bern. It includes the Cancer Research Network Bern (CRNB), the research arm of the UCI.

United against cancer: research and clinic join forces

The cancer center at Inselspital was set to be upgraded to a University Comprehensive Cancer Centre on 1st November 2024. The establishment as such signifies a commitment to the highest standards in cancer treatment and ensures access to the most recent breakthroughs in cancer research. The UCI combines the expertise of the Inselspital with the innovative basic and translational cancer research from the University of Bern.


Prof. Pulver, Chairman of the Board of Directors of the Insel Gruppe, Prof. Aebersold, Chairmain of the UCI, Prof. Fotiadis, Vice Dean Research of the Faculty of Medicine

To the article of the Inselspital: United against cancer (in German)

Under the umbrella of UCI: The Cancer Research Network Bern met for the Annual Retreat

On June 10th, around 100 researchers from the Cancer Research Network Bern (CRNB) met on the Gurten for a scientific exchange. During the daylong event, the researchers presented their latest scientific findings, discussed their research projects, exchanged ideas and expanded their network. In 2024 this meeting took place for the first time under the umbrella of the UCI.

The scientific program included two keynote speakers, 13 lectures and 24 poster presentations.

To the website Cancer Network Bern of the Inselspital (in German)

Curriculum Oncology Inselspital Bern – COIN

Launched in November: interdisciplinary online training program, free of charge. Every Tuesday evening, it provides the essential basic oncological content for doctors, other health professionals and researchers as well as interested parties from all areas.

Medical training with COIN

To the COIN website

University Sleep-Wake-Epilepsy-Center


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PD Dr. med. Anne-Kathrin Brill, Pulmonary Medicine


PD Dr. med. Markus Schmidt, Sleep


SNF Prof. Maxime Baud, Epileptology, SNF Professorship


PD Dr. Carolina Gutierrez, Basic Science


Dr. Andrea Seiler, Epileptology


Prof. Leila Tarokh, Psychiatry


Prof. Athina Tzovara, Assistant Prof. with double affiliation at Faculty of Medicine and Faculty of Science

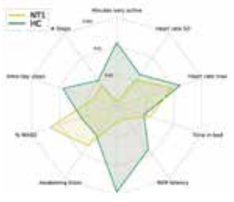
The mission of the interfaculty and interdisciplinary University Sleep-Wake-Epilepsy Center (SWEC) is 1) to provide comprehensive care for patients with sleep/wake disorders and/or epilepsy, 2) to advance basic, translational, and clinical research, and 3) to teach at pre- and postgraduate level.

28th Bernese Sleep-Wake-Epilepsy Days 2024

The 28th Sleep-Wake-Epilepsy Days took place on November 7th and 8th, providing a valuable platform to discuss the latest scientific findings and therapeutic approaches to epilepsy and sleep disorders. The event drew over 170 participants from around the world who enjoyed lectures by renowned experts and engaged in discussions with specialists from research and clinical practice. This year's Bernese Sleep Award was presented to Mary Carskadon for her outstanding contributions to sleep research, while the Bernese Epilepsy Award went to Premysl Jiruska for his groundbreaking work in the treatment of epilepsy.

Wearables for monitoring hypersomnolence

Utilizing Fitbit smartwatches, this study identified digital biomarkers distinguishing narcolepsy type 1 (NT1) patients from healthy controls. NT1 individuals displayed indicators of sleep fragmentation and unique heart rate and activity patterns, highlighting a distinct digital profile. This work demonstrates the potential of wearable technology for disease diagnosis and management.



Gnarra et al., Sleep.2024

Clinical trial of an implanted novel subscalp EEG device

Van Maren et al. published in Neurology the results of the Epios clinical trial carried out at Inselspital. This novel EEG device covers the entire head with electrodes inserted beneath the scalp via a minimally-invasive procedure. This trial opens the way to ultra-long-term EEG monitoring for brain disorders such as epilepsy

van Maren et al., Neurology. 2024

Stem Cell Research and Regenerative Medicine


Prof. Andreina Schoeberlein Lead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The Stem Cell Research and Regenerative Medicine (SCRM) Platform is an inter-faculty and inter-institutional research cluster of the University of Bern and the Inselspital. It comprises 35 member groups from the Faculty of Medicine, the Faculty of Science, and the Vetsuisse Faculty.

SCRM Annual Meeting 2024

The SCRM Annual Meeting presents current research topics in the field of Stem Cell and Regenerative Medicine Research at the University of Bern. It brings stem cell researchers from the Faculty of Medicine, the Faculty of Science and the Vetsuisse Faculty as well as clinicians from the Inselspital, University Hospital Bern together for a joint exchange. The 2024 Annual Meeting focused on the potential of extracellular vesicles in biomedicine.

SCRM Annual Meeting 2024

SCRM PhD Students Retreat 2024

The SCRM PhD Students Retreat is organized by and for PhD Students of the SCRM platform and for PhD Students with interests in stem cell research. Students are encouraged to present their projects to foster scientific discussion between peers and two invited mentors, but also to explore career plans. In 2024, the 11th edition of this event welcomed academic mentor, Prof Alireza Mashaghi, Head of the Medical Systems, Biophysics & Bioengineering, Leiden University, The Netherlands and industry mentor Dr Luca Tamò, a University of Bern alumni, now Clinical Operations Program Manager, Global Clinical Operations at Novartis Pharma AG.

SCRM PhD Students Retreats

SCRM Lunch Seminars

The monthly SCRM Lunch Seminars takes place every second Tuesday of the month and provides a regular platform for young PhD students and researchers who want to present their work to their colleagues and excel in professional presentation. A variety of lectures from PhD Students, PhDs, Postdocs and group leaders of the SCRM Platform or partner groups is offered to strengthen the network and favor discussions.

SCRM Lunch Seminars

Translational Imaging Center

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Prof. Bernd Jung
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Prof. em. Roland Kreis
Prof. Johannes Slotboom
Prof. Peter Vermathen

The Translational Imaging Center is part of the Insel Gruppe and is supported by sitem-insel, the University of Bern, and Siemens Healthineers. It enables translational imaging research ranging from molecular chemistry and physics to applied human-oriented research and employs advanced magnetic resonance imaging.

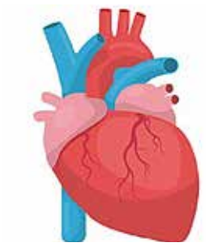
Clinical evidence for Ultra-High Field MRI

A scoping review evaluated clinical advantages of 7-T MRI versus MRI at lower field strengths. Recommendations for UHF MRI include the presurgical workup of patients with refractory epilepsy, pituitary gland pathology, tumor grading and multiple sclerosis.

Radojewski et al., Eur J Neurol. 2025

Risk stratification in nonischemic dilated cardiomyopathy using MRI

A meta-analysis of 103 studies of patients with nonischemic dilated cardiomyopathy examined the value of MR imaging–derived measurements for risk stratification. The presence and extent of late gadolinium enhancement was associated with mortality and both arrhythmic and nonarrhythmic clinical end points.



Eichhorn et al., JAMA 2024

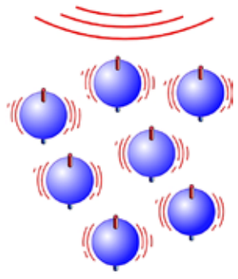
Alterations of perfusion and functional connectivity of the cingulate motor area are associated with psychomotor retardation in major depressive disorder

This study suggests that reduced perfusion of the cingulate motor area and increased resting state functional connectivity between the cingulate motor area and the supplementary motor area are associated with psychomotor retardation in patients with major depressive disorders.

Bracht et al., Eur Arch Psychiatry Clin Neurosci. 2024

ORACLE: an analytical approach for T_1, T_2, proton density, and off-resonance mapping with phase-cycled balanced steady-state free precession

The study presents a novel analytical approach simplifying T_1,T_2 , proton density, and off-resonance Δf quantifications from phase-cycled balanced steady-state free precession data.



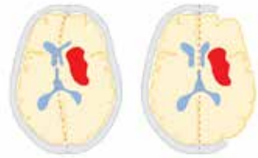
Plähn et al., Magn Reson Med. 2024

University Neurocenter

The largest Neurocenter in Switzerland represents the departments of Neurology and Neurosurgery, the Department of Pediatrics with the specialty of neuro-pediatrics, the University Institute of Diagnostic and Interventional Neuroradiology, and the University Hospital of Psychiatry UPD Bern.

Swiss trial of decompressive craniectomy versus best medical treatment of ICH

It is unknown whether decompressive craniectomy improves clinical outcome for people with spontaneous severe deep intracerebral haemorrhage. SWITCH provides weak evidence that decompressive craniectomy plus best medical treatment might be superior to best medical treatment alone in people with severe deep intracerebral haemorrhage.



Beck et al., Lancet. 2024

Importance of timing for the efficacy of intravenous thrombolysis before thrombectomy

An individual patient data meta-analysis published in JAMA 2024, co-led by Johannes Kaesmacher, Jan Gralla, Neuroradiology, and Urs Fischer, Neurology, provided important insights into the treatment effect modification of intravenous thrombolysis before thrombectomy in patients directly admitted to a comprehensive stroke center.

Kaesmacher et al., JAMA. 2024

Multicenter study of the Swiss cohort of LAMA2-related muscular dystrophy

This study explores the Swiss cohort of patients with LAMA2-related muscular dystrophy, offering valuable insights into assessing disease severity and tracking disease progression. Our findings are crucial for advancing future clinical trials and enhancing the clinical understanding and management of patients with LAMA2-related muscular dystrophy.

Enzmann et al., J Neuromuscul Dis. 2024

How does working memory or physical training affect cerebral blood flow and structural connectivity in pediatric cancer survivors?

Working memory training entailed lower cerebral blood flow immediately after the training and better brain connectivity three months later, while physical training caused no brain changes in pediatric cancer survivors. The cerebral changes were linked to improved cognitive flexibility and better working memory. Our findings give insight into the neural mechanisms underlying cognitive and physical trainings in pediatric cancer survivors.

Schuerch et al., Neuropsychol Rehabil. 2024

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We would like to thank everyone who contributed images, text, or other support to this report.
Design and layout: José Schranz, Faculty of Medicine
Concept and editing: Dr. Roger Konrad, Faculty of Medicine
Print: Haller & Jenzer AG, Burgdorf

The annual report in PDF: