Scientific Report of the URPP «Integrative Human Physiology»

1 Summary/Zusammenfassung

1.1 Summary

During the last decade excellent modern techniques enabled researchers to decode the human genome and to unravel a huge amount of molecular mechanisms. Nevertheless, this is not enough to understand the complexity of human body as a whole. Integrative Human Physiology aims at integrating single findings in order to better understand complex functions at the level of the whole organism. Basic scientists and clinicians work together to combine findings from basic science with knowledge from clinical applications.

The University Research Priority Program (URPP) «Integrative Human Physiology» (IHP) was established in 2005 with the goal to promote research in integrative human physiology. From the beginning, the financial resources of the URPP IHP have been used for funding of all activities of the Zurich Center for Integrative Human Physiology (ZIHP), a center of competence of the University of Zurich[1].

During the last years the ZIHP has successfully developed into a unique and excellent instrument to connect scientists beyond institutional or faculty borders. A funding program for a total of 49 cooperative projects as well as several successful seminars and symposia promoted scientific collaborations and network activities among the members of the ZIHP, in particular between basic and clinical scientists. Research projects have been promoted, which combined investigations at the level of molecules, cells, organs, and the whole organism. Several of the cooperative projects paved the way to a number of larger cooperative networks at a national and international level and for external funding, demonstrating the high quality of research performed. Additionally, the ZIHP is proud to have hosted a total of four outstanding young scientists in the positions of assistant professors and to be able to offer them a springboard for their academic career. All of them secured permanent faculty positions at different Swiss or European Universities. To increase research efficiency, the ZIHP has established the core facility «Zurich Integrative Rodent Physiology» (ZIRP), which is nowadays run jointly by the ZIHP, the Institute of Physiology and the NCCR Kidney.CH. The ZIRP has continuously grown and successfully applied to become the first «Integrated Technology Platform» of the University Zurich ensuring continuation of activities beyond the period financed by the URPP IHP.

A further goal of the ZIHP was and remains the promotion of young researchers. The PhD Program in Integrative Molecular Medicine (imMed), established within the ZIHP, conveys to PhD students important knowledge for their future career. The program is part of the Life Science Zurich Graduate School (LSZGS) and offers attractive activities such as graduate courses, alumni-events and an annual retreat.

Finally, the ZIHP promotes the dialog between science and society and makes the research performed within the ZIHP visible and understandable to the public. ZIHP members and their research partners present mainly within the very successful public *Wissen-schaf(f)t Wissen* series topics of general interest in the field of medicine and physiology. The public is invited to participate to the discussion. Additionally, a newsletter is regularly sent to more than 1800 subscribers and the ZIHP webpage contains information on events, research activities, and other news.

[1] The name «ZIHP» is by now very well known, thus it is used in this document to report on the activities that have been financed by the URPP IHP.

1.2 Zusammenfassung

Im letzten Jahrzehnt hat die Wissenschaft das Erbgut des Menschen entschlüsselt und eine Vielzahl von molekularen Zusammenhängen aufgeklärt. Die Analyse von einzelnen biologischen Prozessen reicht jedoch nicht aus, um den Menschen in seiner Ganzheit zu verstehen. Dazu muss der ganze Organismus im Fokus stehen. Das Wissen aus der biologischen Grundlagenforschung muss mit demjenigen aus der klinischen Anwendung kombiniert werden und Forscher aus beiden Bereichen müssen eng zusammenarbeiten. Die Integrative Humanphysiologie hat zum Ziel, einzelne Prozesse zu erforschen und zu integrieren, um komplexe Vorgänge und grössere Zusammenhänge im menschlichen Körper zu verstehen. Der Universitäre Forschungsschwerpunkt (UFSP) «Integrative Humanphysiologie» (IHP) wurde 2005 gestartet mit dem Ziel, Forschung im Bereich der integrativer Humanphysiologie zu fördern. Die finanziellen Resourcen des UFSP IHP wurden von Anfang an für die ausschliessliche Finanzierung des Zürcher Zentrums für Integrative Humanphysiologie (ZIHP) - ein Kompetenzzentrum der Universität Zürich - verwendet[2].

Das ZIHP hat sich zu einem hervorragenden Instrument entwickelt, um Forschende über die Instituts- oder Fakultätsgrenzen hinweg zu vernetzen. Durch die Finanzierung von insgesamt 49 gemeinsamen Forschungsprojekten und durch die Organisation von regelmässigen Seminaren und Symposia förderte das ZIHP die Kooperation zwischen Grundlagenforschern und Klinikern. Dabei förderte es insbesondere Forschungsvorhaben, die Untersuchungen auf der Ebene der Moleküle, der Zelle, der Organe und des gesamten Organismus kombinieren. Bereits mehrere grosse nationale und internationale Forschungsprogramme sind aus diesen Projekten hervorgegangen, was die Qualität der Forschung bestätigt. Das ZIHP hat zudem zwei Assistenzprofessuren eingerichtet, einen ausgezeichneten Sprungbrett für insgesamt 4 junge Stelleninhaber. Alle vier haben im Anschluss an ihre Assistenzprofessur eine permanente Professur entweder an einer schweizerischen oder an einer europäischen Universität erhalten. Um die Forschungseffizienz zu steigern, hat das ZIHP die Plattform «Zurich Integrative Rodent Physiology» (ZIRP) gegründet, die derzeit durch das ZIHP, das Physiologie Institut und das NCCR Kidney.CH getragen wird. Das ZIRP ist über die Jahre hinweg kontinuierlich gewachsen und ist seit 2016 die erste «Integrierte Technologieplattform» der Universität Zürich. Die Plattform wird ihre Aktivitäten nach dem Abschluss des UFSP IHP fortsetzten.

Ein weiteres Ziel des ZIHP war und bleibt die Förderung des wissenschaftlichen Nachwuchses. Mit dem Doktoratsprogramm in integrativer molekularer Medizin (imMed) bereitet das ZIHP die Doktorierenden auf das Leben in der Arbeitswelt vor. Das Doktoratsprogramm ist in der Life Science Zurich Graduate School (LSZGS) integriert und bietet attraktive Aktivitäten wie beispielweise Weiterbildungskurse, Alumni-Treffen und jährliche Klausurtagungen.

Schliesslich ist es ein Anliegen des ZIHP, die neuesten Entwicklungen aus den Bereichen Forschung und Wissenschaft an die Öffentlichkeit zu kommunizieren. Hauptsächlich im Rahmen der sehr erfolgreichen Reihe *Wissen-schaf(f)t Wissen* präsentieren ZIHP-Mitglieder und ihre Forschungspartner tagesaktuellen Themen aus den Bereichen Medizin und Physiologie und laden die Öffentlichkeit zur Diskussion ein. Ein Newsletter mit mehr als 1800 Abonnenten und die Website mit Pressespiegel, Veranstaltungskalender und Publikationsverzeichnis informieren laufend über alle Neuigkeiten.

[2] Da der Label «ZIHP» sehr gut bekannt ist, wird es in diesem Dokument durchgehend gebraucht, um über die vom UFSP IHP finanzierten Aktivitäten zu berichten.

2 Structural development

2.1 Initial situation, design and development

Within the general aim to support excellence in research, the University of Zurich has decided to promote integrative human physiology. In the last decades, excellent modern molecular techniques have revolutionized medical biology, but at the same time this rapid development has caused the integrative approach in physiology to be neglected. By promoting integrative human physiology, the University of Zurich had the objective to counteract this trend and to focus science on the whole organism, not only on cellular or molecular biology. Integrative human physiology looks at the human body as whole organism. Single findings at the level of molecules, cells and organs are integrated with the aim to better understand complex functions at the level of the whole organism. Towards this aim, different model systems are used and combined. Basic scientists and clinicians work together in interdisciplinary research projects.

The Zurich Center for Integrative Human Physiology (ZIHP) was founded in March 2005 and is an interdisciplinary center of competence of the Faculty of Medicine at the University of Zurich. It cooperates with the Faculty of Science and the Vetsuisse Faculty. Members of other research institutions in Zurich participate as associated members. From 2005 until 2016, the financial resources of the URPP «Integrative Human Physiology» (URPP IHP) enabled the activities and programs of the ZIHP. From the beginning, the ZIHP has been subdivided in 4 research topics:

Topic A: Cardiovascular research
The aim is to understand the regulation of the cardiovascular system at the cellular, organ and systemic levels. The focus is on the structure and the function of vessels, on the adaptation of the system to stress and on cardiac perfusion, mainly by means of medical imaging.

Topic B: Oxygen and movement
The aim is to understand the mechanisms of oxygenation and deoxygenation and their regulation at the systemic as well as at the cellular/molecular level. This includes studies on the molecular-physiological mechanisms of oxygen sensing, the regulation of respiration (especially under special conditions such as hypoxia, exercise or sleep) and the molecular and structural adaptation of the musculature.

Topic C: Milieu intérieur / Homeostasis
The aim is to understand the homeostatic mechanisms that maintain equilibrium in the human body compartments. For this purpose the functioning of solute exchange regions (such as epithelia of the intestine, liver and kidney) and the process of metabolic regulation are analyzed. Research at the molecular and cellular level is complemented by systemic physiological approaches.

Topic D: Central Regulation and Coordination
The aim is to understand the brain as sensitive and controlling organ within a complex environment. System-oriented approaches are incorporated in sleep-physiology, vestibulo-oculomotoric and spatial perception, neuropsychology, neurophysiology and control of movement. These are complemented by cognitive neuroimaging and computational neuroscience, which at the same time function as important links between basic and clinical-oriented research.

To promote integrative, interdisciplinary, and translational cooperation, the ZIHP launched the first competitively funded cooperative research projects in 2007. The consortium had to include representatives from at least three groups of the University of Zurich and/or the University Hospital

Zurich across disciplines and from basic as well as clinically oriented research. Within these projects there was a strong focus on the education of young researchers: Apart from few exceptions, funding was only used for positions of PhD or MD-PhD students and for consumables. All projects were reviewed and discussed by the Scientific Advisory Board as well as by the Steering Committee of the ZIHP. From 2007 until 2016 the ZIHP financed a total of 49 cooperative projects. All ZIHP full and junior members were entitled to apply for cooperative project grants. Eligibility criteria for full membership are a position as an independent research group leader with a running grant by the SNF or the EU or equivalent. The junior membership is reserved to young researchers who are belonging to a ZIHP member group with temporary employment (e.g. assistants and senior assistants) and are working at least partially independently with own funding and own projects. At the end of 2016, the ZIHP counted 151 members.

Furthermore, from the beginning the ZIHP established two assistant professorships in integrative human physiology.

Besides promoting research with direct funds, the ZIHP promoted networking of its members by organizing annual symposia and regular seminars.

2.2 Structural goals and achievements

Structural goals

The main goal was to build a network of translational integrative science in human physiology at the University of Zurich. To achieve this goal the ZIHP aimed at:

- Promotion of research activities that combine investigations at the levels of molecules, cells, organs and the whole organism thereby bringing the complex functions of the human body into focus.
- Strengthening of long lasting connections between basic and clinically oriented research in health and disease. The ZIHP supported the progress of clinical research projects evolving from basic science studies.
- Promotion of young researchers at the graduate and postgraduate level through establishment of the Master Program in Human Biology and of the PhD Program in Integrative Molecular Medicine (imMed). Furthermore, establishment of 2 assistant professorships in integrative human physiology.
- Increase of the research efficiency by establishing and providing a Core Facility for physiological experiments in rodents.
- Organization of seminars, symposia and other networking events.
- Making the ZIHP and the integrative approach to human physiology well known both in the scientific community and in the public.
- Acquisition of additional funds for continuation of the ZIHP as a competence center beyond 2016.

Achievements

The ZIHP very successfully reached all its main goals:

- Scientific collaborations and networking were enabled by financing a total of 49 cooperative projects.
- Several of the completed cooperative projects paved the way to larger cooperative networks at a national and international level and for external funding. These achievements demonstrate that the ZIHP provides an attractive platform for extending long lasting interactions to prestigious cooperative networks in science and industry.
- The promotion of young researchers was achieved by the establishment of the Master Program in Human Biology – since 2009 completely independent from the ZIHP – as well as the PhD Program in Integrative Molecular Medicine (imMed). Furthermore, more than 100 PhD positions within the cooperative project grants and the ZIHP assistant professorships were funded.
- The ZIHP was proud to host four outstanding young scientists as assistant professors: They all were able to attract considerable third party funding and successfully pursued their research activities, resulting in numerous publications as senior authors, but also as co-authors together with other researcher of the ZIHP and the University Hospital Zurich, underlining the collaborative nature of the ZIHP. All assistant professors secured permanent faculty positions in either Switzerland or Europe (Germany and Denmark).
- Research efficiency was increased by establishing and providing the Zurich Integrative Rodent Physiology (ZIRP) Facility. The ZIRP Facility successfully applied in 2015 to become the first «Integrated Technology Platform» at the UZH to ensure continuation of activities beyond the period financed by the URPP IHP. Although still being organizationally affiliated to the competence center ZIHP, the ZIRP Facility is nowadays financially independent.
- Many researchers of the ZIHP and other research institutions were brought together at the annual ZIHP symposia and at the numerous seminars and mini-symposia which hosted nationally and internationally renowned speakers. Furthermore, international events organized by ZIHP members have been sponsored.
- The high visibility of the scientific output of the ZIHP was reached by asking members of the ZIHP to acknowledge the financial support by the URPP IHP and/or mention the ZIHP in the affiliation section. This has resulted in almost 2000 «ZIHP-labeled» original publications or reviews. Many of them were co-authored by several ZIHP members not originating from the same institute or clinic («joint publications»).
- Research performed within the ZIHP was made visible to the public through the event series *Wissen-schaf(f)t Wissen* (started 2008). A report on most events was published on the public online portal of the University of Zurich *UZH News.* This exposure helped to further increase the popularity of the series. Moreover, the ZIHP participated in the «Parcours des Wissens» within the 175th anniversary of the University of Zürich as well as to two editions of «Scientifica». Public events not only make the research performed within the ZIHP visible to the public but also show the link between topics of everyday life and our research.
- The electronic newsletter *ZIHP News* allows keeping up-to-date with the activities of the ZIHP and its members. Furthermore, it allows a broader audience to understand the aims and activities of the ZIHP.
- The acquisition of further substantial third party funding for the future financing of the ZIHP proved to be very difficult. Nevertheless, a first step was made with the receipt of a legacy. Thanks to the financial support from the medical faculty (MeF) and from the Faculty of Science (MNF), as well as executive support from the Vetsuisse faculty, the ZIHP is able to continue to exist as a competence center. However, financing research projects or even

assistant professorships as done within the URRP IHP will not be possible in the future unless significant external funding is established.

2.3 Perspectives beyond the URPP

Fortunately, several structures that have been established thanks to the financial resources of the URPP IHP will continue to exist beyond 2016. Researchers and students will continue to benefit from the established network in the future. Since the budget for the ongoing support will be limited, the ZIHP steering committee has identified several key aspects that are deemed crucial for the program.
One keystone of the ZIHP's success has been the education of students and young researchers. The imMed PhD Program will continue to be part of the competence center. More information on the program is covered in section 5.1 Academic career development.
With the goal to further network scientists and to provide a stimulating environment for our students, the ZIHP will also continue organizing the annual ZIHP symposium. The symposium will give students and young researchers the change to present their research and to connect with peers in their field and beyond. To secure financial support, the ZIHP will apply for sponsoring contributions from different sources, such as the Kontaktgruppe für Forschungsfragen (KGF).

The ZIHP Newsletter is a useful resource for students, ZIHP members as well as the interested public and gives the ZIHP office the chance to communicate its events and its members' achievements. In the future, the ZIHP plans to publish newsletters quarterly or as needed.

Another strategy to promote scientific exchange by the ZIHP has been the financial support of small conferences and seminars (see 4.1 Scientific events). This will continue in the future although with reduced resources.

The extremely valuable work of the Zurich Integrative Rodent Facility (ZIRP) will continue to be supported by the ZIHP organizationally. In the past years, the ZIRP has grown substantially and is offering ZIHP-affiliated and external researchers a wide range of techniques to help answering specific research questions using rodent models. The structure and work of the ZIRP is outlined in more detail in section 3.2 Cooperation, synergies and added value.

Apart from organizational and financial support, the ZIHP helped connecting scientists who created new networks, such as the national competence centre (NCCR) Kidney.CH and the rare disease initiative (radiz). Since its beginnings, the ZIHP has worked towards building these networks which operate independently with great success. Details about the established networks can be found in section 3.2 Cooperation, synergies and added value. In the next four years, the ZIHP aims to continue building new networks based on past experiences, but with new focus groups. Since a number of ZIHP researchers are already involved in one or more other networks, the ZIHP steering committee has determined areas of research that have fewer networks so far, with the goal of connecting these areas and establishing funding opportunities in the future. Concerted effort will be made to build a network on topics around oxygen and movement. The ZIHP is comprised of experts in the field of hypoxia, which includes studies on inflammatory pathways and adaptation to high altitudes, as well as in the field of exercise physiology and motor control or development. The ZIHP will promote networking events such as mini-symposia by providing both financial and organizational support. The final goal will be to apply for funding such as the SNSF Synergia or for flagship projects of the «Hochschulmedizin». Several programs could potentially lead to funding for the envisioned network.

Another important goal of the ZIHP has always been the public outreach to inform, inspire and educate the interested public about topics involving physiology and medicine. The public seminar series *Wissen-Schaf(f)t Wissen* continues to attract a broad audience, with a large number of regular attendees. The invited speakers are members of the ZIHP or researchers from other institutions in Zurich, and in a number of instances the public outreach has led to substantial media coverage of their research. This publicity work is therefore considered a great success for all involved parties. In the future, the ZIHP is committed to stay in touch with the public by following measures:

- We will continue to host the seminar series *Wissen-Schaf(f)t Wissen*, inviting 3-4 speakers each semester to talk about their research. We will continue to publish articles about the events on UZH News, thereby increasing the audience significantly.
- The ZIHP will give a small contribution to ZIHP researchers who participate in public events organized by the University of Zurich and ETH, such as the popular science fair Scientifica.
- As an ongoing effort, we will recruit and engage ZIHP researchers to share their research at future events involving public outreach.

3 Research

3.1 Main scientific achievements

Research projects performed within the ZIHP covered a wide range of aspects of human physiology. All of them had the common goal to involve clinicians and basic scientists and thereby to link experimental research approaches performed in animal models with studies made with human subjects. Moreover, the projects provided a remarkable framework for the education of a new generation of scientists and medical doctors involved in biomedical research. In particular, PhD students who were supported financially by the ZIHP in the context of these projects and who were educated in the imMed PhD program received excellent training and had the opportunity to acquire essential skills for their future. It is also noteworthy that these projects generated very strong publications that demonstrate the active collaboration of basic science laboratories located in preclinical institutes with research groups belonging to clinical departments and working on disease-related questions.

From the beginning, the ZIHP has been subdivided in 4 research topics. Although several research projects covered aspects from more than one topic, the main scientific achievements are summarized for each field separately.

3.1.1 Research Topic A: Cardiovascular research

A total of 43 research groups within the ZIHP-network performed cardiovascular research. During the funding period of the URPP IHP, the ZIHP has selected and established 9 cooperative projects in this research field. Their focus ranged from clinical aspects of metabolic syndrome and atherosclerosis to lipid metabolism. These cooperative projects resulted in 71 scientific publications in peer reviewed journals.
Several cooperative projects addressed *vascular health*, starting with a work in 2007 by C. Matter and colleagues who launched a bench-to-bedside project that identified targets for a timely diagnosis of vulnerable plaques focusing on plaque inflammation, new vessel formation and biomarkers of plaque vulnerability.
Another project by A. von Eckardstein et al. established a new avenue of research on circulating *microRNAs*, by identifying their role in the pathogenesis of metabolic syndrome and its sequelae as well as their value as blood markers for laboratory diagnostics.

A diverse group of clinicians around A. von Eckardstein teamed up to determine *metabolism, function and regulation of HDL and lipids* in different contexts: Their transcytosis through endothelial cells, their role in survival of pancreatic beta cells, their role in hypoxia-induced foam-cell formation, their contribution to intestinal innate immune and inflammatory bowel disease (IBD), and their cardiovascular effects in patients with coronary artery disease.
The collaborators of another bench-to-bed side project led by T. Hornemann aimed to characterize the putative toxic effects of *deoxy-sphingoid bases* in insulin-producing cells, in diabetic rats, and in patients with diabetes.
Sirtuins are molecular sensors of caloric restriction. Sirtuin 1 was the focus of a collaborative project led by C. Matter that investigated the role of Sirtuins in regulating the response of the immune system. The research consortium investigated how failure of the adaptive mechanisms of the immune system promotes deregulations such as atherogenesis and thrombosis, diabetes, osteoporosis, rheumatoid arthritis, sickness behavior syndrome, and IBD. A similar translational approach with a different research question was applied in a recent project by C. Matter et al. looking at the role of Sirtuin 6 (Sirt6) in arterial thrombosis. The researchers used endothelial cells, an in vivo mouse loss-of-function model, and leukocytes from patients with acute coronary syndromes to investigate the role of Sirt6 in arterial thrombus formation.
A collaboration led by E. Battegay investigated the pathways around *endothelial mTORC2* in different contexts such as in angiogenesis, in the control of vascular function in perivascular adipose tissue, and in endothelial cells during ischemic preconditioning.

3.1.2 Research Topic B: Oxygen and movement

The scientific focus of topic B, oxygen and muscle biology, encompassed a total of 44 research groups including three ZIHP assistant professors: Prof. Handschin (*PGC-1alpha and mitochondrial biogenesis*), Prof. Lundby (*Epo and exercise*) and Prof. Frew (*VHL disease and HIF signalling*).

Christoph Handschin was appointed as ZIHP assistant professor in December 2006 and he left Zurich again in February 2009 to accept a tenured professorship at the University of Basel. As post-doc in the Spiegelman lab, using genetically modified mouse models, he made seminal discoveries on the function of the PGC-1α transcription factor in muscle differentiation, metabolism and function. While being at the ZIHP, he continued this research with a focus on adaptation of the muscles to exercise as well as on pathological conditions leading to muscles diseases such as type 2 diabetes, muscle atrophy and dystrophy. He published in top journals (JCI, G&D, Nature).

Carsten Lundby was appointed as ZIHP assistant professor in February 2010 and he stayed with the ZIHP until the end of the URPP in December 2016 when he left for a full professorship at the University of Copenhagen. During this time, he consolidated his leading role in exercise physiology and Erythropietin (Epo) function, as documented by an impressive number of 108 publications with the Zurich address.

Coming from the Krek lab at ETHZ, Ian Frew was elected as ZIHP assistant professor starting in spring semester 2010, further supported by an SNF professorship and an ERC starting grant. With the ending of the URPP, he was appointed as full professor for experimental oncology at the University of Freiburg im Breisgau. Already during his post-doc in the Krek lab, he started to investigate the role of oxygen-regulated signaling pathways in tumor formation as well as to unravel the additional genetic mutations that are required for clear cell renal cell carcinoma (ccRCC) development in familial von Hippel-Lindau (VHL) disease. He systematically developed novel methods to perform combinatorial genetic testing in vitro and in vivo which resulted in the discovery of additional mutations required for ccRCC tumor progression.

In addition to these three assistant professors, the ZIHP supported since 2007 a total of 13 cooperative projects in the research field of oxygen and movement. These cooperative projects directly resulted in 48 scientific publications in peer reviewed journals. Several major scientific achievements were reported in a number of field studies at *high-altitude*. A project led by K. Bloch investigated human sleep behavior, respiratory pattern and psychomotor activity at moderate to high-altitude in Davos Wolfgang and Jakobshorn. The data show subtle alterations in the first days even at moderate altitude and may help to better understand the effects of mild hypoxemia especially in patients with cardiovascular disease.
Several high-altitude projects were conducted by the ZIHP assistant professor C Lundby in collaboration with other groups from the ZIHP-network. His research included studies that investigated the interplay between brain and muscles in order to understand exercise reactivity and fatigue. All of these studies led to novel insights into the adaptive processes involved in altitude acclimatization and exercise effects. Related to these high-altitude studies are three projects led by A. Bogdanova and M. Gassmann, respectively, with the goal to investigate erythropoietin (Epo) function, the major hormone involved in systemic low-oxygen adaptation. These projects led to novel insights into the roles of Epo in organ protection, improved cognitive functions, and iron homeostasis.
A study led by M. Maggiorini evaluated pharmacological pre-treatments with the corticosteroid dexamethasone to avoid high-altitude pulmonary edema (HAPE) in mountaineers. The results of the study suggest that dexamethasone prevents HAPE by decreasing stress, inflammation and by increasing vasoactive peptides with vasodilatory and natriuretic properties. The same treatment was evaluated in exercising humans as well as laboratory animals, demonstrating the integrative nature of this exemplary project. Similar integrative human projects were conducted by M. Toigo on *exercise modalities*, such as the combination of vibration plates with limb ischemia, amongst others, to increase insulin sensitivity.

3.1.3 Research Topic C: Milieu Intérieur / Homeostasis

A total of 77 research groups, including the ZIHP assistant professors Carsten Wagner and, partially, Ian Frew, represented four areas of expertise within this research field, namely «Metabolism and endocrinology», «Nutrition: digestion, absorption and regulation», «Kidney: transport, metabolism and pathophysiology», and «Immune system and inflammation».

Carsten Wagner was appointed as ZHIP assistant professor 2006. He was also Scientific Director of the core facility in rodent physiology (ZIRP, see 3.2 Cooperation, synergies and added value) until December 2016. His research focuses on kidney physiology in the context of the whole organism. In particular, he studied several transport mechanisms mainly in the mouse model. Of crucial importance is his work on the role of proton secretion in the renal tubule for systemic acid-base balance. In addition to this, he contributed important studies in the field of phosphate and amino acid transport. Thanks to his excellent publications he won the Franz-Volhard Award and he was appointed to a full professorship at the physiology institute of the University of Zurich in 2009.

Ian Frew's research encompassed hypoxia signaling and kidney pathophysiology. His research achievements are covered in section 3.1.2 Research Topic B: Oxygen and movement.

During the 12 years of support by the URPP «Integrative Human Physiology» the ZIHP has funded 17 cooperative projects covering many different aspects of homeostasis research. The projects directly resulted in 65 publications in peer reviewed journals.
About half of the projects centered on questions involving the *intestine*, its absorptive function and also its inflammation. For instance, one project led by G. Kullak-Ublick has focused on the

regulation and functional characterization of transporters for drugs and endogenous substances in the human small intestine, whereas another project led by F. Verrey was centered on the mechanism and control of amino acid absorption. Several projects centered on inflammatory bowel disease (IBD). One project led by G. Rogler investigated the role of pH receptors for intestinal inflammation, whereas another project led by M. Scharl tested the role of protein tyrosine phosphatase non-receptor type 2 (PTPN2) not only in inflammatory bowel disease, but also in rheumatoid arthritis and colorectal carcinoma. Another consortium around O. Boyman studied the modulation of innate and adaptive immune responses in IBD. Finally, a recent, short IBD-related project led by I. Frey-Wagner investigated the influence of genetic polymorphisms of the host on the gut microbiota composition and the resulting consequences on chronic inflammatory disorders.

Eating control has been another central theme for two funded projects led by T. Lutz and L. Asarian, respectively. One project studied the effect of altitude and hypoxia on eating and the second one addressed in translational studies endocrine and brain control of eating in rats and pre- and postmenopausal women. Additionally, the project mentioned above addressing the control of amino acid absorption also substantially contributed to the understanding of eating regulation, specifically by dietary amino acids.

Four projects investigated homeostasis questions centering on *kidney function*. One consortium around ZIHP-professor C. Wagner investigated pathways of aldosterone action in kidney and vasculature whereas a second consortium around C. Cohen gained important insights into the relevance of glucocorticoids for renal development and epithelial cell function in health and disease using fish, mouse models, and also human material. A further project led by O. Devuyst addressed in a mouse model system the role of the renal proximal tubule in metabolism in the context of rare diseases and in particular the possibility to ameliorate such conditions with bone marrow transplantation. Finally, a last kidney-centered project led by A. Serra addressed the role and regulation of fibroblast growth hormone 23 (FGF23) in health and chronic kidney disease (CKD).

Intriguing and successful were the studies of T. Hennet et al. focusing on the properties and benefits of *maternal milk*. The first project looked at effects of maternal milk on intestinal microbiota using a mouse model of colitis and also by using dendritic cells as protagonist cells. The second project assessed the regulatory functions of soluble oligosaccharides from maternal milk on immune cells and intestinal microbiota, and determined receptors and signaling pathways involved in the sensing of oligosaccharides.

Additional projects focused on the role of islet amyloid polypeptide (IAPP) derived deposits in vascular dysfunction in diabetes (led by T. Lutz) and on the role of inflammatory mediators in metabolic stress (M. Donath et al.). Finally, a project addressing the question of hemoglobin-associated pathologies (led by D. Schaer) and one on the role of innate immunity and drug metabolism in severe cutaneous adverse drug reactions (L. French et al.) were also supported.

3.1.4 Research Topic D: Central Regulation and Coordination

A total of 71 research groups within the ZIHP-network work or worked on topics around «Central Regulation and Coordination». The ZIHP has funded 10 cooperative projects covering a broad area of neuroscience. Most projects were focusing on humans but also animal models (zebrafish and mice) were included. The applied approaches encompassed a wide range of methods, covering genetics, pharmacology, neuroimaging, electroencephalography and behavior. A total of 69 publications in peer reviewed journals resulted from these collaborative projects and few further publications are still to be expected.

3 cooperative projects encompassed *sleep and cognition in health and disease.* One project by HP. Landolt and colleagues aimed to investigate whether cognition and sleep share a functional basis in humans. The study demonstrated that adenosinergic mechanisms contribute to the regulation of attention and of inter-individual differences in functional aspects of the wake and sleep EEG in healthy adults irrespectively of habitual sleep duration. In normally developed children instead, sleep duration was negatively correlated with IQ scores. Another project, led by R. Huber and colleagues, tested the effects of three weeks of intensive cognitive training on sleep, brain structure and cognitive performance in children and adolescents. Subjects of the training group showed an increase in sleep intensity. This increase seems to be closely related to learning induced cortical plasticity. Further, a relationship of sleep intensity and cerebral tissue oxygen saturation measured with near-infrared spectroscopy was established. Finally, another cooperative project led by HP. Landolt investigated the effects of COMT inhibition on the consequences of sleep deprivation in healthy adults. The enzyme COMT degrades dopamine in prefrontal cortex and can be inhibited by tolcapone, used in Parkinson therapy. In a patient study the effects of COMT inhibition on motor function and vascular and neuronal protection are currently examined.

3 further cooperative projects investigated different aspects of *brain development*. Functional brain maturation was assessed in a study by D. Brandeis and colleagues using simultaneously recorded EEG-fMRI. Differences between children and adults during a cognitive working memory task as well as between children with and without epilepsy could be assessed with this technique. Another multimodal imaging and spectroscopy study by R. O'Gorman and colleagues linked the major system markers for typical and atypical brain development. For instance, adults with ADHD showed increased GABA concentrations in the basal ganglia while children showed a trend towards decreased GABA concentrations relative to age-matched controls, indicative of increased inhibitory neurotransmission with brain maturation in ADHD. In a third project C. Hagmann and colleagues discovered that preterm born and term born children do not differ in regional brain volume. However, very preterm born children showed negative associations between volumes of specific brain regions and working memory performance. In term born peers, no correlations were observed.

2 cooperative projects, both of them led by D. Straumann, focused on the *vestibular and oculomotor system*: In the first project the integration of sensory input originating in the vestibular and in the visual system during gait and postural control was quantified and mathematically modeled. In the second project the etiology of infantile nystagmus syndrome (INS) was studied by combining research in zebrafish, mouse, and human patients. The zebrafish mutant *belladonna,* characterized by retinotectal projection errors and by ocular motor instabilities, was used as a disease model. Furthermore, hypopigmented mice with associated retinotectal projection errors were screened for ocular motor instabilities and identified as potential mammal model. The findings from the animal models combined with quantifications in humans and mathematical models strongly support the hypothesis that retinotectal projection errors are associated with ocular motor instabilities in INS.

A cooperative project by D. de Quervain et al. focused on the physiology *of human emotional memory*: Emotionally arousing events are typically well remembered, but there is a large interindividual variability for this phenomenon. It was observed that a functional deletion variant of ADRA2B, the gene encoding the alpha 2b-adrenergic receptor, is related to increased responsivity and connectivity of brain regions implicated in emotional memory.

Finally, a recent cooperative project by E. Seifritz et al. investigated the role of glutamate homeostasis in the reward center of the human brain and its role in addiction.

3.2 Cooperation, synergies and added value

The cooperative research projects described above were integrative on several levels: from molecules to cells, organs and organisms as well as across disciplines and from basic to clinically oriented research. The combined expertise of the consortium represented an «added value» in the sense that the outcome was more than the sum of its parts. The scientific output of cooperative projects resulted in a total of 253 publications (see attachment A).

ZIHP cooperative projects as catalysts for larger cooperation

Several of the completed cooperative projects paved the way to larger cooperative networks at a national and international level and to receive external funding. All of these larger cooperative networks are led by ZIHP members, with a number of additional ZIHP members as consortium participants. These achievements demonstrate that the ZIHP provided an attractive platform for extending interactions to prestigious cooperative networks in science and industry. Examples are the following:

- **National Center of Competence in Research (NCCR)** *Kidney.CH* revolving around the theme «Kidney – Control of Homeostasis». The center, with the University of Zurich as leading house, was conceived by several ZIHP members involved in renal homeostasis research together with colleagues from other Swiss Universities. This project has been one of the few selected among approximately 100 applications in the 2010 series.
- «*HDL: From biological understanding to clinical exploitation*» (**European COST Action** with several members of the ZIHP-funded cooperative project «metabolism, function and regulation of high density lipoproteins»)
- «*TransCard: Translating disease to cardiovascular health*» (**FP7-HEALTH** with several members of the ZIHP-funded cooperative project «metabolism, function and regulation of high density lipoproteins»)
- «*A systems biology approach to anti-atherogenicity and anti-diabetogenicity of high density lipoproteins (HDL)*» (**SystemsX project** with members of the ZIHP-funded cooperative project «metabolism, function and regulation of high density lipoproteins»)
- «*HypoxiaNet: Hypoxia sensing, signalling and adaptation*» (**European COST Action**)
- A **Transatlantic Network of Excellence funded by the Fondation Leducq** with the title «*High-density lipoprotein dysfunction in the development of cardiovascular disease and as a therapeutic target*» was awarded. It evolved from a ZIHP-funded cooperative project.
- «*Inflammation and acute coronary syndromes*», a collaboration within the Special Program University Medicine (**SPUM**) of the Swiss National Science Foundation
- *radiz - Rare Disease Initiative Zurich* (**Clinical Research Priority Programs of the UZH**)
- *Sleep and Health* (**Clinical Research Priority Programs of the UZH**)
- *RESOLVE*: A systems biology approach to RESOLVE the molecular pathology of two hallmarks of patients with metabolic syndrome and its co-morbidities; hypertriglyceridemia and low HDL-cholesterol (**FP7 action**)
- *EpoCan*: Understanding the role of erythropoietin and its receptor in different pathologies apart from red blood cell production (**FP7 action**)

ZIHP Assistant Professorships

With its assistant professorships the ZIHP is proud to have provided to 4 outstanding scientists in the field of translational integrative human physiology an excellent springboard to success. All professors have attracted considerable third party funding and all of them successfully applied for a full professorship. Prof. Carsten Wagner started a permanent position at the University of Zurich in 2009. Prof. Christoph Handschin is Professor at the Biozentrum University of Basel since 2009. Prof. Ian

Frew started in January 2017 as Professor for Oncogenic Signalling at the BIOSS Centre for Biological Signalling Studies, Albert-Ludwigs-Universität Freiburg, Germany. Prof. Carsten Lundby started in January 2017 as Clinical Professor at the Department of Clinical Medicine, Rigshospitalet, Copenhagen.

The facility «Zurich Integrative Rodent Physiology»

From its beginnings, the ZIHP worked towards the establishment of a facility with the goal to support and strengthen research activities in the field of integrative physiology by providing infrastructure and know-how for the advanced analysis of rodent physiology. Additionally, the facility aimed to strengthen the inter-disciplinary cooperation and optimize the use of available infrastructure by providing a platform where researchers can link each other to share resources and establish collaborations.

Originally founded in 2006 by the ZIHP as a «core facility for rodent physiology», the facility has been re-organized in 2011 and is since then supported by two additional stakeholders: the Institute of Physiology and the NCCR.Kidney.CH. During this reorganization it was renamed into «Zurich Integrative Rodent Physiology» (ZIRP) and a steering committee was formed consisting of representatives of the three stakeholders. Additionally, user fees were introduced and the ZIRP launched its own website: www.zirp.uzh.ch.

From the beginning, the facility provided several devices for metabolic measurements such as metabolic cages or equipment to assess activity and exercise. In 2012, three new platforms were founded: A biochemistry platform for the analysis of small volume blood and urine samples, an imaging platform with an optical imaging system for in vivo bioluminescence and fluorescence imaging and an in vivo micro CT, and the telemetry platform for radio telemetry acquisition of physiological parameters in freely moving rodents. Since 2013, the ZIRP also offers microsurgical services and an EchoMRI instrument for body composition analysis was added to the imaging platform.

Meanwhile, the ZIRP is well established and is open to all members of the University, the ETH Zurich, and the University Hospitals. External research groups and companies are also welcome to use this service. The services offered by the ZIRP attract increasing numbers of users and ZIRP's staff is more and more involved in project planning and organization whilst the number of inquiries for technically demanding and time-consuming services also increases.

At the end of 2015, ZIRP was approved as the first «Integrated Technology Platform (ITP)» of the University of Zurich, and the University leadership decided to support the ZIRP for at least 3 years with CHF 100'000 per year starting in 2017. However, the ZIRP is still operated by one full-time equivalent staff position and it proves to be more and more challenging to cover the growing request for services and the respective administrative effort with the current financial situation. Consequently, for the future, the ZIRP needs to source further financial support, restructure its services and/or increase its fees to be able to finance its staff and increase its activity level in order to fulfill all demands.

4 Events and public relations

4.1 Scientific events

To promote scientific collaborations and networking among the members of the ZIHP, numerous symposia, mini-symposia and seminars have been organized during the past 12 years. These activities are continued beyond the reporting period.

Annual symposia with around 200 attendees brought together basic and clinical researchers, ZIHP members and students. Keynote lectures were given by renowned national and international experts and covered topics through all fields of human physiology. PhD students and young researchers had the opportunity to present and discuss their work with a broad audience either during one of the short oral presentations or during the poster session with around 80 posters. Awards were given for the best presentation and for the best four posters. The central location either at the University Hospital Zurich or at the Häldeliweg encouraged even busy clinicians to join the meeting throughout the day.
The *plenary meeting* of the ZIHP members was always held within the symposium. On the following day, a *meeting of the Scientific Advisory Board* took place where the applications for cooperative project grants were discussed and the strategic orientation of the ZIHP was evaluated.

The ZIHP organized several *mini-symposia* on translational research from bench to bedside. Basic and clinically oriented researchers presented their work, followed by a panel discussion. The aim was to promote translational projects and to start future collaborations.

From 2005 until 2015, the ZIHP organized a *bi-weekly seminar series in integrative human physiology*. During the semester invited external speakers alternated with ZIHP members talking about their work. To increase the attractiveness and reachability also for clinicians and students at the hospital - who have fewer opportunities to participate in similar events - the seminar series was organized as a lunch seminar and moved from the Irchel campus to the University Hospital Zurich from autumn term 2009 on.

Starting 2008, the ZIHP organized in a regular manner *ZIHP Special Seminars*. ZIHP members invite a guest speaker to Zurich for an individual seminar. The talk is usually given either at Irchel campus or in the home institution of the ZIHP member. All ZIHP members and all students of the imMed PhD Program receive the invitation. The ZIHP supports the travel expenses of the speaker up to an amount of CHF 500.

Furthermore, the ZIHP *sponsored* over the years several *international events, conferences, or symposia* organized by ZIHP members. If the application was approved by the steering committee, the ZIHP member received up to CHF 5'000 for the event and was obligated to acknowledge the ZIHP on the conference program.

The imMed PhD Program organized a seminar series on *career possibilities* from 2007 until 2011. The goal was to provide students with inspiring ideas on various career opportunities. Speakers coming from different fields presented their own career paths and gave advice. In 2012, a new series called *Vision 2020* was launched. This series is supported by the SUK – Program «Doktoratsprogramme» and continues beyond 2016. A committee of PhD students selects interesting topics on biomedical developments that are going to shape our society within the next years and invites experts from industry, academia, and politics for an interactive discussion.

4.2 Public relations

A further focus of the ZIHP is public relations. Making the ZIHP visible and well-known to the public does not only bring science of the University of Zurich in general and of integrative human physiology in particular to the public, but it also helps to attract the attention of potential sponsors.

The main public relations activity of the ZIHP was and remains the public event series *Wissen-schaf(f)t Wissen.* The program was started 2008 in cooperation with the Stiftung Careum Zürich and aims at presenting «hot» topics of biomedical and physiological research to a broad audience. The events show the link between everyday life and research done within the ZIHP and at research institutions in Zurich. The events include talks and podium discussions and are followed by lively discussions with the large audience. Reports on these events appear mostly on the public online portal *UZH News* of the University of Zurich and thereby reach a broad readership. *UZH News* is a main source of inspiration for the national press. The series received the *Science Communication Award* from the Swiss Society for Cell Biology, Molecular Biology and Genetics which was awarded within the USGEB Annual Meeting on January 27/28, 2011 in Zürich.

Within the 175th anniversary celebration of the University of Zurich, the ZIHP contributed to one of the main events, the *Parcours des Wissens*, an interactive exhibition. During nine days (March 8-16, 2008) the fascination and diversity of interdisciplinary research could be experienced in direct contact with the involved researchers. The ZIHP participated with the following projects:

- Research for sick hearts: atherosclerotic plaques, cardiovascular regenerative medicine, heart failure and cardiac arrhythmia (Cardiovascular Research, Cardiovascular Surgery and Clinic for Cardiology)
- Physical inactivity and its consequences (Institute of Physiology)
- The body balance: food intake, obesity and type 2 diabetes (Institute of Veterinary Physiology)
- Regulation and coordination of the brain: sleep, eye and head movements (University Children's Hospital, Institute of Pharmacology and Toxicology and Department of Neurology)

On September 26, 2008 and on September 25, 2009 the *Zurich Researchers' Nights* took place, simultaneously to similar events in more than 30 other European cities. Several ZIHP members participated in this event and presented their work to the general public.

The ZIHP contributed to the *Scientifica - Zürcher Wissenschaftstage* in August 2011 with several short presentations of ZIHP members around the topic «Energie für den Körper», and with the sponsoring of the exhibit of a walkable model of the human intestine that attracted very much attention. In August 2013, the ZIHP contributed again to the *Scientifica* with a booth on nanoparticles («Magnetische Nanopartikel in der Medizin: Freund oder Feind?»). Moreover, several ZIHP members participated with further booths and short presentations. Participation to the 2017 edition is planned.

The *ZIHP website* is the main communication tool and offers various services, e.g. information on current activities and events, open positions, press review etc.

An electronic *newsletter (ZIHP-News)* containing announcements and reports of events, articles on ZIHP-funded cooperative projects, information on new members, the imMed PhD program, awards, recent publications etc. was published in a regular manner throughout the reporting period. The newsletter archive can be found on the website: Services > Newsletter. The *ZIHP-News* are conceived for both scientists and general public and turned out to be an important communication tool.

Nowadays they are sent to almost 2000 subscribers in Switzerland and abroad. Some *ZIHP News* appeared as *Special Issue* in a printed version.

Several reports on the ZIHP and the research activities of its members appeared in the *public press* over the years. A press review can be found on the website: Services > Press Review.

5 Academic career development and gender equality

5.1 Academic career development

The promotion of young researchers is one of the main aims of the ZIHP. Besides having funded the work of 4 assistant professors as well as more than 100 PhD positions within the cooperative projects, the ZIHP established the Master Program in Human Biology as well as the PhD Program in Integrative Molecular Medicine (imMed). The Master Program in Human Biology, which promotes young researchers on the undergraduate level, has been completely independent from the ZIHP since 2009. The program is well-established within the Biology curriculum of the Faculty of Science of the University of Zurich.

The imMed PhD Program – which is part of the Life Science Zurich Graduate School - offers students a scientific environment that combines basic and clinical research and offers a broad range of advanced training opportunities. Moreover, students are integrated in the ZIHP network and actively participate to the ZIHP seminars and symposia.
A total of 280 students participated so far in the program. Most of the students involved in the ZIHP-funded cooperative projects are or were enrolled in the imMed PhD Program. The PhD program commission and the program coordinator go to great lengths to ensure the optimal supervision of students and to provide advice if necessary. Both the commission and the students of the imMed PhD Program constantly evaluate the catalogue of graduate courses and adapt it to the needs of the students. The annual retreats, the seminar series, and the career events with the imMed alumni are highly successful for both scientific and social exchange. They will be continued beyond 2016.

The imMed PhD Program continues to be organizationally embedded in the ZIHP beyond the reporting period. It is however since several years for the most part financially independent due to the resources of the Bologna program of the University of Zurich and of the SUK – Program «Doktoratsprogramme».

5.2 Gender equality

Within the students of the imMed PhD Program, the female proportion was 63%. Within the funded PhD / MD-PhD positions of the cooperative projects the proportion of women was 65%.

Within the ZIHP members in the reporting period the proportion of women was 22%.

The ZIHP and the ZIRP Coordinating Offices have been always run by women working part-time. During the reporting period several maternity covers were successfully organized. All coordinators came back to their position after a period of maternity leave. Several PhD students within the cooperative projects started a family during their studies and could continue their research after maternity leave working part-time if wished.

6 Conclusions

Max Gassmann, Chairman of the Steering Committee

The ZIHP that has been financed by the URPP IHP throughout the last twelve years is a success story of the University of Zurich. The mission was to link basic science with clinical needs for the patient. To this end, scientists from the University of Zurich involved in basic research had to be linked to research-oriented physicians from the University Hospital and from the Children Hospital among others. This task was fully accomplished as can be seen by over 250 publications from cooperative projects of groups that had never worked together before. This integrative and translational effort allowed our ZIHP members to publish in vey high-ranking journals that expect data from molecular and cellular aspects up to the pathophysiological mechanism in the patient. Some collaborative efforts were so fruitful that those members successfully established several highly prestigious networks such as the NCCR termed *kidney.ch*. Of note, membership of the ZIHP was always open for interested scientists from every field, as long as they could prove their excellence (for example by a running SNF project). The ZIHP counted end of 2016 151 members.

Furthermore, we recruited a total of four young assistant professors that performed very well while being ZIHP professors and thus all have found a permanent faculty position in either Switzerland (Zurich and Basel) or Europe (Freiburg and Copenhagen). Apart from this, we established the well-known PhD Program in integrative molecular Medicine (imMed) that by now has been the home of 280 PhD students. From the very beginning on, we realized that we need a rodent facility, which we indeed established at the Institute of Physiology and later termed «Zurich Rodent Integrative Physiology» (ZIRP). Both the imMed PhD Program and the ZIRP are nowadays mostly independent of the ZIHP.

Finally, we organized numerous scientific meetings, retreats and workshops from which a lot of younger and older scientist could benefit. Our activities are regularly presented in the *ZIHP News* that has about 1800 subscribers. It was also our intention to present the scientific achievements of our researchers to the public, e.g. the taxpayers. To this end we established a very successful public series of talks named *Wissen-schaf(f)t Wissen* that still are very popular and frequented by about 100-200 visitors per lecture.

The ZIHP success story continues. After 12 years of generous support from the URPP IHP, for which we are very thankful, we opt for alternative financial resources. Some help comes from the Faculty of Medicine, the Faculty of Science, and the Vetsuisse Faculty but also a legate and some small companies mainly support our public and scientific meetings. We do hope that more soft money can be recruited so that we can continue to support excellent projects at cutting edge of research. Integrative translational research is what we need at present. We envision that the ZIHP will continue to support those projects.

Anhänge

A Bibliography

5 most important publications that arose from projects financed by the URPP IHP
ZIHP-members are underlined

Biason-Lauber A*, Böni-Schnetzler M*, Hubbard B*, Bouzakri K*, Brunner A, Cavelti-Weder C, Keller C, Meyer-Böni M, Meier DT, Brorsson C, Timper K, Leibowitz G, Patrignani A, Bruggmann R, Boily G, Zulewski H, Geier A, Cermak JM, Elliott P, Ellis J, Westphal C, Knobel U, Eloranta JJ, Kerr-Conte J, Pattou F, Konrad D, Matter CM, Fontana A, Rogler G, Schlapbach R, Regairaz C, Carballido JM, Glaser B, McBurney MW, Pociot F, Sinclair DA, Donath MY: Identification of a SIRT1 mutation in a family with type 1 diabetes, Cell Metabol 17(3): 448-55, 2013

Holst SC, Bersagliere A, Bachmann V, Berger W, Achermann P, Landolt HP: Dopaminergic role in regulating neurophysiological markers of sleep homeostasis in humans. Journal of Neuroscience 34(2): 566-73, 2014

Nussbaumer-Ochsner Y, Ursprung J, Siebenmann C, Maggiorini M, Bloch KE: Effect of short-term acclimatization to high altitude on sleep and nocturnal breathing. Sleep 35(3): 419-23, 2012

Riwanto M, Rohrer L, Roschitzki B, Besler C, Mocharla P, Mueller M, Perisa D, Heinrich K, Altwegg L, von Eckardstein A, Lüscher TF, Landmesser U: Altered activation of endothelial anti- and proapoptotic pathways by high-density lipoprotein from patients with coronary artery disease: role of high-density lipoprotein-proteome remodeling. Circulation 127(8):891-904, 2013

Schäfer N, Lohmann C, Winnik S, van Tits LJ, Miranda MX, Vergopoulos A, Ruschitzka F, Nussberger J, Berger S, Lüscher TF, Verrey F*, Matter CM*: Endothelial mineralocorticoid receptor activation mediates endothelial dysfunction in diet-induced obesity. Eur Heart J 34(45):3515-24, 2013

(*contributed equally)

List of all publications that arose from projects financed by the URPP IHP and from research performed by the ZIHP assistant professors
ZIHP-members are underlined

Aachmann-Andersen NJ, Just Christensen S, Lisbjerg K, Oturai P, Meinild-Lundby AK, Holstein-Rathlou NH, Lundby C, Vidiendal Olsen N: Recombinant erythropoietin in humans has a prolonged effect on circulating erythropoietin isoform distribution. PLoS One 9(10): e110903, 2014

Adlesic M, Frei C, Frew IJ: Cdk4 functions in multiple cell types to control Drosophila intestinal stem cell proliferation and differentiation. Biol Open 5(3): 237-51, 2016

Aeberli I, Erb A, Spliethoff K, Meier D, Götze O, Frühauf H, Fox M, Finlayson GS, Gassmann M, Berneis K, Maggiorini M, Langhans W, Lutz TA: Disturbed eating at high altitude: influence of food preferences, acute mountain sickness and satiation hormones. Eur J Nutr 52(2): 625-35, 2013

Aimi F, Georgiopoulou S, Kalus I, Lehner F, Hegglin A, Limani P, Gomes de Lima V, A Rüegg M, Hall MN, Lindenblatt N, Haas E, Battegay EJ, Humar R: Endothelial Rictor is crucial for midgestational development and sustained and extensive FGF2-induced neovascularization in the adult. Sci Rep 5: 17705, 2015

Akel A, Wagner CA, Kovacikova J, Kasinathan RS, Kiedaisch V, Koka S, Alper SL, Bernhardt I, Wieder T, Huber S, Lang F: Enhanced suicidal death of erythrocytes from gene-targeted mice lacking the Cl-/HCO3- exchanger AE1. Am J Physiol Cell Physiol 292 (5): C1759-67, 2007

Akhmedov A, Rozenberg I, Paneni F, Camici GG, Shi Y, Doerries C, Sledzinska A, Mocharla P, Breitenstein A, Lohmann C, Stein S, von Lukowicz T, Kurrer MO, Borén J, Becher B, Tanner FC, Landmesser U, Matter CM, Lüscher TF: Endothelial overexpression of LOX-1 increases plaque formation and promotes atherosclerosis in vivo. Eur Heart J 35(40): 2839-48, 2014

Albers J, Danzer C, Rechsteiner M, Lehmann H, Brandt LP, Hejhal T, Catalano A, Busenhart P, Gonçalves AF, Brandt S, Bode PK, Bode-Lesniewska B, Wild PJ, Frew IJ: A versatile modular vector system for rapid combinatorial mammalian genetics. J Clin Invest 125(4): 1603-19, 2015

Albers J, Rajski M, Schönenberger D, Harlander S, Schraml S, von Teichman A, Georgiev S, Wild PJ, Moch H, Krek W and Frew IJ: Combined mutation of Vhl and Trp53 causes renal cysts and tumours in mice. EMBO Mol Med 5: 949-64, 2013

Anliker E, Rawer R, Boutellier U, Toigo M: Maximum Ground Reaction Force in Relation to Tibial Bone Mass in Children and Adults. Med Sci Sports Exerc 43 (11): 2102-9, 2011

Arenas-Ramirez N, Boyman O: Interleukin 2. Compendium of Inflammatory Diseases : 670-77, 2016

Artunc F, Rexhpai R, Voelkl H, Grahammer F, Remy C, Sandulache D, Nasir O, Wagner CA, Alessi DR, Lang F: Impaired intestinal and renal glucose transport in PDK-1 hypomorphic mice. Am J Physiol Regul Integr Comp Physiol 291(5): R1533-R1538, 2006

Attinkara R, Mwinyi J, Truninger K, Regula J, Gaj P, Rogler G, Kullak-Ublick GA, Eloranta JJ, Swiss IBD Cohort Study Group: Association of genetic variation in the NR1H4 gene, encoding the nuclear bile acid receptor FXR, with inflammatory bowel disease. BMC Res Notes 5: 461, 2012

Ayers L, Stoewhas AC, Ferry B, Latshang TD, Lo Cascio CM, Sadler R, Stadelmann K, Tesler N, Huber R, Achermann P, Bloch KE, Kohler M: Circulating levels of cell-derived microparticles are reduced by mild hypobaric hypoxia: data from a randomised controlled trial. Eur J Appl Physiol 114(5): 1067-73, 2014

Bachmann V, Fischer MH, Landolt HP, Brugger P: Asymmetric prefrontal cortex functions predict asymmetries in number space. Brain Cogn 74(3): 306-11, 2010

Bachmann V, Klaus F, Bodenmann S, Schäfer N, Brugger P, Huber S, Berger W, Landolt HP: Functional ADA Polymorphism Increases Sleep Depth and Reduces Vigilant Attention in Humans. Cereb Cortex 22(4): 962-970, 2012

Bachmann V, Klein C, Bodenmann S, Schäfer N, Berger W, Brugger P and Landolt HP: The BDNF Val66Met polymorphism modulates sleep intensity: EEG frequency- and state-specificity. Sleep 35(3): 335-344, 2012

Bacic D, LeHir M, Biber J, Kaissling J, Murer H, Wagner CA: The renal Na+/phosphate cotransporter NaPi-Iia is internalized via the receptor-mediated endocytic route in response to parathyroid hormone. Proc Natl Acad Sci U S A 69(3): 495-503, 2006

Baek JH, D'Agnillo F, Vallelian F, Pereira CP, Williams MC, Jia Y, Schaer DJ, Buehler PW: Hemoglobin-driven pathophysiology is an in vivo consequence of the red blood cell storage lesion that can be attenuated in guinea pigs by haptoglobin therapy. J Clin Invest 122(4): 1444-58, 2012

Bailey DM, Lundby C, Berg RM, Taudorf S, Rahmouni H, Gutowski M, Mulholland CW, Sullivan JL, Swenson ER, McEneny J, Young IS, Pedersen BK, Møller K, Pietri S, Culcasi M: On the antioxidant properties of erythropoietin and its association with the oxidative-nitrosative stress response to hypoxia in humans. Acta Physiol (Oxf) 212(2): 175-87, 2014

Bailey DM, Taudorf S, Berg RM, Lundby C, Pedersen BK, Rasmussen P, Møller K: Cerebral formation of free radicals during hypoxia does not cause structural damage and is associated with a reduction in mitochondrial PO2: evidence of O2-sensing in humans?. J Cereb Blood Flow Metab 31(4): 1020-6, 2011

Banfi G, Lundby C, Robach P, Lippi G: Seasonal variations of haematological parameters in athletes. Eur J Appl Physiol 111(1): 9-16, 2011

Banfi G, Tavana R, Freschi M, Lundby C: Reticulocyte profile in top-level alpine skiers during four consecutive competitive seasons. Eur J Appl Physiol 109(3): 561-8, 2010

Baruffol C, Jordi J, Camargo S, Radovic T, Herzog B, Fried M, Schwizer W, Verrey F, Lutz TA, Steingoetter A: L-lysine dose dependently delays gastric emptying and increases intestinal fluid volume in humans and rats. Neurogastroenterol Motil 26(7): 999-1009, 2014

Becker PP, Rau M, Schmitt J, Malsch C, Hammer C, Bantel H, Müllhaupt B, Geier A: Performance of Serum microRNAs -122, -192 and -21 as Biomarkers in Patients with Non-Alcoholic Steatohepatitis. PLoS One 10(11): e0142661, 2015

Berg RM, Taudorf S, Bailey DM, Lundby C, Larsen FS, Pedersen BK, Møller K: Effects of lipopolysaccharide infusion on arterial levels and transcerebral exchange kinetics of glutamate and glycine in healthy humans. APMIS 120(9): 761-6, 2012

Bergeron MF, Bahr R, Bärtsch P, Bourdon L, Calbet JA, Carlsen KH, Castagna O, González-Alonso J, Lundby C, Maughan RJ, Millet G, Mountjoy M, Racinais S, Rasmussen P, Singh DG, Subudhi AW, Young AJ, Soligard T, Engebretsen L: International Olympic Committee consensus statement on thermoregulatory and altitude challenges for high-level athletes. Br J Sports Med 46(11): 770-9, 2012

Berndt TJ, Bielesz B, Craig TA, Tebben PJ, Bacic D, Wagner C, O'Brain S, Schiavi S, Biber J, Murer H, Kumar R: Secreted frizzled-related protein-4 reduces sodium-phosphate co-transporter abundacne and activitiy in proximal tubule cells. Pflug Arch Eur J Phy 451(4): 579-587, 2006

Besler C, Heinrich K, Riwanto M, Lüscher TF, Landmesser U.: High-density lipoprotein-mediated anti-atherosclerotic and endothelial-protective effects: a potential novel therapeutic target in cardiovascular disease. Curr Pharm Des 16(13): 1480-93, 2010

Besler C, Heinrich K, Rohrer L, Doerries C, Riwanto M, Shih DM, Chroni A, Yonekawa K, Stein S, Schaefer N, Mueller M, Akhmedov A, Daniil G, Manes C, Templin C, Wyss C, Maier W, Tanner FC, Matter CM, Corti R, Furlong C, Lusis AJ, von Eckardstein A, Fogelman AM, Lüscher TF, Landmesser U: Mechanisms underlying adverse effects of HDL on eNOS-activating pathways in patients with coronary artery disease. J Clin Invest 121 (7): 2693-708, 2011

Biason-Lauber A, Böni-Schnetzler M, Hubbard BP, Bouzakri K, Brunner A, Cavelti-Weder C, Keller C, Meyer-Böni M, Meier DT, Brorsson C, Timper K, Leibowitz G, Patrignani A, Bruggmann R, Boily G, Zulewski H, Geier A, Cermak JM, Elliott P, Ellis JL, Westphal C, Knobel U, Eloranta JJ, Kerr-Conte J, Pattou F, Konrad D, Matter CM, Fontana A, Rogler G, Schlapbach R, Regairaz C, Carballido JM, Glaser B, McBurney MW, Pociot F, Sinclair DA, Donath MY: Identification of a SIRT1 Mutation in a Family with Type 1 Diabetes. Cell Metab 17(3): 448-55, 2013

Bielez B, Bacic D, Honegger K, Biber J, Murer H, Wagner CA: Unchanged expression of the sodium-dependent phosphate cotransporter NaPi-Iia despite diurnal changes in renal phosphate excretion. Pflug Arch Eur J Phy 452(6): 683-689, 2006

Biensø RS, Ringholm S, Kiilerich K, Aachmann-Andersen NJ, Krogh-Madsen R, Guerra B, Plomgaard P, van Hall G, Treebak JT, Saltin B, Lundby C, Calbet JA, Pilegaard H, Wojtaszewski JF: GLUT4 and glycogen synthase are key players in bed rest-induced insulin resistance. Diabetes 61(5): 1090-9, 2012

Biver S, Belge H, Bourgeois S, Van Vooren P, Nowik M, Scohy S, Houillier P, Szpirer J, Szpirer C, Wagner CA, Devuyst O, Marini AM: A role for Rhesus factor Rhcg in renal ammonium excretion and male fertility. Nature 456 (7220): 339-43, 2008

Bloch KE, Latshang TD, Turk AJ, Hess T, Hefti U, Merz TM, Bosch MM, Barthelmes D, Hefti JP, Maggiorini M, Schoch OD: Nocturnal periodic breathing during acclimatization at very high altitude at Mount Muztagh Ata (7,546 m). Am J Respir Crit Care Med 182(4): 562-8, 2010

Bollmann S, Ghisleni C, Poil SS, Martin E, Ball J, Eich-Höchli D, Edden RA, Klaver P, Michels L, Brandeis D, OGorman RL: Developmental changes in gamma-aminobutyric acid levels in attention-deficit/hyperactivity disorder. Transl Psychiatry 5: e589, 2015

Bollmann S, Ghisleni C, Poil SS, Martin E, Ball J, Eich-Höchli D, Klaver P, OGorman R, Michels L, Brandeis D: Age-dependent and independent changes in attention-deficit/hyperactivity disorder (ADHD) during spatial working memory performance. World J Biol Psychiatry [Epub ahead of print], 2015

Bonne TC, Doucende G, Flück D, Jacobs RA, Nordsborg NB, Robach P, Walther G, Lundby C: Phlebotomy eliminates the maximal cardiac output response to six weeks of exercise training. Am J Physiol Regul Integr Comp Physiol 306(10): R752-60, 2014

Bonne TC, Lundby C, Jørgensen S, Johansen L, Mrgan M, Bech SR, Sander M, Papoti M, Nordsborg NB: "Live High-Train High" increases hemoglobin mass in Olympic swimmers. Eur J Appl Physiol 114(7): 1439-49, 2014

Bonne TC, Lundby C, Lundby AK, Sander M, Bejder J, Nordsborg NB: Altitude training causes haematological fluctuations with relevance for the Athlete Biological Passport. Drug Test Anal 7(8): 655-62, 2015

Boretti FS, Baek JH, Palmer AF, Schaer DJ, Buehler PW: Modeling hemoglobin and hemoglobin:haptoglobin complex clearance in a non-rodent species-pharmacokinetic and therapeutic implications. Front Physiol 5: 385, 2014

Bornø A, Aachmann-Andersen NJ, Munch-Andersen T, Hulston CJ, Lundby C: Screening for recombinant human erythropoietin using [Hb], reticulocytes, the OFF(hr score), OFF (z score) and Hb (z score): status of the Blood Passport. Eur J Appl Physiol 109(3): 537-43, 2010

Boushel R, Lundby C, Qvortrup K, Sahlin K: Mitochondrial plasticity with exercise training and extreme environments. Exerc Sport Sci Rev 42(4): 169-74, 2014

Braz ID, Flück D, Lip GY, Lundby C, Fisher JP: Impact of aerobic fitness on cerebral blood flow and cerebral vascular responsiveness to CO(2) in young and older men. Scand J Med Sci Sports [Epub ahead of print], 2016

Breitenstein A, Stein S, Holy EW, Camici GG, Lohmann C, Akhmedov A, Spescha R, Elliott PJ, Westphal CH, Matter CM, Lüscher TF, Tanner FC: Sirt1 inhibition promotes in vivo arterial thrombosis and tissue factor expression in stimulated cells. Cardiovasc Res 89(2): 464-72, 2011

Breitenstein A, Wyss CA, Spescha RD, Franzeck FC, Hof D, Riwanto M, Hasun M, Akhmedov A, von Eckardstein A, Maier W, Landmesser U, Lüscher TF, Camici GG: Peripheral blood monocyte Sirt1 expression is reduced in patients with coronary artery disease. PLoS One 8(1): e53106, 2013

Brock M, Trenkmann M, Gay RE, Michel BA, Gay S, Fischler M, Ulrich S, Speich R, Huber LC: Interleukin-6 modulates the expression of the bone morphogenic protein receptor type II through a novel STAT3-microRNA cluster 17/92 pathway. Circ Res 104 (10): 1184-91, 2009

Brokopp CE, Schoenauer R, Richards P, Bauer S, Lohmann C, Emmert MY, Weber B, Winnik S, Aikawass E, Graves K, Genoni M, Vogt P, Lüscher TF, Renner C, Hoerstrup SP, Matter CM: Fibroblast activation protein is induced by inflammation and degrades type I collagen in thin-cap fibroatheromata. Eur Heart J 32(21): 2713-22, 2011

Brown JD (Editorial to the article by Osto E, Lutz T, Lüscher T et al): Bariatric Surgery: "Roux"-minating on Endothelial Cell and HDL Function. Circulation 131(10): 845-7, 2015

Buchmann A, Kurth S, Ringli M, Geiger A, Jenni OG, Huber R: Anatomical markers of sleep slow wave activity derived from structural magnetic resonance images. J Sleep Res 20(4): 506-13, 2011

Buchmann A, Ringli M, Kurth S, Schaerer M, Geiger A, Jenni OG, Huber R: EEG sleep slow-wave activity as a mirror of cortical maturation. Cereb Cortex 21(3): 607-15, 2011

Burch N, Arnold AS, Item F, Summermatter S, Brochmann Santana Santos G, Christe M, Boutellier U, Toigo M, Handschin C: Electric pulse stimulation of cultured murine muscle cells reproduces gene expression changes of trained mouse muscle. PLoS ONE 5(6): e10970, 2010

Burckhardt MA, Wellmann M, Fouzas S, Lapaire O, Burkhardt T, Benzing J, Bührer C, Szinnai G, Wellmann S: Sexual disparity of copeptin in healthy newborn infants. J Clin Endocrinol Metab 99(9): E1750-3, 2014

Burkhardt T, Schwabe S, Morgenthaler NG, Natalucci G, Zimmermann R, Wellmann S: Copeptin: a marker for stress reaction in fetuses with intrauterine growth restriction. Am J Obstet Gynecol 207(6): 497.e1–497.e5, 2012

Busque SM, Wagner CA: Potassium restriction, high protein intake, and metabolic acidosis increase expression of the glutamine transporter SNAT3 (Slc38a3) in mouse kidney. Am J Physiol Renal Physiol 297(2): F440-50, 2009

Calbet JA, Boushel R, Robach P, Hellsten Y, Saltin B, Lundby C: Chronic hypoxia increases arterial blood pressure and reduces adenosine and ATP induced vasodilatation in skeletal muscle in healthy humans. Acta Physiol (Oxf) 211(4): 574-84, 2014

Calbet JA, Losa-Reyna J, Torres-Peralta R, Rasmussen P, Ponce-González JG, Sheel AW, de la Calle-Herrero J, Guadalupe-Grau A, Morales-Alamo D, Fuentes T, Rodríguez-García L, Siebenmann C, Boushel R, Lundby C: Limitations to oxygen transport and utilization during sprint exercise in humans: evidence for a functional reserve in muscle O2 diffusing capacity. J Physiol 593(20): 4649-64, 2015

Calbet JA, Lundby C, Boushel R: Integrative Conductance of Oxygen During Exercise at Altitude. Adv Exp Med Biol. 903: 395-408, 2016

Calbet JA, Lundby C: Skeletal muscle vasodilatation during maximal exercise in health and disease. J Physiol 590(Pt 24): 6285-96, 2012

Calcinaghi N, Wyss MT, Jolivet R, Singh A, Keller AL, Winnik S, Fritschy JM, Buck A, Matter CM, Weber B: Multimodal Imaging in Rats Reveals Impaired Neurovascular Coupling in Sustained Hypertension. Stroke 44(7): 1957-64, 2013

Camargo SM, Singer D, Makrides V, Huggel K, Pos KM, Wagner CA, Kuba K, Danilczyk U, Skovby F, Kleta R, Penninger JM, Verrey F: Tissue-specific amino acid transporter partners ACE2 and collectrin differentially interact with hartnup mutations. Gastroenterology 136(3): 872-82, 2009

Capuano P, Bacic D, Roos M, Gisler SM, Stange G, Biber J, Kaissling B, Weinman EJ, Shenolikar S, Wagner CA, Murer H: Defective coupling of apical PTH - receptors to phospholipase C prevents internatlization of the Na+/phosphate cotransporter NaPi-Iia in NHERF1 deficient mice. Am J Physiol Cell Physiol 292(2): C927-C934, 2007

Chapman RF, Laymon Stickford AS, Lundby C, Levine BD: Timing of return from altitude training for optimal sea level performance. J Appl Physiol (1985) 116(7): 837-43, 2014

Chen CC, Bockisch CJ, Bertolini G, Olasagasti I, Neuhauss SC, Weber KP, Straumann D, Huang MY: Velocity storage mechanism in zebrafish larvae. J Physiol 592(Pt 1): 203-14, 2014

Chen CC, Bockisch CJ, Olasagasti I, Weber KP, Straumann D, Huang MY: Positive or negative feedback of optokinetic signals: Degree of the misrouted optic flow determines system dynamics of human ocular motor behavior. Invest Ophthalmol Vis Sci 55(4): 2297-306, 2014

Chen CC, Huang MY, Weber KP, Straumann D, Bockisch CJ: Afternystagmus in darkness after suppression of optokinetic nystagmus: an interaction of motion aftereffect and retinal afterimages. Exp Brain Res 232(9): 2891-8, 2014

Chen X, Boesiger P, Henning A: J-refocused 1H PRESS DEPT for localized 13C MR spectroscopy. NMR Biomed 26(9): 1113-24, 2013

Chen X, Pavan M, Heinzer-Schweizer S, Boesiger P, Henning A: Optically transmitted and inductively coupled electric reference to access in vivo concentrations for quantitative proton-decoupled (13) C magnetic resonance spectroscopy. Magn Reson Med 67(1): 1-7, 2012

Chowdhury FA, OGorman RL, Nashef L, Elwes RD, Edden RA, Murdoch JB, Barker GJ, Richardson MP: Investigation of glutamine and GABA levels in patients with idiopathic generalized epilepsy using MEGAPRESS. J Magn Reson Imaging 41(3): 694-9, 2015

Christensen B, Lundby C, Jessen N, Nielsen TS, Vestergaard PF, Møller N, Pilegaard H, Pedersen SB, Kopchick JJ, Jørgensen JO: Evaluation of functional erythropoietin receptor status in skeletal muscle in vivo: acute and prolonged studies in healthy human subjects. PLoS One 7(2): e31857, 2012

Christensen B, Sackmann-Sala L, Cruz-Topete D, Jørgensen JO, Jessen N, Lundby C, Kopchick JJ: Novel serum biomarkers for erythropoietin use in humans: a proteomic approach. J Appl Physiol 110(1): 149-56, 2011

Christensen PM, Jacobs RA, Bonne TC, Flück D, Bangsbo J, Lundby C: A short period of high-intensity interval training improves skeletal muscle mitochondrial function and pulmonary oxygen uptake kinetics. J Appl Physiol 120(11): 1319-27, 2016

Cippà PE, Gabriel SS, Chen J, Bardwell PD, Bushell A, Guimezanes A, Kraus AK, Wekerle T, Wüthrich RP, Fehr T.: Targeting apoptosis to induce stable mixed hematopoietic chimerism and long-term allograft survival without myelosuppressive conditioning in mice. Blood 122(9): 1669-77, 2013

Cooksley-Decasper S, Reiser H, Thommen DS, Biedermann B, Neidhart M, Gawinecka J, Cathomas G, Franzeck FC, Wyss C, Klingenberg R, Nanni P, Roschitzki B, Matter C, Wolint P, Emmert MY, Husmann M, Amann-Vesti B, Maier W, Gay S, Lüscher TF, von Eckardstein A, Hof D: Antibody phage display assisted identification of junction plakoglobin as a potential biomarker for atherosclerosis. PLoS One 7(10): e47985, 2012

Corrò C, Hejhal T, Poyet C, Sulser T, Hermanns T, Winder T, Prager G, Wild PJ, Frew I, Moch H, Rechsteiner M: Detecting circulating tumor DNA in renal cancer: An open challenge. Exp Mol Pathol. 102(2): 255-261, 2017

Crucet M, Wüst SJ, Spielmann P, Lüscher TF, Wenger RH, Matter CM: Hypoxia enhances lipid uptake in macrophages: Role of the scavenger receptors Lox1, SRA, and CD36. Atherosclerosis 229(1): 110-7, 2013

Curtelin D, Morales-Alamo D, Torres-Peralta R, Rasmussen P, Martin-Rincon M, Perez-Valera M, Siebenmann C, Pérez-Suárez I, Cherouveim E, Sheel AW, Lundby C, Calbet JA: Cerebral blood flow, frontal lobe oxygenation and intra-arterial blood pressure during sprint exercise in normoxia and severe acute hypoxia in humans. Cereb Blood Flow Metab : [Epub ahead of print], 2017

Dandanell S, Oberholzer L, Keiser S, Andersen AB, Haider T, Hilty MP, Meinild-Lundby AK, Lundby C: Effect of alterations in blood volume with bed rest on glucose tolerance. J Appl Physiol (1985). 121(5): 1098-1105, 2016

Danilczyk U, Sarao R, Remy C, Benabbas C, Stange G, Richter A, Arya S, Pospisilik JA, Singer D, Camargo SMR, Makrides V, Ramadan T, Verrey F, Wagner CA, Penninger JM: Essential role for collectrin in renal amino acid transport. Nature 444(7121): 1088-1091, 2006

Dauvilliers Y, Tafti M, Landolt HP: Catechol-O-methyltransferase, dopamine, and sleep-wake regulation. Sleep Med Rev 22: 47-53, 2015

de Seigneux S, Lundby AM, Berchtold L, Berg AH, Saudan P, Lundby C: Increased Synthesis of Liver Erythropoietin with CKD. Journal of the American Society of Nephrology (JASN) 27(8): 2265-98, 2016

de Vallière C, Cosin-Roger J, Simmen S, Atrott K, Melhem H, Zeitz J, Madanchi M, Tcymbarevich I, Fried M, Kullak-Ublick GA, Vavricka SR, Misselwitz B, Seuwen K, Wagner CA, Eloranta JJ, Rogler G, Ruiz PA: Hypoxia Positively Regulates the Expression of pH-Sensing G-Protein–Coupled Receptor OGR1 (GPR68). CMGH Cellular and Molecular Gastroenterology and Hepatology 2(6): 796-810, 2016

de Vallière C, Vidal S, Clay I, Jurisic G, Tcymbarevich I, Lang S, Ludwig MG, Okoniewski M, Eloranta JJ, Kullak-Ublick GA, Wagner CA, Rogler G, Seuwen K: The pH-sensing receptor OGR1 improves barrier function of epithelial cells and inhibits migration in an acidic environment. Am J Physiol Gastrointest Liver Physiol 309(6): G475-90, 2015

Demoulin N, Aydin S, Cosyns JP, Dahan K, Cornet G, Auberger I, Loffing J, Devuyst O: Gitelman syndrome and glomerular proteinuria: a link between loss of sodium-chloride cotransporter and podocyte dysfunction?. Nephrol Dial Transplant 29 Suppl 4: iv117-20, 2014

Devuyst O, Lemaire M, Mohebbi N, Wagner CA.: Autoantibodies against intercalated cells in Sjögren's syndrome. Kidney Int 76(2): 229, 2009

Di Chiara M, Glaudemans B, Loffing-Cueni D, Odermatt A, Al-Hasani H, Devuyst O, Faresse N, Loffing J: Rab-GAP TBC1D4 (AS160) is dispensable for the renal control of sodium and water homeostasis but regulates GLUT4 in mouse kidney. Am J Physiol Renal Physiol 309(9): F779-F790, 2015

Díaz V, Gammella E, Recalcati S, Santambrogio P, Naldi AM, Vogel J, Gassmann M, Cairo G: Liver iron modulates hepcidin expression during chronically elevated erythropoiesis in mice. Hepatology 58(6): 2122-32, 2013

Díaz V, Lombardi G, Ricci C, Jacobs RA, Montalvo Z, Lundby C, Banfi G: Reticulocyte and haemoglobin profiles in elite triathletes over four consecutive seasons. Int J Lab Hematol 33(6): 638-44, 2011

Díaz V, Peinado AB, Barba-Moreno L, Altamura S, Butragueño J, González-Gross M, Alteheld B, Stehle P, Zapico AG, Muckenthaler MU, Gassmann M: Elevated hepcidin serum level in response to inflammatory and iron signals in exercising athletes is independent of moderate supplementation with vitamin C and E. Physiological Reports 3(8): e12475, 2015

Dohrn MF, Othman A, Hirshman SK, Bode H, Alecu I, Fähndrich E, Karges W, Weis J, Schulz JB, Hornemann T, Claeys KG: Elevation of plasma 1-deoxy-sphingolipids in type 2 diabetes mellitus: a susceptibility to neuropathy?. Eur J Neurol 22: 806–e55, 2015

Drägert K, Bhattacharya I, Pellegrini G, Seebeck P, Azzi A, Brown SA, Georgiopoulou S, Held U, Blyszczuk P, Arras M, Humar R, Hall MN, Battegay E, Haas E: Deletion of Rictor in brain and fat alters peripheral clock gene expression and increases blood pressure. Hypertension 66(2): 332-9, 2015

Dufner MM, Kirchhoff P, Remy C, Hafner P, Müller MK, Cheng SX, Tan LQ, Herbert SC, Geibel JP, Wagner CA: The calcium-sensing receptor acts as a modulator of gastric acid secretion in freshly isolated human gastric glands. Am J Physiol Gastointest Liver Physiol 289(6): 1084-1090, 2005

Dvorak J, Baume N, Botré F, Broséus J, Budgett R, Frey WO, Geyer H, Harcourt PR, Ho D, Howman D, Isola V, Lundby C, Marclay F, Peytavin A, Pipe A, Pitsiladis YP, Reichel C, Robinson N, Rodchenkov G, Saugy M, Sayegh S, Segura J, Thevis M, Vernec A, Viret M, Vouillamoz M, Zorzoli M: Time for change: a roadmap to guide the implementation of the World Anti-Doping Code 2015. Br J Sports Med 48(10): 801-6, 2014

Ehses JA, Meier DT, Wueest S, Rytka J, Boller S, Wielinga PY, Schraenen A, Lemaire K, Debray S, Van Lommel L, Pospisilik JA, Tschopp O, Schultze SM, Malipiero U, Esterbauer H, Ellingsgaard H, Rütti S, Schuit FC, Lutz TA, Böni-Schnetzler M, Konrad D, Donath MY: Toll-like receptor 2-deficient mice are protected from insulin resistance and beta cell dysfunction induced by a high-fat diet. Diabetologia 53(8): 1795-806, 2010

El Kochairi I, Montagner A, Rando G, Lohmann C, Matter CM, Wahli W: Beneficial effects of combinatorial micronutrition on body fat and atherosclerosis in mice. Cardiovasc Res 91(4): 732-41, 2011

Elison E, Vigsnaes LK, Rindom Krogsgaard L, Rasmussen J, Sørensen N, McConnell B, Hennet T, Sommer MO, Bytzer P: Oral supplementation of healthy adults with 2'-O-fucosyllactose and lacto-N-neotetraose is well tolerated and shifts the intestinal microbiota. Br J Nutr 116(8): 1356-1368, 2016

Ellingsgaard H, Hauselmann I, Schuler B, Habib AM, Baggio LL, Meier DT, Eppler E, Bouzakri K, Wueest S, Muller YD, Hansen AM, Reinecke M, Konrad D, Gassmann M, Reimann F, Halban PA, Gromada J, Drucker DJ, Gribble FM, Ehses JA, Donath MY: Interleukin-6 enhances insulin secretion by increasing glucagon-like peptide-1 secretion from L cells and alpha cells. Nat Med 17(11): 1481-9, 2011

Eloranta JJ, Hiller C, Juttner M, Kullak-Ublick GA: The SLCO1A2 Gene, Encoding the Human Organic Anion Transporting Polypeptide 1A2 (OATP1A2), is Transactivated by the Vitamin D Receptor (VDR). Mol Pharmacol 82(1): 37-46, 2012

Eloranta JJ, Wenger C, Mwinyi J, Hiller C, Gubler C, Vavricka SR, Fried M, Kullak-Ublick GA; the Swiss IBD Cohort Study Group: Association of a common vitamin D-binding protein polymorphism with inflammatory bowel disease. Pharmacogenet Genomics 21 (9): 559-564, 2011

Engler A, Niederer F, Klein K, Gay RE, Kyburz D, Camici GG, Gay S, Ospelt C: SIRT6 regulates the cigarette smoke-induced signalling in rheumatoid arthritis synovial fibroblasts. J Mol Med (Berl) 92(7): 757-67, 2014

Erener S, Mirsaidi A, Hesse M, Tiaden AN, Ellingsgaard H, Kostadinova R, Donath MY, Richards PJ, Hottiger MO: ARTD1 deletion causes increased hepatic lipid accumulation in mice fed a high-fat diet and impairs adipocyte function and differentiation. FASEB J 26(6): 2631-8, 2012

Ernst D, Murphy SM, Sathiyanadan K, Wie Y, Othman A, Laurá M, Liu Y, Penno A, Blake J, Donaghy M, Houlden H, Reilly MM, Hornemann T: Novel HSAN1 Mutation in Serine Palmitoyltransferase Resides at a Putative Phosphorylation Site That Is Involved in Regulating Substrate Specificity. Neuromolecular Med 17(1): 47-57, 2015

Fagoni N, Breenfeldt Andersen A, Oberholzer L, Haider T, Meinild Lundby AK, Lundby C: Reliability and validity of non-invasive determined haemoglobin mass and blood volumes. Clin Physiol Funct Imaging [Epub ahead of print], 2017

Fellmann F, Angelini F, Wassenberg J, Perreau M, Arenas Ramirez N, Simon G, Boyman O, Demaria O, Christen-Zaech S, Hohl D, Belfiore M, von Scheven-Gete A, Gilliet M, Bochud PY, Perrin Y, Beck Popovic M, Bart PA, Beckmann JS, Martinet D, Hofer M: IL-17 receptor A and adenosine deaminase 2 deficiency in siblings with recurrent infections and chronic inflammation. Journal of Allergy and Clinical Immunology 137(4): 1189-1196e1, 2016

Fischer RF, Baltes C, Weiss K, Pazhenkottil A, Rudin M, Boesiger P, Kozerke S: Linear Response Equilibrium versus echo-planar encoding for fast high-spatial resolution 3D chemical shift imaging. J Magn Reson 211(1): 80-8, 2011

Flück D, Braz ID, Keiser S, Hüppin F, Haider T, Hilty M, Fisher JP, Lundby C: Age, aerobic fitness and cerebral perfusion during exercise: role of carbon dioxide. Am J Physiol Heart Circ Physiol 307(4): H515-23, 2014

Flück D, Braz ID, Keiser S, Hüppin F, Haider T, Hilty MP, Fisher JP, Lundby C: Age, aerobic fitness, and cerebral perfusion during exercise: role of carbon dioxide. Am J Physiol Heart Circ Physiol 307(4): H515-23, 2014

Flück D, Siebenmann C, Keiser S, Cathomen A, Lundby C: Cerebrovascular reactivity is increased with acclimatization to 3454 m altitude. J Cereb Blood Flow Metab 35(8): 1323-30, 2015

Frei SM, Hemsley C, Pesch T, Lang S, Weber A, Jehle E, Rühl A, Fried M, Rogler G, Scharl M: The Role for Dickkopf-Homolog-1 in the Pathogenesis of Crohn's Disease-Associated Fistulae. PLoS One 8(11): e78882, 2013

Frei SM, Pesch T, Lang S, Weber A, Jehle E, Vavricka SR, Fried M, Rogler G, Scharl M: A Role for Tumor Necrosis Factor and Bacterial Antigens in the Pathogenesis of Crohn's Disease-Associated Fistulae. Inflamm Bowel Dis 19(13): 2878-87, 2013

Frew IJ, Moch H: A clearer view of the molecular complexity of clear cell renal cell carcinoma. Annu Rev Pathol 10: 263-89, 2015

Frew IJ: Tumour modelling using viral vectors. Oncotarget 6(16): 13854-5, 2015

Fuhrer A, Sprenger N, Kurakevich E, Borsig L, Chassard C, Hennet T: Milk sialyllactose influences colitis in mice through selective intestinal bacterial colonization. J Exp Med 207(13): 2843-54, 2010

Gaemperli O, Kaufmann PA: Multimodality cardiac imaging. J Nucl Cardiol 17 (1): 4-7, 2010

Garofalo K, Penno A, Schmidt BP, Lee HJ, Frosch MP, von Eckardstein A, Brown RH, Hornemann T, Eichler FS: Oral L-serine supplementation reduces production of neurotoxic deoxysphingolipids in mice and humans with hereditary sensory autonomic neuropathy type 1. JCI 121(12): 4735-45, 2011

Gehrig SM, Mihaylova V, Frese S, Mueller SM, Ligon-Auer M, Spengler CM, Petersen JA, Lundby C, Jung HH: Altered skeletal muscle (mitochondrial) properties in patients with mitochondrial DNA single deletion myopathy. J Rare Dis. 11(1): 105, 2016

Geiger A, Achermann P, Jenni OG: Association between sleep duration and intelligence scores in healthy chldren. Dev Psychol 46 (4): 949-54, 2010

Geiger A, Achermann P, Jenni OG: Sleep, intelligence and cognition in a developmental context: differentiation between traits and state-dependent aspects. Prog Brain Res 185: 167-79, 2010

Geiger A, Huber R, Kurth S, Ringli M, Achermann P, Jenni OG: Sleep electroencephalography topography and children's intellectual ability. Neuroreport 23(2): 93-7, 2012

Geiger A, Huber R, Kurth S, Ringli M, Jenni OG, Achermann P: The sleep EEG as a marker of intellectual ability in school age children. Sleep 34 (2): 181-9, 2011

Gerster, R Eloranta, JJ, Hausmann M, Ruiz PA, Cosin-Roger J,Terhalle, A, Ziegler U, Kullak-Ublick GA, von Eckardstein A, Rogler, G: Anti-inflammatory function of high-density lipoproteins via autophagy of I?B Kinase. CMGH Cellular and Molecular Gastroenterology and Hepatology 1(2): 171-187e1, 2015

Ghisleni C, Bollmann S, Biason-Lauber A, Poil SS, Brandeis D, Martin E, Michels L, Hersberger M, Suckling J, Klaver P, OGorman RL: Effects of Steroid Hormones on Sex Differences in Cerebral Perfusion. PLoS One 10(9): e0135827, 2015

Ghisleni C, Bollmann S, Poil SS, Brandeis D, Martin E, Michels L, OGorman RL, Klaver P: Subcortical glutamate mediates the reduction of short-range functional connectivity with age in a developmental cohort. J Neurosci 35(22): 8433-41, 2015

Giebisch G, Krapf R, Wagner C: Renal and extrarenal regulation of potassium. Kidney Int 72 (4): 397-410, 2007

Goetze O, Schmitt J, Spliethoff K, Theurl I, Weiss G, Swinkels DW, Tjalsma H, Maggiorini M, Krayenbühl P, Rau M, Wojtal K, Müllhaupt B, Fried M, Gassmann M, Lutz T, Geier A: Adaptation of iron transport and metabolism to acute high altitude hypoxia in mountaineers. Hepatology 58(6): 2153-62, 2013

Gopal E, Umapathy NS, Martin MP, Gnana-Praksam JP, Becker H, Wagner CA, Ganapathy V, Prasad PD : Cloning and functional characterization of human SMCT2 (SLC5A12) and expression pattern of the transporter in kidney. Biochim Biophys Acta 1768: 2690-2697, 2007

Grass B, Baumann P, Arlettaz R, Fouzas S, Meyer P, Spanaus K, Wellmann S: Cardiovascular biomarkers pro-atrial natriuretic peptide and pro-endothelin-1 to monitor ductus arteriosus evolution in very preterm infants. Early Hum Dev 90(6): 293-8, 2014

Guerra B, Ponce-González JG, Morales-Alamo D, Guadalupe-Grau A, Kiilerich K, Fuentes T, Ringholm S, Biensø RS, Santana A, Lundby C, Pilegaard H, Calbet JA: Leptin signaling in skeletal muscle after bed rest in healthy humans. Eur J Appl Physiol 114(2): 345-57, 2014

Guinot A, Lehmann H, Wild PJ, Frew IJ: Combined deletion of Vhl, Trp53 and Kif3a causes cystic and neoplastic renal lesions. Journal of Pathology 239(3): 365-73, 2016

Güntert T, Gassmann M, Ogunshola OO: Temporal Rac1 - HIF-1 crosstalk modulates hypoxic survival of aged neurons. Brain Research 1642: 298-307, 2016

Güntert T, Hänggi P, Othman A, Suriyanarayanan S, Sonda S, Zuellig RA, Hornemann T, Ogunshola OO: 1-Deoxysphingolipid-induced neurotoxicity involves N-methyl-d-aspartate receptor signaling. Neuropharmacology 110: 211-222, 2016

Haarmann A, Mayr M, Kölker S, Baumgartner ER, Schnierda J, Hopfer H, Devuyst O, Baumgartner MR: Renal involvement in a patient with cobalamin A type (cblA) methylmalonic aciduria: A 42-year follow-up. Mol Genet Metab 110(4): 472-6, 2013

Hafner P, Grimaldi R, Capuano P, Capasso G, Wagner CA: Pendrin in the mouse kidney is primarily regulated by Cl- excretion but also by systemic metabolic acidosis. Am J Physiol Cell Physiol 295 (6): C1658-67, 2008

Haller M, Amatschek S, Wilflingseder J, Kainz A, Bielesz B, Pavik I, Serra A, Mohebbi N, Biber J, Wagner CA, Oberbauer R: Sirolimus induced phosphaturia is not caused by inhibition of renal apical sodium phosphate cotransporters. PLoS One 7(7): e39229, 2012

Handschin C, Chin S, Li P, Liu F, Maratos-Flier E, LeBrasseur NK, Yan Z, and Spiegelman BM: Skeletal muscle fiber-type switching, exercise intolerance, and myopathy in PGC-1a muscle-specific knockout animals. J Biol Chem 282 (41): 30014-21, 2007

Handschin C, Choi CS, Chin S, Kim S, Kawamori D, Kurpad AJ, Neubauer N, Hu J, Mootha V K, Kim Y-B, Kulkarni RN, Shulman GI, and Spiegelman BM: Abnormal glucose homeostasis in skeletal muscle-specific PGC-1a knockout mice reveals skeletal muscle-pancreatic b cell crosstalk. J Clin Invest 117 (11): 3463-3474, 2007

Handschin C, Kobayashi YM, Chin S, Seale P, Campbell KP, and Spiegelman BM: PGC-1alpha regulates the neuromuscular junction program and ameliorates Duchenne muscular dystrophy. Genes Dev 21 (7): 770-83, 2007

Handschin C, Spiegelman BM: The role of exercise and PGC1alpha in inflammation and chronic disease. Nature 454: 463 - 9, 2008

Handschin C: The biology of PGC-1alpha and its therapeutic potential. Trends Pharmacol Sci 30(6): 322-9, 2009

Hänggi P, Makhro A, Gassmann M, Schmugge M, Goede JS, Speer O, Bogdanova A: Red blood cells of sickle cell disease patients exhibit abnormally high abundance of N-methyl D-aspartate receptors mediating excessive calcium uptake. Br J Haematol 167(2): 252-64, 2014

Hanggi P, Telezhkin V, Kemp PJ, Schmugge M, Gassmann M, Goede JS, Speer O, Bogdanova A: Functional plasticity of the N-methyl-D-aspartate receptor in differentiating human erythroid precursor cells. Am J Physiol Cell Physiol 308(12): C993-C1007, 2015

Hausmann M, Zeitler C, Weber A, Krebs M, Kellermeier S, Rosenstiel P, de Vallière C, Kosovac K, Fried M, Holler E, Rogler G: MIP-3a Expression in Macrophages Is NOD Dependent. Digestion 85(3): 192-201, 2012

Hennet T, Borsig L: Breastfed at Tiffany's. Trends in Biochemical Sciences 41(6): 508-518, 2016

Hennet T, Weiss A, Borsig L: Decoding breast milk oligosaccharides. Swiss Med Wkly 144: w13927, 2014

Hernando N, Wagner CA, Biber J, Murer H : Kidney kinase network regulates renal ion cotransport. J Clin Invest 117 (11): 3179-3182, 2007

Herzog BA, Buechel RR, Katz R, Brueckner M, Husmann L, Burger IA, Pazhenkottil AP, Valenta I, Gaemperli O, Treyer V, Kaufmann PA: Nuclear myocardial perfusion imaging with a cadmium-zinc-telluride detector technique: optimized protocol for scan time reduction. J Nucl Med 51 (1): 46-51, 2010

Heynen SR, Ogunshola OO, Grimm C: A brief account of rho GTPases in retinal physiology and pathophysiology. Adv Exp Med Biol 723: 581-7, 2012

Heynen SR, Tanimoto N, Joly S, Seeliger MW, Samardzija M, Grimm C: Retinal degeneration modulates intracellular localization of CDC42 in photoreceptors. Mol Vis 17: 2934-46, 2011

Hilty MP, Müller A, Flück D, Siebenmann C, Rasmussen P, Keiser S, Auinger K, Lundby C, Maggiorini M: Effect of Increased Blood Flow on Pulmonary Circulation Before and During High Altitude Acclimatization. High Alt Med Biol. 17(4): 305-314, 2016

Holm L, Haslund ML, Robach P, van Hall G, Calbet JA, Saltin B, Lundby C: Skeletal muscle myofibrillar and sarcoplasmic protein synthesis rates are affected differently by altitude-induced hypoxia in native lowlanders. PLoS One 5(12): e15606, 2010

Holst SC, Bersagliere A, Bachmann V, Berger W, Achermann P, Landolt HP: Dopaminergic Role in Regulating Neurophysiological Markers of Sleep Homeostasis in Humans. J Neurosci 34(2): 566-73, 2014

Holst SC, Müller T, Valomon A, Seebauer B, Berger W, Landolt HP: Functional polymorphisms in dopaminergic genes modulate neurobehavioral and neurophysiological consequences of sleep deprivation. Scientific Reports : in press, 2017

Holst SC, Valomon A, Landolt HP: Sleep Pharmacogenetics: Personalized Sleep-Wake Therapy. Annu Rev Pharmacol Toxicol 56: 577-603, 2016

Hornemann T: Palmitoylation and depalmitoylation defects. J Inherit Metab Dis 38(1): 179-86, 2015

Huang MY, Chen CC, Huber-Reggi SP, Neuhauss SC, Straumann D: Comparison of infantile nystagmus syndrome in achiasmatic zebrafish and humans. Ann N Y Acad Sci 1233: 285-91, 2011

Huang Y, Wu Z, Riwanto M, Gao S, Levison BS, Gu X, Fu X, Wagner MA, Besler C, Gerstenecker G, Zhang R, Li XM, DiDonato AJ, Gogonea V, Tang WH, Smith JD, Plow EF, Fox PL, Shih DM, Lusis AJ, Fisher EA, DiDonato JA, Landmesser U, Hazen SL: Myeloperoxidase, paraoxonase-1, and HDL form a functional ternary complex. J Clin Invest 123(9): 3815-28, 2013

Huang YY, Tschopp M, Straumann D, Neuhauss SC: Vestibular deficits do not underlie looping behavior in achiasmatic fish. Commun Integr Biol 3 (4) : 379-81, 2010

Huber-Reggi SP, Chen CC, Grimm L, Straumann D, Neuhauss SC, Huang MY: Severity of infantile nystagmus syndrome-like ocular motor phenotype is linked to the extent of the underlying optic nerve projection defect in zebrafish belladonna mutant. J Neurosci 32(50): 18079-86, 2012

Huber-Reggi SP, Mueller KP, Neuhauss SC: Analysis of optokinetic response in zebrafish by computer-based eye tracking. Methods Mol Biol 935: 139-60, 2013

Huber-Reggi SP, Mueller KP, Straumann D, Huang MY, Neuhauss SC: Individual larvae of the zebrafish mutant belladonna display multiple infantile nystagmus-like waveforms that are influenced by viewing conditions. Invest Ophthalmol Vis Sci 55(6): 3971-8, 2014

Ikenberg K, Valtcheva N, Brandt S, Zhong Q, Wong CE, Noske A, Rechsteiner M, Rueschoff JH, Caduff R, Dellas A, Obermann E, Fink D, Fuchs T, Krek W, Moch H, Frew IJ, Wild PJ: KPNA2 is overexpressed in human and mouse endometrial cancers and promotes cellular proliferation. J Pathol 234(2): 239-52, 2014

Item F, Heinzer-Schweizer S, Wyss M, Fontana P, Lehmann R, Henning A, Weber M, Boesiger P, Boutellier U, Toigo M: Mitochondrial capacity is affected by glycemic status in young untrained women with type 1 diabetes but is not impaired relative to healthy untrained women. Am J Physiol Regul Integr Comp Physiol 301 (1): R60-66, 2011

Item F, Nocito A, Thöny S, Bächler T, Boutellier U, Wenger RH, Toigo M: Combined whole-body vibration, resistance exercise, and sustained vascular occlusion increases PGC-1a and VEGF mRNA abundances. Eur J Appl Physiol 113: 1081-1090, 2013

Jacobs RA, Boushel R, Wright-Paradis C, Calbet JA, Robach P, Gnaiger E, Lundby C: Mitochondrial function in human skeletal muscle following high altitude exposure. Exp Physiol 98(1): 245-55, 2013

Jacobs RA, Díaz V, Meinild AK, Gassmann M, Lundby C: The C57Bl/6 mouse serves as a suitable model of human skeletal muscle mitochondrial function. Exp Physiol 98(4): 908-921, 2013

Jacobs RA, Díaz V, Soldini L, Haider T, Thomassen M, Nordsborg NB, Gassmann M, Lundby C: Fast-Twitch Glycolytic Skeletal Muscle Is Predisposed to Age-Induced Impairments in Mitochondrial Function. J Gerontol A Biol Sci Med Sci 68(9): 1010-22, 2013

Jacobs RA, Flück D, Bonne TC, Bürgi S, Christensen PM, Toigo M, Lundby C: Improvements in exercise performance with high-intensity interval training coincide with an increase in skeletal muscle mitochondrial content and function. J Appl Physiol (1985) 115(6): 785-93, 2013

Jacobs RA, Lundby AK, Fenk S, Gehrig S, Siebenmann C, Flück D, Kirk N, Hilty MP, Lundby C: Twenty-eight days of exposure to 3454 m increases mitochondrial volume density in human skeletal muscle. J Physiol 594(5): 1151-66, 2016

Jacobs RA, Lundby AK, Fenk S, Gehrig S, Siebenmann C, Flück D, Kirk N, Hilty MP, Lundby C: Twenty-eight days of exposure to 3454 m increases mitochondrial volume density in human skeletal muscle. J Physiol. 594(5): 1151-66, 2016

Jacobs RA, Lundby C, Robach P, Gassmann M: Red blood cell volume and the capacity for exercise at moderate to high altitude. Sports Med 42(8): 643-63, 2012

Jacobs RA, Lundby C: Mitochondria express enhanced quality as well as quantity in association with aerobic fitness across recreationally active individuals up to elite athletes. Journal of Applied Physiology 114(3): 344-50, 2013

Jacobs RA, Meinild AK, Nordsborg NB, Lundby C: Lactate oxidation in human skeletal muscle mitochondria. Am J Physiol Endocrinol Metab 304(7): E686-94, 2013

Jacobs RA, Rasmussen P, Siebenmann C, Díaz V, Gassmann M, Pesta D, Gnaiger E, Nordsborg NB, Robach P, Lundby C: Determinants of time trial performance and maximal incremental exercise in highly trained endurance athletes. J Appl Physiol 111(5): 1422-1430, 2011

Jacobs RA, Siebenmann C, Hug M, Toigo M, Meinild AK, Lundby C: Twenty-eight days at 3454-m altitude diminishes respiratory capacity but enhances efficiency in human skeletal muscle mitochondria. FASEB J 26(12): 5192-200, 2012

Jakob P, Doerries C, Briand S, Mocharla P, Kränkel N, Besler C, Mueller M, Manes C, Templin C, Baltes C, Rudin M, Adams H, Wolfrum M, Noll G, Ruschitzka F, Lüscher TF, Landmesser U: Loss of angiomiR-126 and 130a in angiogenic early outgrowth cells from patients with chronic heart failure: role for impaired in vivo neovascularization and cardiac repair capacity. Circulation 126(25): 2962-75, 2012

Jelkmann W, Lundby C: Blood doping and its detection. Blood 118(9): 2395-404, 2011

Jordi J, Herzog B, Camargo SM, Boyle CN, Lutz TA, Verrey F: Specific Amino Acids Inhibit Food Intake via the Area Postrema or Vagal Afferents. J Physiol 591(Pt 22): 5611-21, 2013

Jordi J, Herzog B, Lutz TA, Verrey F: Novel antidiabetic nutrients identified by in vivo screening for gastric secretion and emptying regulation in rats. Am J Physiol Regul Integr Comp Physiol 307(7): R869-78, 2014

Jordi J, Verrey F, Lutz TA: Simultaneous assessment of gastric emptying and secretion in rats by a novel computed tomography-based method. Am J Physiol Gastrointest Liver Physiol 306(3): G173-82, 2014

Kalathur M, Toso A, Chen J, Revandkar A, Danzer-Baltzer C, Guccini I, Alajati A, Sarti M, Pinton S, Brambilla L, Di Mitri D, Carbone G, Garcia-Escudero R, Padova A, Magnoni L, Tarditi A, Maccari L, Malusa F, Kalathur RK, A Pinna L, Cozza G, Ruzzene M, Delaleu N, Catapano CV, Frew IJ, Alimonti A: A chemogenomic screening identifies CK2 as a target for pro-senescence therapy in PTEN-deficient tumours. Nat Commun 6: 7227, 2015

Karuna R, Park R, Othman A, Holleboom AG, Motazacker MM, Sutter I, Kuivenhoven JA, Rohrer L, Matile H, Hornemann T, Stoffel M, Rentsch KM, von Eckardstein A: Plasma levels of sphingosine-1-phosphate and apolipoprotein M in patients with monogenic disorders of HDL metabolism. Atherosclerosis 219(2): 855-63, 2011

Keiser S, Flück D, Hüppin F, Stravs A, Hilty MP, Lundby C: Heat training increases exercise capacity in hot but not in temperate conditions: a mechanistic counter-balanced cross-over study. Am J Physiol Heart Circ Physiol 309(5): H750-61, 2015

Keiser S, Flück D, Stravs A, Hüppin F, Lundby C: Restoring heat stress-associated reduction in middle cerebral artery velocity does not reduce fatigue in the heat. Scand J Med Sci Sports 25 Suppl 1: 145-53, 2015

Keiser S, Meinild-Lundby AK, Steiner T, Trösch S, Rauber S, Krafft A, Burkhardt T, Hilty MP, Siebenmann C, Wehrlin JP, Lundby C: Detection of blood volumes and haemoglobin mass by means of CO re-breathing and indocyanine green and sodium fluorescein injections. Scand J Clin Lab Invest. 77(3): 164-174, 2017

Keiser S, Siebenmann C, Bonne TC, Sørensen H, Robach P, Lundby C: The carbon monoxide re-breathing method can underestimate Hbmass due to incomplete blood mixing. Eur J Appl Physiol 113(9): 2425-30, 2013

Kirchhoff P, Dave MH, Remy C, Kosiek O, Busque SM, Dufner M, Geibel JP, Verrey F, Wagner CA: An amino acid transporter involved in gastric acid secretion. Pflug Arch Eur J Phy 541(6): 738-748, 2006

Klein K, Jungst C, Mwinyi J, Stieger B, Krempler F, Patsch W, Eloranta JJ, Kullak-Ublick GA: The Human Organic Anion Transporter Genes OAT5 and OAT7 Are Transactivated by Hepatocyte Nuclear Factor-1α (HNF-1α). Mol Pharmacol 78 (6): 1079-87, 2010

Klingenberg R, Brokopp CE, Grivès A, Courtier A, Jaguszewski M, Pasqual N, Vlaskou Badra E, Lewandowski A, Gaemperli O, Hoerstrup SP, Maier W, Landmesser U, Lüscher TF, Matter CM: Clonal restriction and predominance of regulatory T cells in coronary thrombi of patients with acute coronary syndromes. Eur Heart J 36(17): 1041-1048, 2015

Komniski MS, Yakushev S, Bogdanov N, Gassmann M, Bogdanova A: Interventricular heterogeneity in rat heart responses to hypoxia: the tuning of glucose metabolism, ion gradients, and function. Am J Physiol Heart Circ Physiol 300 (5): H1645-52, 2011

Kovacikova J, Winter C, Loffing-Cueni D, Loffin J, Finberg KE, Lifton RP, Hummler E, Rossier B, Wagner CA: The connecting tubule is the main site of teh furosemide-induced urinary acidification by the vacuolar H+-ATPase. Kidney Int 70(10): 1706-1716, 2006

Kurakevich E, Hennet T, Hausmann M, Rogler G, Borsig L: Milk oligosaccharide sialyl(a2,3)lactose activates intestinal CD11c+ cells through TLR4. Proc Natl Acad Sci U S A 110(43): 17444-9, 2013

Kurth S, Ringli M, Geiger A, LeBourgeois M, Jenni OG, Huber R: Mapping of cortical activity in the first two decades of life: a high-density sleep electroencephalogram study. J Neurosci 30(40): 13211-9, 2010

Kurth S, Ringli M, Lebourgeois MK, Geiger A, Buchmann A, Jenni OG, Huber R: Mapping the electrophysiological marker of sleep depth reveals skill maturation in children and adolescents. Neuroimage 63(2): 959-65, 2012

L'Abate P, Wiegert S, Struck J, Wellmann S, Cannizzaro V: Determinants of plasma copeptin: A systematic investigation in a pediatric mechanical ventilation model. Respir Physiol Neurobiol 185(2): 222-7, 2013

Landmesser U, von Eckardstein A, Kastelein J, Deanfield J, Lüscher TF: Increasing high-density lipoprotein cholesterol by cholesteryl ester transfer protein-inhibition: a rocky road and lessons learned? The early demise of the dal-HEART programme. Eur Heart J 33(14): 1712-5, 2012

Landolt HP: Genetic determination of sleep EEG profiles in healthy humans. Prog Brain Res 193: 51-61, 2011

Latshang TD, Lo Cascio CM, Stöwhas AC, Grimm M, Stadelmann K, Tesler N, Achermann P, Huber R, Kohler M, Bloch KE: Are Nocturnal Breathing, Sleep, and Cognitive Performance Impaired at Moderate Altitude (1,630-2,590 m)?. Sleep 36(12): 19639-76, 2013

Latshang TD, Turk AJ, Hess T, Schoch OD, Bosch MM, Barthelmes D, Merz TM, Hefti U, Hefti JP, Maggiorini M, Bloch KE: Acclimatization improves submaximal exercise economy at 5533 m. Scand J Med Sci Sports 23(4): 458-67, 2013

Laurens J, Awai L, Bockisch CJ, Hegemann S, van Hedel HJ, Dietz V, Straumann D: Visual contribution to postural stability: Interaction between target fixation or tracking and static or dynamic large-field stimulus. Gait Posture 31 (1): 37-41, 2010

Laurens J, Hess BJ, Straumann D: Geometrical considerations on canal-otolith interactions during OVAR and Bayesian modelling. Prog Brain Res 171: 287-90, 2008

Laurens J, Straumann D, Hess BJ: Processing of angular motion and gravity information through an internal model. J Neurophysiol 104 (3): 1370-81, 2010

Leeners B, Geary N, Tobler PN, Asarian L: Ovarian hormones and obesity. Human Reproduction Update : in press, 2016

Lehmann H, Vicari D, Wild PJ, Frew IJ: Combined Deletion of Vhl and Kif3a Accelerates Renal Cyst Formation. J Am Soc Nephrol 26(11): 2778-88, 2015

Lelli A, Nolan KA, Santambrogio S, Gonçalves AF, Schönenberger MJ, Guinot A, Frew IJ, Marti HH, Hoogewijs D, Wenger RH: Induction of long noncoding RNA MALAT1 in hypoxic mice. Hypoxia (3): 45-52, 2015

Leuthold S, Hagenbuch B, Mohebbi N, Wagner CA, Meier PJ, Stieger B: Mechanisms of pH-gradient driven transport mediated by organic anion polypeptide transporters. Am J Physiol Cell Physiol 296(3): C570-82, 2009

Liberini CG, Borner T, Boyle CN, Lutz TA: The satiating hormone amylin enhances neurogenesis in the area postrema of adult rats. Molecular Metabolism 5(10): 834-843, 2016

Liberini CG, Boyle CN, Cifani C, Venniro M, Hope BT, Lutz TA: Amylin receptor components and the leptin receptor are co-expressed in single rat area postrema neurons. The European Journal of Neuroscience 43(5): 653-661, 2016

Lipiski M, Deuel JW, Baek JH, Engelsberger WR, Buehler PW, Schaer DJ: Human Hp1-1 and Hp2-2 phenotype-specific haptoglobin therapeutics are both effective in vitro and in guinea pigs to attenuate hemoglobin toxicity. Antioxid Redox Signal 19(14): 1619-33, 2013

Loenneker T, Klaver P, Bucher K, Lichtensteiger J, Imfeld A, Martin E: Microstructural development: organizational differences of the fiber architecture between children and adults in dorsal and ventral visual streams. Hum Brain Mapp 32(6): 935-46, 2011

Lohmann C, Schäfer N, von Lukowicz T, Sokrates Stein MA, Borén J, Rütti S, Wahli W, Donath MY, Lüscher TF, Matter CM: Atherosclerotic mice exhibit systemic inflammation in periadventitial and visceral adipose tissue, liver, and pancreatic islets. Atherosclerosis 207 (2): 360-7, 2009

Lönnberg M, Lundby C: Detection of EPO injections using a rapid lateral flow isoform test. Anal Bioanal Chem 405(30): 9685-91, 2013

Lüchinger R, Michels L, Martin E, Brandeis D.: Brain state regulation during normal development: Intrinsic activity fluctuations in simultaneous EEG-fMRI. Neuroimage 60(2): 1426-39, 2012

Lüchinger R, Michels L, Martin E, Brandeis D: EEG-BOLD correlations during (post-)adolescent brain maturation. Neuroimage 56(3): 1493-505, 2011

Lund A, Lundby C, Olsen NV: High-dose erythropoietin for tissue protection. Eur J Clin Invest 44(12): 1230-8, 2014

Lundby A, Lage K, Weinert BT, Bekker-Jensen DB, Secher A, Skovgaard T, Kelstrup CD, Dmytriyev A, Choudhary C, Lundby C, Olsen JV: Proteomic analysis of lysine acetylation sites in rat tissues reveals organ specificity and subcellular patterns. Cell Rep 2(2): 419-31, 2012

Lundby A, Secher A, Lage K, Nordsborg NB, Dmytriyev A, Lundby C, Olsen JV: Quantitative maps of protein phosphorylation sites across 14 different rat organs and tissues. Nat Commun 3: 876, 2012

Lundby AK, Keiser S, Siebenmann C, Schäffer L, Lundby C: Kidney-synthesized erythropoietin is the main source for the hypoxia-induced increase in plasma erythropoietin in adult humans. Eur J Appl Physiol 114(6): 1107-11, 2014

Lundby C, Calbet JA: Why Are High-Altitude Natives So Strong at Altitude? Maximal Oxygen Transport to the Muscle Cell in Altitude Natives. Adv Exp Med Biol. 903: 65-81, 2016

Lundby C, Jacobs RA: Adaptations of skeletal muscle mitochondria to exercise training. Exp Physiol 101(1): 17-22, 2016

Lundby C, Millet GP, Calbet JA, Bärtsch P, Subudhi AW: Does 'altitude training' increase exercise performance in elite athletes?. Br J Sports Med 46(11): 792-5, 2012

Lundby C, Montero D, Gehrig S, Anderson Hall U, Kaiser P, Boushel R, Meinild Lundby AK, Kirk N, Valdivieso P, Flück M, Secher NH, Edin F, Hein T, Madsen K: Physiological, biochemical, anthropometric and biomechanical influences on exercise economy in humans. Scand J Med Sci Sports [Epub ahead of print], 2017

Lundby C, Montero D, Joyner M: Biology of VO(2) max: looking under the physiology lamp. Acta Physiol (Oxf) [Epub ahead of print], 2016

Lundby C, Montero D: Rebuttal from Carsten Lundby and David Montero. Journal of Physiology 593(17): 3765, 2015

Lundby C, Montero D1: Diffusion limitation of O2 from microvessels into muscle does not contribute to the limitation of VO2 max. Journal of Physiology 593(17): 3759-3761, 2015

Lundby C, Olsen NV: Effects of recombinant humant erythropoietin in normal humans. J Physiol 589(Pt 6): 1265-71, 2011

Lundby C, Robach P, Saltin B: The evolving science of detection of 'blood doping'. Br J Pharmacol 165(5): 1306-15, 2012

Lundby C, Robach P: Does 'altitude training' increase exercise performance in elite athletes?. Exp Physiol. 101(7): 783-8, 2016

Lundby C, Robach P: Performance Enhancement: What Are the Physiological Limits?. Physiology (Bethesda) 30(4): 282-92, 2015

Lundby C, Robach P: Reply to Schumacher et al. J Appl Physiol (1985) 114(10): 1363-4, 2013

Lundby C, Robach P: Reply. Exp Physiol. 102(1): 132-133, 2017

Lundby C: Skeletal muscle adaptations to endurance training: is tissue hypoxia the main signal?. Exp Physiol 101(1): 15-6, 2016

Lustenberger C, Murbach M, Tüshaus L, Wehrle F, Kuster N, Achermann P, Huber R: Inter-individual and intra-individual variation of the effects of pulsed RF EMF exposure on the human sleep EEG. Bioelectromagnetics 36(3): 169-77, 2015

Lustenberger C, OGorman RL, Pugin F, Tüshaus L, Wehrle F, Achermann P, Huber R: Sleep spindles are related to schizotypal personality traits and thalamic glutamine/glutamate in healthy subjects. Schizophr Bull 41(2): 522-31, 2015

Lutz TA, Bueter M: The physiology underlying Roux-en-Y gastric bypass: a status report. Am J Physiol Regul Integr Comp Physiol 307(11): R1275-91, 2014

Lutz TA, Osto E: Glucagon-like peptide-1, glucagon-like peptide-2, and lipid metabolism. Current Opinion in Lipidology 27(3): 257-263, 2016

Ma L, Jüttner M, Kullak-Ublick GA, Eloranta JJ: Regulation of the gene encoding the intestinal bile acid transporter ASBT by the caudal-type homeobox proteins CDX1 and CDX2. Am J Physiol Gastrointest Liver Physiol 302(1): G123-33, 2012

Makhro A, Hänggi P, Goede JS, Wang J, Brüggemann A, Gassmann M, Schmugge M, Kaestner L, Speer O, Bogdanova A: N-methyl-D-aspartate receptors in human erythroid precursor cells and in circulating red blood cells contribute to the intracellular calcium regulation. Am J Physiol Cell Physiol 305(11): C1123-38, 2013

Mandelkow H, Brandeis D, Boesiger P: Good practices in EEG-MRI: The utility of retrospective synchronization and PCA for the removal of MRI gradient artefacts. Neuroimage 49 (3): 2287-2303, 2010

Matter CM, Handschin C: RANTES (Regulated on activation, normal T cell expressed and secreted), inflammation, obesity , and the metabolic syndrome. Circulation 115(8): 946-948, 2007

Matter CM, Stein MA: A dual role of CD4+ T cells in adipose tissue?. Circ Res 104 (8): 928-30, 2009

Matter CM, Stuber M, Nahrendorf M: Imaging of the unstable plaque: how far have we got?. Eur Heart J 30 (21): 2566-74, 2009

Maurer CM, Huang YY, Neuhauss SCF: Application of zebrafish oculomotor behavior to model human disorders. Rev Neurosci 22 (1): 5-16, 2011

Maurer U, Brem S, Liechti M, Maurizio S, Michels L, Brandeis D: Frontal Midline Theta Reflects Individual Task Performance in a Working Memory Task. Brain Topogr 28(1): 127-34, 2015

Metz AJ, Biallas M, Jenny C, Muehlemann T, Wolf M: The effect of basic assumptions on the tissue oxygen saturation value of near infrared spectroscopy. Adv Exp Med Biol 765: 169-75, 2013

Metz AJ, Pugin F, Huber R, Achermann P, Wolf M: Brain tissue oxygen saturation increases during the night in adolescents. Adv Exp Med Biol 789: 113-9, 2013

Metz AJ, Pugin F, Huber R, Achermann P, Wolf M: Changes of cerebral tissue oxygen saturation at sleep transitions in adolescents. Adv Exp Med Biol 812: 279-85, 2014

Metz AJ, Wolf M, Achermann P, Scholkmann F: A New Approach for Automatic Removal of Movement Artifacts in Near-Infrared Spectroscopy Time Series by Means of Acceleration Data. Algorithms 8(4): 1052-1075, 2015

Michels L, Bucher K, Brem S, Halder P, Lüchinger R, Liechti M, Martin E, Jeanmonod D, Kröll J, Brandeis D: Does Greater Low Frequency EEG Activity in Normal Immaturity and in Children with Epilepsy Arise in the Same Neuronal Network?. Brain Topogr 24 (1): 78-89, 2011

Michels L, Bucher K, Lüchinger R, Klaver P, Martin E, Jeanmonod D, Brandeis D: Simultaneous EEG-fMRI during a working memory task: modulations in low and high frequency bands. PLoS ONE 5 (4): e10298, 2010

Michels L, Lüchinger R, Koenig T, Martin E, Brandeis D: Developmental changes of BOLD signal correlations with global human EEG power and synchronization during working memory. PLoS One 7(7): e39447, 2012

Michels L, Martin E, Klaver P, Edden R, Zelaya F, Lythgoe DJ, Lüchinger R, Brandeis D, OGorman RL: Frontal GABA levels change during working memory. PLoS One 7(4): e31933, 2012

Michels L, Muthuraman M, Lüchinger R, Martin E, Anwar AR, Raethjen J, Brandeis D, Siniatchkin M: Developmental changes of functional and directed resting-state connectivities associated with neuronal oscillations in EEG. Neuroimage 81: 231-42, 2013

Mihov D, Bogdanov N, Grenacher B, Gassmann M, Zünd G, Bogdanova A, Tavakoli R: Erythropoietin protects from reperfusion-induced myocardial injury by enhancing coronary endothelial nitric oxide production. Eur J Cardiothorac Surg 35 (5): 839-46, 2009

Mihov D, Vogel J, Gassmann M, Bogdanova A: Erythropoietin activates nitric oxide synthase in murine erythrocytes. Am J Physiol Cell Physiol 297 (2): C378-88, 2009

Miranda MX, van Tits LJ, Lohmann C, Arsiwala T, Winnik S, Tailleux A, Stein S, Gomes AP, Suri V, Ellis JL, Lutz TA, Hottiger MO, Sinclair DA, Auwerx J, Schoonjans K, Staels B, Lüscher TF, Matter CM: The Sirt1 activator SRT3025 provides atheroprotection in Apoe-/- mice by reducing hepatic Pcsk9 secretion and enhancing Ldlr expression. Eur Heart J 36(1): 51-9, 2015

Mocharla P, Briand S, Giannotti G, Dörries C, Jakob P, Paneni F, Lüscher T, Landmesser U: AngiomiR-126 expression and secretion from circulating CD34(+) and CD14(+) PBMCs: role for proangiogenic effects and alterations in type 2 diabetics. Blood 121(1): 226-36, 2013

Mohebbi N, Kovacikova J, Nowik M, Wagner CA: Thyroid hormone deficiency alters expression of acid-base transporters in rat kidney. Am J Physiol Renal Physiol 293: F416-27, 2007

Mohebbi N, Mihailova M, Wagner CA: The calcineurin inhibitor FK506 (tacrolimus) is associated with transient metabolic acidosis and altered expression of renal acid-base transport proteins. Am J Physiol Renal Physiol 297(2): F499-509, 2009

Mohebbi N, Wagner CA: The "antibodyome": or, how to find antibodies?. J Nephrol 22(4): 439-41, 2009

Montero D, Cathomen A, Jacobs RA, Flück D, de Leur J, Keiser S, Bonne T, Kirk N, Lundby AK, Lundby C: Haematological rather than skeletal muscle adaptations contribute to the increase in peak oxygen uptake induced by moderate endurance training. J Physiol 593(20): 4677-88, 2015

Montero D, Diaz-Cañestro C, Flammer A, Lundby C: Unexplained Anemia in the Elderly: Potential Role of Arterial Stiffness. Front Physiol 7: 485, 2016

Montero D, Diaz-Cañestro C, Keiser S, Lundby C: Arterial stiffness is strongly and negatively associated with the total volume of red blood cells. Int J Cardiol. 221: 77-80, 2016

Montero D, Diaz-Cañestro C, Lundby C: Endurance Training and VO2max: Role of Maximal Cardiac Output and Oxygen Extraction. Med Sci Sports Exerc 47(10): 2024-33, 2015

Montero D, Lundby C: Effects of Exercise Training in Hypoxia Versus Normoxia on Vascular Health. Sports Med. 46(11): 1725-1736, 2016

Montero D, Lundby C: Enhanced Performance after Repeated Sprint Training in Hypoxia: False or Reality?. Med Sci Sports Exerc 47(11): 2483, 2015

Montero D, Lundby C: Red cell volume response to exercise training: Association with aging. Scand J Med Sci Sports [Epud ahead of print], 2016

Montero D, Lundby C: Refuting the myth of non-response to exercise training: 'non-responders' do respond to higher dose of training. J Physiol [Epub ahead of print], 2017

Montero D, Lundby C: Repeated Sprint Training in Hypoxia Versus Normoxia Does Not Improve Performance: A Double-Blind and Cross-Over Study. Int J Sports Physiol Perform [Epub ahead of print], 2016

Montero D, Lundby C: The Effect of Exercise Training on the Energetic Cost of Cycling. Sports Med 45(11): 1603-18, 2015

Montero D, Rauber S, Goetze JP, Lundby C: Reduction in central venous pressure enhances erythropoietin synthesis: role of volume-regulating hormones. Acta Physiol (Oxf). 218(2): 89-97, 2016

Moret C, Dave MH, Schulz N, Jiang JX, Verrey F, Wagner CA: Regulation of renal amino acid transporters during metabolic acidosis. Am J Physiol Renal Physiol 292(2): F555-F566, 2007

Morón B, Spalinger M, Kasper S, Atrott K, Frey-Wagner I, Fried M, McCole DF, Rogler G, Scharl M: Activation of protein tyrosine phosphatase non-receptor type 2 by spermidine exerts anti-inflammatory effects in human THP-1 monocytes and in a mouse model of acute colitis. PLoS One 8(9): e73703, 2013

Mullins PG, McGonigle DJ, OGorman RL, Puts NA, Vidyasagar R, Evans CJ; Cardiff Symposium on MRS of GABA, Edden RA: Current practice in the use of MEGA-PRESS spectroscopy for the detection of GABA. Neuroimage 86: 43-52, 2014

Mwinyi J, Grete-Wenger C, Eloranta JJ, Kullak-Ublick GA: The Impact of PPAR? Genetic Variants on IBD Susceptibility and IBD Disease Course. PPAR Res 2012: 349469, 2012

Mwinyi J, Wenger C, Eloranta JJ, Kullak-Ublick GA: Glucocorticoid receptor gene haplotype structure and steroid therapy outcome in IBD patients. World J Gastroenterol 16 (31): 3888-96, 2010

Neff KJ, Elliott JA, Corteville C, Abegg K, Boza C, Lutz TA, Docherty NG, le Roux CW: Effect of Roux-en-Y gastric bypass and diet-induced weight loss on diabetic kidney disease in the Zucker diabetic fatty rat. Surgery for Obesity and Related Diseases [Epub ahead of print], 2016

Niederer F, Ospelt C, Brentano F, Hottiger MO, Gay RE, Gay S, Detmar M, Kyburz D: SIRT1 overexpression in the rheumatoid arthritis synovium contributes to proinflammatory cytokine production and apoptosis resistance. Ann Rheum Dis 70(10): 1866-73, 2011

Niederer F, Trenkmann M, Ospelt C, Karouzakis E, Neidhart M, Stanczyk J, Kolling C, Gay RE, Detmar M, Gay S, Jüngel A, Kyburz D: Downregulation of microRNA-34a* in rheumatoid arthritis synovial fibroblasts promotes apoptosis resistance. Arthritis Rheum 64(6): 1771-1779, 2011

Nordsborg NB, Calbet JA, Sander M, van Hall G, Juel C, Saltin B, Lundby C: Human muscle net K+ release during exercise is unaffected by elevated anaerobic metabolism, but reduced after prolonged acclimatization to 4100 m. Am J Physiol Regul Integr Comp Physiol 299(1): R306-13, 2010

Nordsborg NB, Robach P, Boushel R, Calbet JA, Lundby C: Erythropoietin does not reduce plasma lactate, H+ , and K+ during intense exercise. Scand J Med Sci Sports 25(6): e566-75, 2015

Nordsborg NB, Siebenmann C, Jacobs RA, Rasmussen P, Diaz V, Robach P, Lundby C: Four weeks of normobaric "live high-train low" do not alter muscular or systemic capacity for maintaining pH and K? homeostasis during intense exercise. J Appl Physiol 112(12): 2027-36, 2012

Nowik M, Lecca MR, Velic A, Rehrauer H, Brändli AW, Wagner CA: Genome-wide gene expression profiling reveals renal genes regulated during metabolic acidosis. Physiol Genomics 32: 322-334, 2007

Nowik M, Picard N, Stange G, Capuano P, Tenenhouse HS, Biber J, Murer H, Wagner CA: Renal phosphaturia during metabolic acidosis revisited: molecular mechanisms for decreased renal phosphate reabsorption. Eur J Physiol 457 (2): 539-49, 2008

Nussbaumer-Ochsner Y, Latshang TD, Ulrich S, Kohler M, Thurnheer R, Bloch KE: Patients with obstructive sleep apnea syndrome benefit from acetazolamide during an altitude sojourn: a randomized, placebo-controlled, double-blind trial. Chest 141(1): 131-8, 2012

Nussbaumer-Ochsner Y, Ursprung J, Siebenmann C, Maggiorini M, Bloch KE: Effect of short-term acclimatization to high altitude on sleep and nocturnal breathing. Sleep 35(3): 419-23, 2012

Nybo L, Lundby C: CrossTalk opposing view: Heat acclimatization does not improve exercise performance in a cool condition. J Physiol 594(2): 245-7, 2016

Nybo L, Lundby C: Rebuttal by Lars Nybo and Carsten Lundby. Journal of Physiology 594(2): 251, 2016

Oczos J, Grimm C, Barthelmes D, Sutter F, Menghini M, Kloeckener-Gruissem B, Berger W: Regulatory regions of the paraoxonase 1 (PON1) gene are associated with neovascular age-related macular degeneration (AMD). Age (Dordr) 35(5): 1651-62, 2013

Oczos J, Sutter I, Kloeckener-Gruissem B, Berger W, Riwanto M, Rentsch K, Hornemann T, von Eckardstein A, Grimm C: Lack of paraoxonase 1 alters phospholipid composition, but not morphology and function of the mouse retina. Invest Ophthalmol Vis Sci 55(8): 4714-27, 2014

OGorman RL, Michels L, Edden RA, Murdoch JB, Martin E: In vivo detection of GABA and glutamate with MEGA-PRESS: reproducibility and gender effects. J Magn Reson Imaging 33(5): 1262-7, 2011

OGorman RL, Poil SS, Brandeis D, Klaver P, Bollmann S, Ghisleni C, Lüchinger R, Martin E, Shankaranarayanan A, Alsop DC, Michels L: Coupling between resting cerebral perfusion and EEG. Brain Topogr 26(3): 442-57, 2013

Ostergaard L, Rudiger A, Wellmann S, Gammella E, Beck-Schimmer B, Struck J, Maggiorini M, Gassmann M: Arginine-vasopressin marker copeptin is a sensitive plasma surrogate of hypoxic exposure. Hypoxia 2: 143-151, 2014

Osto E, Doycheva P, Corteville C, Bueter M, Doerig C, Stivala S, Buhmann H, Colin S, Rohrer L, Hasballa R, Tailleux A, Wolfrum C, Tona F, Manz J, Vetter D, Spliethoff K, Vanhoutte PM, Landmesser U, Pattou F, Staels B, Matter CM, Lutz TA, Lüscher TF: Rapid and body weight-independent improvement of endotheial function and HDL properties after Roux-en-Y gastric bypass: role of glucagon-like peptide-1. Circulation 131(10): 871-81, 2015

Othman A, Benghozi R, Alecu I, Wei Y, Niesor E, von Eckardstein A, Hornemann T: Fenofibrate lowers atypical sphingolipids in plasma of dyslipidemic patients: A novel approach for treating diabetic neuropathy?. J Clin Lipidol 9(4): 568-75, 2015

Othman A, Bianchi R, Alecu I, Wei Y, Porretta-Serapiglia C, Lombardi R, Chiorazzi A, Meregalli C, Oggioni N, Cavaletti G, Lauria G, von Eckardstein A, Hornemann T: Lowering Plasma 1-Deoxysphingolipids Improves Neuropathy in Diabetic Rats. Diabetes 64(3): 1035-45, 2015

Othman A, Rütti MF, Ernst D, Saely CH, Rein P, Drexel H, Porretta-Serapiglia C, Lauria G, Bianchi R, von Eckardstein A, Hornemann T: Plasma deoxysphingolipids: a novel class of biomarkers for the metabolic syndrome?. Diabetologia 55(2): 421-31, 2012

Othman A, Saely CH, Muendlein A, Vonbank A, Drexel H, von Eckardstein A, Hornemann T: Plasma 1-deoxysphingolipids are predictive biomarkers for type 2 diabetes mellitus. BMJ Open Diabetes Res Care 3(1): e000073, 2015

Othman A, Saely CH, Muendlein A, Vonbank A, Drexel H, von Eckardstein A, Hornemann T: Plasma C20-Sphingolipids predict cardiovascular events independently from conventional cardiovascular risk factors in patients undergoing coronary angiography. Atherosclerosis 240(1): 216-21, 2015

Otsuka A, Dreier J, Cheng PF, Nägeli M, Lehmann H, Felderer L, Frew IJ, Matsushita S, Levesque MP, Dummer R: Hedgehog pathway inhibitors promote adaptive immune responses in basal cell carcinoma. Clin Cancer Res 21(6): 1289-97, 2015

Paunescu TG, Russo LM, da Silva N, Kovacikova J, Mohebbi N, Van Hoek AN, McKee M, Wagner CA, Breton S, Brown D: Compensatory membrane expression of the V-ATPase B2 subunit isoform in renal medullary intercalated cells of B1-deficient mice. Am J Physiol Renal Physiol 293: F1915-26, 2007

Pavik I, Jaeger P, Ebner L, Poster D, Krauer F, Kistler AD, Rentsch K, Andreisek G, Wagner CA, Devuyst O, Wüthrich RP, Schmid C, Serra AL: Soluble klotho and autosomal dominant polycystic kidney disease. Clin J Am Soc Nephrol 7(2): 248-57, 2012

Pavik I, Jaeger P, Ebner L, Wagner CA, Petzold K, Spichtig D, Poster D, Wüthrich RP, Russmann S, Serra AL: Secreted Klotho and FGF23 in chronic kidney disease Stage 1 to 5: a sequence suggested from a cross-sectional study. Nephrol Dial Transplant 28(2): 352-9, 2013

Pavik I, Jaeger P, Kistler AD, Poster D, Krauer F, Cavelti-Weder C, Rentsch KM, Wüthrich RP, Serra AL: Patients with autosomal dominant polycystic kidney disease have elevated fibroblast growth factor 23 levels and a renal leak of phosphate. Kindey Int 79(2): 234-40, 2011

Persson PB, Wenger RH, Lundby C, Gunga HC: Did you know?: Neocytolysis, how to halt EPO?. Acta Physiol (Oxf). 218(1): 5-6, 2016

Petrushanko IY, Yakushev S, Mitkevich VA, Kamanina YV, Ziganshin RH, Meng X, Anashkina AA, Makhro A, Lopina OD, Gassmann M, Makarov AA, Bogdanova A: S-glutathionylation of the Na,K-ATPase catalytic a subunit is a determinant of the enzyme redox-sensitivity. J Biol Chem 287(38): 32195-205, 2012

Plenge U, Belhage B, Guadalupe-Grau A, Andersen PR, Lundby C, Dela F, Stride N, Pott FC, Helge JW, Boushel R: Erythropoietin treatment enhances muscle mitochondrial capacity in humans. Front Physiol 3: 50, 2012

Poil SS, Bollmann S, Ghisleni C, OGorman RL, Klaver P, Ball J, Eich-Höchli D, Brandeis D, Michels L: Age dependent electroencephalographic changes in attention-deficit/hyperactivity disorder (ADHD). Clin Neurophysiol 125(8): 1626-38, 2014

Pugin F, Metz AJ, Stauffer M, Achermann P, Wolf M, Jenni OG, Huber R: Local Increase of Sleep SWA after Three Weeks of Working Memory Training in Children and Adolescents. Sleep 38: 607-614, 2015

Rajapakse AG, Yepuri G, Carvas JM, Stein S, Matter CM, Scerri I, Ruffieux J, Montani JP, Ming XF, Yang Z: Hyperactive S6K1 mediates oxidative stress and endothelial dysfunction in aging: inhibition by resveratrol. PLoS One 6(4): e19237, 2011

Rasch B, Papassotiropoulos A, de Quervain DF: Imaging genetics of cognitive functions: Focus on episodic memory. Neuroimage. 53(3): 870-7, 2010

Rasch B, Spalek K, Buholzer S, Luechinger R, Boesiger P, de Quervain DJ, Papassotiropoulos A.: Aversive stimuli lead to differential amygdala activation and connectivity patterns depending on catechol-O-methyltransferase Val158Met genotype. Neuroimage. 52(4): 1712-9, 2010

Rasch B, Spalek K, Buholzer S, Luechinger R, Boesiger P, Papassotiropoulos A, de Quervain D: A genetic variation of the noradrenergic system is related to differential amygdala activation during encoding of emotional memories. Proc Natl Acad Sci USA 106 (45): 19191-6, 2009

Rasmussen P, Foged EM, Krogh-Madsen R, Nielsen J, Nielsen TR, Olsen NV, Petersen NC, Sørensen TA, Secher NH, Lundby C: Effects of erythropoietin administration on cerebral metabolism and exercise capacity in men. J Appl Physiol 109(2): 476-83, 2010

Rasmussen P, Kim YS, Krogh-Madsen R, Lundby C, Olsen NV, Secher NH, van Lieshout JJ: Both acute and prolonged administration of EPO reduce cerebral and systemic vascular conductance in humans. FASEB J 26(3): 1343-1348, 2012

Rasmussen P, Lundby C: Influence of Changes in Blood Pressure on Cerebral Oxygenation: Role of Skin Blood Flow?. Hypertension 56(1): e1, 2010

Rasmussen P, Nordsborg N, Taudorf S, Sørensen H, Berg RM, Jacobs RA, Bailey DM, Olsen NV, Secher NH, Møller K, Lundby C: Brain and skin do not contribute to the systemic rise in erythropoietin during acute hypoxia in humans. FASEB J 26(5): 1831-4, 2012

Rasmussen P, Siebenmann C, Díaz V, Lundby C: Red Cell Volume Expansion at Altitude: A Meta-analysis and Monte Carlo Simulation. Med Sci Sports Exerc 45(9): 1767-72, 2013

Rasmussen P, Widmer M, Hilty MP, Hug M, Sørensen H, Ogoh S, Sato K, Secher NH, Maggiorini M, Lundby C: Thermodilution-determined Internal Jugular Venous Flow. Med Sci Sports Exerc [Epub ahead of print], 2016

Rasmussen P, Wyss MT, Lundby C: Cerebral glucose and lactate consumption during cerebral activation by physical activity in humans. FASEB J. 25(9): 2865-73, 2011

Remy C, Kirchhoff P, Hafner P, Busque SM, Müller MK, Geibel JP, Wagner CA : Stimulatory pathways of the Calcium-Sensing Receptor on acid secretion in freshly isolated human gastric glands. Cell Physiol Biochem 19 (1-4): 33-42, 2007

Renkema KY, Velic A, Dijkman HB, Verkaart S, van der Kemp AW, Nowik M, Timmermans K, Doucet A, Wagner CA, Bindels RJ, Hoenderop JG: The calcium-sensing receptor promotes urinary acidification to prevent nephrolithiasis. J Am Soc Nephrol 20(8): 1705-13, 2009

Rexhepaj R, Grahammer F, Voelkl H, Remy C, Wagner CA, Sandulache D, Artunc F, Henke G, Nammi S, Capasso G, Alessi DR, Lang F: Reduced intestinal and renal amino acid transport in PDK1 hypomorphic mice. Faseb J 20(13): 2214-2222, 2006

Riwanto M, Landmesser U: High density lipoproteins and endothelial functions: mechanistic insights and alterations in cardiovascular disease. J Lipid Res 54(12): 3227-43, 2013

Riwanto M, Rohrer L, Roschitzki B, Besler C, Mocharla P, Mueller M, Perisa D, Heinrich K, Altwegg L, von Eckardstein A, Lüscher TF, Landmesser U: Altered activation of endothelial anti- and proapoptotic pathways by high-density lipoprotein from patients with coronary artery disease: role of high-density lipoprotein-proteome remodeling. Circulation 127(8): 891-904, 2013

Robach P, Boisson RC, Vincent L, Lundby C, Moutereau S, Gergelé L, Michel N, Duthil E, Féasson L, Millet GY: Hemolysis induced by an extreme mountain ultra-marathon is not associated with a decrease in total red blood cell volume. Scand J Med Sci Sports 24(1): 18-27, 2014

Robach P, Bonne T, Flück D, Bürgi S, Toigo M, Jacobs RA, Lundby C: Hypoxic training: effect on mitochondrial function and aerobic performance in hypoxia. Med Sci Sports Exerc 46(10): 1936-45, 2014

Robach P, Lundby C: Is live high-train low altitude training relevant for elite athletes with already high total hemoglobin mass?. Scand J Med Sci Sports 22(3): 303-5, 2012

Robach P, Recalcati S, Girelli D, Campostrini N, Kempf T, Wollert KC, Corbella M, Santambrogio P, Perbellini L, Brasse-Lagnel C, Christensen B, Moutereau S, Lundby C, Cairo G: Serum hepcidin levels and muscle iron proteins in humans injected with low- or high-dose erythropoietin. Eur J Haematol 91(1): 74-84, 2013

Robach P, Siebenmann C, Jacobs RA, Rasmussen P, Nordsborg N, Pesta D, Gnaiger E, Díaz V, Christ A, Fiedler J, Crivelli N, Secher NH, Pichon A, Maggiorini M, Lundby C: The role of haemoglobin mass on VO(2)max following normobaric 'live high-train low' in endurance-trained athletes. Br J Sports Med 46(11): 822-7, 2012

Robert J, Lehner M, Frank S, Perisa D, von Eckardstein A, Rohrer L: Interleukin 6 stimulates endothelial binding and transport of high-density lipoprotein through induction of endothelial lipase. Arterioscler Thromb Vasc Biol 33(12): 2699-706, 2013

Robert J, Weber B, Frese L, Emmert MY, Schmidt D, von Eckardstein A, Rohrer L, Hoerstrup SP: A three-dimensional engineered artery model for in vitro atherosclerosis research. PLoS One 8(11): e79821, 2013

Rohrer L, Ohnsorg PM, Lehner M, Landolt F, Rinninger F, von Eckardstein A: High-Density Lipoprotein Transport Through Aortic Endothelial Cells Involves Scavenger Receptor BI and ATP-Binding Cassette Transporter G1 . Circ Res 104 (10): 1142-50, 2009

Romeo E, Dave MH, Bacic D, Ristic Z, Camargo SMR, Loffin J, Wagner CA, Verrey F : Luminal kidney and intestine SLC6 amino acid transporters of B0AT-cluster and their tissue distribuation in Mus musculus. Am J Physiol Renal Physiol 290(2): F376-383, 2006

Rosengren SM, Colebatch JG, Borire A, Straumann D, Weber KP: cVEMP morphology changes with recording electrode position, but single motor unit activity remains constant. J Appl Physiol 120(8): 833-42, 2015

Rosengren SM, Colebatch JG, Straumann D, Weber KP: Single motor unit responses underlying cervical vestibular evoked myogenic potentials produced by bone-conducted stimuli. Clin Neurophysiol 126 (6): 1234–1245, 2015

Rothenberger F, Velic A, Stehberger PA, Kovacikova J, Wagner CA : Angiotensin II stimulates vacuolar H+-ATPase activity in renal acid secretory intercalated cells from the outer medullary collecting duct. J Am Soc Nephrol 18 (7): 2085-93, 2007

Rothgiesser KM, Erener S, Waibel S, Lüscher B, Hottiger MO: SIRT2 regulates NF-?B dependent gene expression through deacetylation of p65 Lys310. J Cell Sci 123(Pt 24): 4251-8, 2010

Russmann S, Jetter A, Kullak-Ublick GA: Pharmacogenetics of drug-induced liver injury. Hepatology 52 (2): 748-61, 2010

Rütti S, Ehses JA, Sibler RA, Prazak R, Rohrer L, Georgopoulos S, Meier DT, Niclaus N, Berney T, Donat MY, von Eckardstein A: Low and high-density lipoproteins modulate function, apoptosis and proliferation of primary human and murine pancreatic beta cells. Endocrinology 150 (10): 4521-30, 2009

Saugy M, Lundby C, Robinson N: Monitoring of biological markers indicative of doping: the athlete biological passport. Br J Sports Med 48(10): 827-32, 2014

Schaer CA, Deuel JW, Bittermann AG, Rubio IG, Schoedon G, Spahn DR, Wepf RA, Vallelian F, Schaer DJ: Mechanisms of haptoglobin protection against hemoglobin peroxidation triggered endothelial damage. Cell Death Differ 20(11): 1569-79, 2013

Schaer DJ, Buehler PW, Alayash AI, Belcher JD, Vercellotti GM: Hemolysis and free hemoglobin revisited: exploring hemoglobin and hemin scavengers as a novel class of therapeutic proteins. Blood 121(8): 1276-84, 2013

Schaer DJ, Buehler PW: Cell-free hemoglobin and its scavenger proteins: new disease models leading the way to targeted therapies. Cold Spring Harb Perspect Med 3(6): a013433, 2013

Schäfer N, Lohmann C, Winnik S, van Tits LJ, Miranda MX, Vergopoulos A, Ruschitzka F, Nussberger J, Berger S, Lüscher TF, Verrey F, Matter CM: Endothelial mineralocorticoid receptor activation mediates endothelial dysfunction in diet-induced obesity. Eur Heart J 34(45): 3515-24, 2013

Scharl M, Mwinyi J, Fischbeck A, Leucht K, Eloranta JJ, Arikkat J, Pesch T, Kellermeier S, Mair A, Kullak-Ublick GA, Truninger K, Noreen F, Regula J, Gaj P, Pittet V, Mueller C, Hofmann C, Fried M, McCole DF, Rogler G: Crohn's disease-associated polymorphism within the PTPN2 gene affects muramyl-dipeptide-induced cytokine secretion and autophagy. Inflamm Bowel Dis 18(5): 900-912, 2012

Scharl M, Wojtal KA, Becker HM, Fischbeck A, Frei P, Arikkat J, Pesch T, Kellermeier S, Boone DL, Weber A, Loessner MJ, Vavricka SR, Fried M, McCole DF, Rogler G: Protein tyrosine phosphatase nonreceptor type 2 regulates autophagosome formation in human intestinal cells. Inflamm Bowel Dis 18(7): 1287-302, 2012

Schönenberger D, Harlander S, Rajski M, Jacobs RA, Lundby AK, Adlesic M, Hejhal T, Wild PJ, Lundby C, Frew IJ: Formation of renal cysts and tumors in Vhl/Trp53-deficient mice requires HIF-1a and HIF-2a. Cancer Res 76(7): 2025-2036, 2016

Schönenberger D, Rajski M, Harlander S, Frew IJ: Vhl deletion in renal epithelia causes HIF-1a-dependent, HIF-2a-independent angiogenesis and constitutive diuresis. Oncotarget [Epub ahead of print], 2016

Schuler B, Arras M, Keller S, Rettich A, Lundby C, Vogel J, Gassmann M: Optimal hematocrit for maximal exercise performance in acute and chronic erythropoietin-treated mice. Proc Natl Acad Sci U S A 107(1): 419-423, 2010

Schuler B, Vogel J, Grenacher B, Jacobs RA, Arras M, Gassmann M: Acute and chronic elevation of erythropoietin in the brain improves exercise performance in mice without inducing erythropoiesis. FASEB J 26(9): 3884-90, 2012

Schulz N, Dave MH, Stehberger PA, Chau T, Wagner CA : Differential localization of vacuolar H+-ATPases containing a1, a2, a3, or a4 (ATP6V0A4) subunit isoforms along the nephron. Cell Physiol Biochem 20 (1-4): 109-120, 2007

Segura J, Lundby C: Blood doping: potential of blood and urine sampling to detect autologous transfusion. Br J Sports Med 48(10): 837-41, 2014

Siebenmann C, Bloch KE, Lundby C, Nussbamer-Ochsner Y, Schoeb M, Maggiorini M: Dexamethasone improves maximal exercise capacity of individuals susceptible to high altitude pulmonary edema at 4559 m. High Alt Med Biol 12(2): 169-77, 2011

Siebenmann C, Cathomen A, Hug M, Keiser S, Lundby AK, Hilty MP, Goetze JP, Rasmussen P, Lundby C: Hemoglobin mass and intravascular volume kinetics during and after exposure to 3,454 m altitude. J Appl Physiol 119(10): 1194-201, 2015

Siebenmann C, Hug M, Keiser S, Müller A, van Lieshout J, Rasmussen P, Lundby C: Hypovolemia explains the reduced stroke volume at altitude. Physiol Rep 1(5): e00094, 2013

Siebenmann C, Lundby C: Regulation of cardiac output in hypoxia. Scand J Med Sci Sports 25 Suppl 4: 53-9, 2015

Siebenmann C, Rasmussen P, Hug M, Keiser S, Flück D, Fisher JP, Hilty MP, Maggiorini M, Lundby C: Parasympathetic withdrawal increases heart rate after 2 weeks at 3454 m altitude. J Physiol 595(5): 1619-1626, 2017

Siebenmann C, Rasmussen P, Sørensen H, Bonne TC, Zaar M, Aachmann-Andersen NJ, Nordsborg NB, Secher NH, Lundby C: Hypoxia increases exercise heart rate despite combined inhibition of ß-adrenergic and muscarinic receptors. Am J Physiol Heart Circ Physiol 308(12): H1540-6, 2015

Siebenmann C, Rasmussen P, Sørensen H, Zaar M, Hvidtfeldt M, Pichon A, Secher NH, Lundby C: Cardiac output during exercise: A comparison of four methods. Scand J Med Sci Sports 25(1): e20-7, 2015

Siebenmann C, Robach P, Jacobs RA, Rasmussen P, Nordsborg N, Diaz V, Christ A, Olsen NV, Maggiorini M, Lundby C: "Live high-train low" using normobaric hypoxia: a double-blinded, placebo-controlled study. J Appl Physiol 112(1): 106-17, 2012

Siebenmann C, Sørensen H, Jacobs RA, Haider T, Rasmussen P, Lundby C: Hypocapnia during hypoxic exercise and its impact on cerebral oxygenation, ventilation and maximal whole body O(2) uptake. Respir Physiol Neurobiol 185(2): 461-7, 2013

Sørensen H, Rasmussen P, Siebenmann C, Zaar M, Hvidtfeldt M, Ogoh S, Sato K, Kohl-Bareis M, Secher NH, Lundby C: Extra-cerebral oxygenation influence on near-infrared-spectroscopy-determined frontal lobe oxygenation in healthy volunteers: a comparison between INVOS-4100 and NIRO-200NX. Clin Physiol Funct Imaging 35(3): 177-84, 2015

Sørensen H, Secher NH, Siebenmann C, Nielsen HB, Kohl-Bareis M, Lundby C, Rasmussen P: Cutaneous Vasoconstriction Affects Near-infrared Spectroscopy Determined Cerebral Oxygen Saturation during Administration of Norepinephrine. Anesthesiology [Epub ahead of print]: , 2012

Sorrentino SA, Besler C, Rohrer L, Meyer M, Heinrich K, Bahlmann FH, Mueller M, Horváth T, Doerries C, Heinemann M, Flemmer S, Markowski A, Manes C, Bahr MJ, Haller H, von Eckardstein A, Drexler H, Landmesser U: Endothelial-vasoprotective effects of high-density lipoprotein are impaired in patients with type 2 diabetes mellitus but are improved after extended-release niacin therapy. Circulation 121 (1): 110-22, 2010

Spalinger MR, Kasper S, Chassard C, Raselli T, Frey-Wagner I, Gottier C, Lang S, Atrott K, Vavricka SR, Mair F, Becher B, Lacroix C, Fried M, Rogler G, Scharl M: PTPN2 controls differentiation of CD4+ T cells and limits intestinal inflammation and intestinal dysbiosis. Mucosal Immunol 8(4): 918-29, 2014

Spalinger MR, Kasper S, Gottier C, Lang S, Atrott K, Vavricka SR, Scharl S, Raselli T, Frey-Wagner I, Gutte PM, Grütter MG, Beer HD, Contassot E, Chan AC, Dai X, Rawlings DJ, Mair F, Becher B, Falk W, Fried M, Rogler G, Scharl M: NLRP3 tyrosine phosphorylation is controlled by protein tyrosine phosphatase PTPN22. J Clin Invest. 126(11): 4388, 2016

Späti J, Chumbley J, Doerig N, Brakowski J, Grosse Holtforth M, Seifritz E, Spinelli S: Valence and agency influence striatal response to feedback in patients with major depressive disorder. J Psychiatry Neurosci 40(4): 140225, 2015

Speer T, Rohrer L, Blyszczuk P, Shroff R, Kuschnerus K, Kränkel N, Kania G, Zewinger S, Akhmedov A, Shi Y, Martin T, Perisa D, Winnik S, Müller MF, Sester U, Wernicke G, Jung A, Gutteck U, Eriksson U, Geisel J, Deanfield J, von Eckardstein A, Lüscher TF, Fliser D, Bahlmann FH, Landmesser U: Abnormal high-density lipoprotein induces endothelial dysfunction via activation of Toll-like receptor-2. Immunity 38(4): 754-68, 2013

Spichtig D, Zhang H, Mohebbi N, Pavik I, Petzold K, Stange G, Saleh L, Edenhofer I, Segerer S, Biber J, Jaeger P, Serra AL, Wagner CA: Renal expression of FGF23 and peripheral resistance to elevated FGF23 in rodent models of polycystic kidney disease. Kidney Int 85(6): 1340-50, 2014

Spliethoff K, Meier D, Aeberli I, Gassmann M, Langhans W, Maggiorini M, Lutz TA, Goetze O: Reduced insulin sensitivity as a marker for acute mountain sickness. High Alt Med Biol 14(3): 240-50, 2013

Spohn G, Arenas-Ramirez N, Bouchaud G, Boyman O: Endogenous polyclonal anti-IL-1 antibody responses potentiate IL-1 activity during pathogenic inflammation. Journal of Allergy and Clinical Immunology [Epub ahead of print], 2016

Stadelmann K, Latshang TD, Lo Cascio CM, Clark RA, Huber R, Kohler M, Achermann P, Bloch KE: Impaired postural control in healthy men at moderate altitude (1630 m and 2590 m): data from a randomized trial. PLoS One 10(2): e0116695, 2015

Stadelmann K, Latshang TD, Lo Cascio CM, Tesler N, Stoewhas AC, Kohler M, Bloch KE, Huber R, Achermann P: Quantitative Changes in the Sleep EEG at Moderate Altitude (1630 m and 2590 m). PLoS One 8(10): e76945, 2013

Stadelmann K, Latshang TD, Nussbaumer-Ochsner Y, Tarokh L, Ulrich S, Kohler M, Bloch KE, Achermann P: Impact of acetazolamide and CPAP on cortical activity in obstructive sleep apnea patients. PLoS One 9(4): e93931, 2014

Stadelmann K, Latshang TD, Tarokh L, Lo Cascio CM, Tesler N, Stoewhas AC, Kohler M, Bloch KE, Huber R, Achermann P: Sleep respiratory disturbances and arousals at moderate altitude have overlapping electroencephalogram spectral signatures. J Sleep Res 23(4): 463-8, 2014

Stehberger PA, Shmukler BE, Stuart-Tilley AK, Peters LL, Alper SL, Wagner CA : Distal Renal Tubular Acidosis in Mice Lacking the AE1 (Band3) Cl-/HCO3- Exchanger (slc4a1). J Am Soc Nephrol 18 (5): 1408-18, 2007

Stein S, Lohmann C, Handschin C, Stenfeldt E, Borén J, Lüscher TF, Matter CM: ApoE-/- PGC-1a-/- mice display reduced IL-18 levels and do not develop enhanced atherosclerosis. PLoS ONE 5(10): e13539, 2010

Stein S, Lohmann C, Handschin C, Stenfeldt E, Borén J, Lüscher TF, Matter CM: ApoE-/- PGC-1α-/- mice display reduced IL-18 levels and do not develop enhanced atherosclerosis. PLoS ONE 5(10): e13539, 2010

Stein S, Lohmann C, Schäfer N, Hofmann J, Rohrer L, Besler C, Rothgiesser KM, Becher B, Hottiger MO, Borén J, McBurney MW, Landmesser U, Lüscher TF, Matter CM: SIRT1 decreases Lox-1-mediated foam cell formation in atherogenesis. Eur Heart J 31 (18): 2301-9, 2010

Stein S, Matter CM: Protective roles of SIRT1 in atherosclerosis. Cell Cycle 10 (4) : 640-647, 2011

Stein S, Schäfer N, Breitenstein A, Besler C, Winnik S, Lohmann C, Heinrich K, Brokopp CE, Handschin C, Landmesser U, Tanner FC, Lüscher TF, Matter CM: SIRT1 reduces endothelial activation without affecting vascular function in ApoE-/- mice. Aging (Albany NY) 2(6): 353-60, 2010

Stein S, Schäfer N, Breitenstein A, Besler C, Winnik S, Lohmann C, Heinrich K, Brokopp CE, Handschin C, Landmesser U, Tanner FC, Lüscher TF, Matter CM: SIRT1 reduces endothelial activation without affecting vascular function in ApoE-/- mice. Aging (Albany NY) 2(6): 353-60, 2010

Stöwhas AC, Latshang TD, Lo Cascio CM, Lautwein S, Stadelmann K, Tesler N, Ayers L, Berneis K, Gerber PA, Huber R, Achermann P, Bloch KE, Kohler M: Effects of acute exposure to moderate altitude on vascular function, metabolism and systemic inflammation. PLoS One 8(8): e70081, 2013

Sugano Y, Lindenmeyer MT, Auberger I, Ziegler U, Segerer S, Cohen CD, Neuhauss SC, Loffing J: The Rho-GTPase binding protein IQGAP2 is required for the glomerular filtration barrier. Kidney Int 88(5): 1047-56, 2015

Sugano Y, Neuhauss SC: Reverse genetics tools in zebrafish: A forward dive into endocrinology. Gen Comp Endocrinol 188: 303-8, 2013

Sutter I, Klingenberg R, Othman A, Rohrer L, Landmesser U, Heg D, Rodondi N, Mach F, Windecker S, Matter CM, Lüscher TF, von Eckardstein A, Hornemann T: Decreased phosphatidylcholine plasmalogens - A putative novel lipid signature in patients with stable coronary artery disease and acute myocardial infarction. Atherosclerosis 246: 130-40, 2016

Sutter I, Park R, Othman A, Rohrer L, Hornemann T, Stoffel M, Devuyst O, von Eckardstein A: Apolipoprotein M modulates erythrocyte efflux and tubular reabsorption of sphingosine-1-phosphate. J Lipid Res 55(8): 1730-1737, 2014

Sutter I, Velagapudi S, Othman A, Riwanto M, Manz J, Rohrer L, Rentsch K, Hornemann T, Landmesser U, von Eckardstein A: Plasmalogens of high-density lipoproteins (HDL) are associated with coronary artery disease and anti-apoptotic activity of HDL. Atherosclerosis 241(2): 539-46, 2015

Tesler N, Latshang TD, Lo Cascio CM, Stadelmann K, Stoewhas AC, Kohler M, Bloch KE, Achermann P, Huber R: Ascent to moderate altitude impairs overnight memory improvements. Physiol Behav 139: 121-6, 2015

Thumfart J, Jung S, Amasheh S, Krämer S, Peters H, Sommer K, Biber J, Murer H, Meij I, Querfeld U, Wagner CA, Müller D: Magnesium stimulates renal phosphate reabsorption. Am J Physiol Renal Physiol 295 (4): 1126-33, 2008

Todkar A, Di Chiara M, Loffing-Cueni D, Bettoni C, Mohaupt M, Loffing J, Wagner CA: Aldosterone deficiency adversely affects pregnancy outcome in mice. Pflugers Arch 464(4): 331-43, 2012

Todkar A, Picard N, Loffing-Cueni D, Sorensen MV, Mihailova M, Nesterov V, Makhanova N, Korbmacher C, Wagner CA, Loffing J: Mechanisms of Renal Control of Potassium Homeostasis in Complete Aldosterone Deficiency. J Am Soc Nephrol 26(2): 425-38, 2015

Traber GL, Chen CC, Huang YY, Spoor M, Roos J, Frens MA, Straumann D, Grimm C: Albino mice as an animal model for infantile nystagmus syndrome. Invest Ophthalmol Vis Sci 53(9): 5737-47, 2012

Urner M, Herrmann IK, Booy C, Roth-Z' Graggen B, Maggiorini M, Beck-Schimmer B: Effect of hypoxia and dexamethasone on inflammation and ion transporter function in pulmonary cells. Clin Exp Immunol 169(2): 119-28, 2012

Vallelian F, Deuel JW, Opitz L, Schaer CA, Puglia M, Lönn M, Engelsberger W, Schauer S, Karnaukhova E, Spahn DR, Stocker R, Buehler PW, Schaer DJ: Proteasome inhibition and oxidative reactions disrupt cellular homeostasis during heme stress. Cell Death Differ 22(4): 597-611, 2015

Valomon A, Holst SC, Bachmann V, Viola A, Schmidt C, Zürcher J, Berger W, Cajochen C, and Landolt HP: Genetic polymorphisms of DAT1 and COMT differentially associate with actigraphy-derived sleep–wake cycles in young adults. Chronobiol Int 31(5): 705-14, 2014

Vavricka S, Ruiz PA, Scharl S, Biedermann L, Scharl M, de Vallière C, Lundby C, Wenger RH, Held L, Merz TM, Gassmann M, Lutz T, Kunz A, Bron D, Fontana A, Strauss L, Weber A, Fried M, Rogler G, Zeitz J: Protocol for a prospective, controlled, observational study to evaluate the influence of hypoxia on healthy volunteers and patients with inflammatory bowel disease: the Altitude IBD Study. BMJ Open 7(1): e013477, 2017

von Eckardstein A, Rohrer L: Transendothelial lipoprotein transport and regulation of endothelial permeability and integrity by lipoproteins. Curr Opin Lipidol 20 (3): 197-205, 2009

von Eckardstein A, Sibler RA: Possible contributions of lipoproteins and cholesterol to the pathogenesis of diabetes mellitus type 2. Curr Opin Lipidol. 22(1): 26-32, 2011

Vuille-Dit-Bille RN, Camargo SM, Emmenegger L, Sasse T, Kummer E, Jando J, Hamie QM, Meier CF, Hunziker S, Forras-Kaufmann Z, Kuyumcu S, Fox M, Schwizer W, Fried M, Lindenmeyer M, Götze O, Verrey F: Human intestine luminal ACE2 and amino acid transporter expression increased by ACE-inhibitors. Amino Acids 47(4): 693-705, 2015

Wagner C A, Murer H: Phosphatonine - neuartige Phosphathormone. Schweizerisches Medizin-Forum 1-2 (8): 8-10, 2008

Wagner CA : Disorders of renal magnesium handling explain renal magnesium transport. J Nephrol 20 (5): 507-510, 2007

Wagner CA : Metabolic acidosis: new insights from mouse models. Curr Opin Nephrol Hypertens 16 (5): 471-476, 2007

Wagner CA : The emerging role of pendrin in renal chloride reabsorption. Editorial focus. . Am J Physiol Renal Physiol 292: F912-913, 2007

Wagner CA, Biber J, Murer H: Of men and mice: who is in control of renal phosphate reabsorption?. J Am Soc Nephrol 19 (9): 1625-6, 2008

Wagner CA, Biber J, Murer H: What goes in must go out: the small intestine modulates renal phosphate excretion. Editorial. Nephrol Dial Transplant 22: 3411-3412, 2007

Wagner CA, Devuyst O, Bourgeois S, Mohebbi N: Regulated acid-base transport in the collecting duct. Pflugers Arch 458(1): 137-56, 2009

Wagner CA, Kovacikova J, Stehberger PA, Winter C, Benabbas C, Mohebbi N: Renal Acid-Base Transport: Old and New Players. Nephron Physiol 103: 1-6, 2006

Wagner CA, Loffing-Cueni D, Yan Q, Schulz N, Fakitsas P, Carrel M, Wang T, Verrey F, Geibel JP, Giebisch G, Hebert SC, Loffing J: Mouse model of type II Bartter's syndrome. II. Altered expression of renal sodium- and water-transporting proteins. Am J Physiol Renal Physiol 294 (6): F1373-80, 2008

Wagner CA: How much is blood pressure in the general population determined by rare mutations in renal salt-transporting proteins?. J Nephrol 21 (5): 632-4, 2008

Wagner CA: Hydrogen sulfide: a new gaseous signal molecule and blood pressure regulator. J Nephrol 22(2): 173-76, 2009

Wagner CA: News from the cyst: insights into polycystic kidney disease. J Nephrol 21 (1): 14-6, 2008

Wagner CA: Novel insights into the regulation of systemic phosphate homeostasis and renal phosphate excretion. Editorial focus. J Nephrol 20: 130-134, 2007

Wagner CA: When proton pumps go sour: Urinary acidification and kidney stones. Kindey Int 73 (10): 1103-5, 2008

Wagner J, Riwanto M, Besler C, Knau A, Fichtlscherer S, Röxe T, Zeiher AM, Landmesser U, Dimmeler S: Characterization of levels and cellular transfer of circulating lipoprotein-bound microRNAs. Arterioscler Thromb Vasc Biol 33(6): 1392-400, 2013

Walch M, Latinovic-Golic S, Velic A, Sundstrom H, Dumrese C, Wagner CA, Groscurth P, Ziegler U : Perforin enhances the granulysin-induced lysis of Listeria innocua in human dendritic cells. BMC Immunology 8: 1-14, 2007

Walsh S, Turner CM, Toye A, Wagner C, Jaeger P, Laing C, Unwin R: Immunohistochemical comparison of a case of inherited distal renal tubular acidosis (with a unique AE1 mutation) with an acquired case secondary to autoimmune disease. Nephrol Dial Transplant 22 (3): 807-812, 2007

Wehrle FM, Kaufmann L, Benz LD, Huber R, OGorman RL, Latal B, Hagmann CF: Very preterm adolescents show impaired performance with increasing demands in executive function tasks. Early Hum Dev 92: 37-43, 2016

Wei N, Pan J, Pop-Busui R, Othman A, Alecu I, Hornemann T, Eichler FS: Altered sphingoid base profiles in type 1 compared to type 2 diabetes. Lipids Health Dis 13: 161, 2014

Weiss GA, Chassard C, Hennet T: Selective proliferation of intestinal Barnesiella under fucosyllactose supplementation in mice. Br J Nutr 10: 1-9, 2014

Weiss GA, Troxler H, Klinke G, Rogler D, Braegger C, Hersberger M: High levels of anti-inflammatory and pro-resolving lipid mediators lipoxins and resolvins and declining docosahexaenoic acid levels in human milk during the first month of lactation. Lipids Health Dis 12: 89, 2013

Wellmann S, Benzing J, Fleischlin S, Morgenthaler N, Fouzas S, Bührer CA, Szinnai G, Burkhardt T, Lapaire O: Cardiovascular biomarkers in preeclampsia at triage. Fetal Diagn Ther 36(3): 202-7, 2014

Werner H, Lebourgeois MK, Geiger A, Jenni OG: Assessment of chronotype in four- to eleven-year-old children: reliability and validity of the Children's Chronotype Questionnaire (CCTQ). Chronobiol Int 26 (5): 992-1014, 2009

Wild PJ, Ikenberg K, Fuchs TJ, Rechsteiner M, Georgiev S, Fankhauser N, Noske A, Roessle M, Caduff R, Dellas A, Fink D, Moch H, Krek W, Frew IJ: p53 suppresses type II endometrial carcinomas in mice and governs endometrial tumour aggressiveness in humans. EMBO Mol Med 4(8): 808-24, 2012

Winnik S, Gaul DS, Preitner F, Lohmann C, Weber J, Miranda MX, Liu Y, van Tits LJ, Mateos JM, Brokopp CE, Auwerx J, Thorens B, Lüscher TF, Matter CM: Deletion of Sirt3 does not affect atherosclerosis but accelerates weight gain and impairs rapid metabolic adaptation in LDL receptor knockout mice: implications for cardiovascular risk factor development. Basic Res Cardiol 109(1): 399, 2014

Winnik S, Gaul DS, Siciliani G, Lohmann C, Pasterk L, Calatayud N, Weber J, Eriksson U, Auwerx J, van Tits LJ, Lüscher TF, Matter CM: Mild endothelial dysfunction in Sirt3 knockout mice fed a high-cholesterol diet: protective role of a novel C/EBP-ß-dependent feedback regulation of SOD2. Basic Res Cardiol 111(3): 33, 2016

Winnik S, Lohmann C, Siciliani G, von Lukowicz T, Kuschnerus K, Kraenkel N, Brokopp CE, Enseleit F, Michels S, Ruschitzka F, Lüscher TF, Matter CM: Systemic VEGF inhibition accelerates experimental atherosclerosis and disrupts endothelial homeostasis--implications for cardiovascular safety. Int J Cardiol 168(3): 2453-61, 2013

Winnik S, Stein S, Matter CM: SIRT1 - an anti-inflammatory pathway at the crossroads between metabolic disease and atherosclerosis. Curr Vasc Pharmacol 10(6): 693-6, 2012

Wojtal KA, Cee A, Lang S, Götze O, Frühauf H, Geier A, Pastor-Anglada M, Torres-Torronteras J, Martí R, Fried M, Lutz TA, Maggiorini M, Gassmann M, Rogler G, Vavricka SR: Downregulation of duodenal SLC transporters and activation of proinflammatory signaling constitute the early response to high altitude in humans. Am J Physiol Gastrointest Liver Physiol 307(7): G673-88, 2015

Wueest S, Rapold RA, Schumann DM, Rytka JM, Schildknecht A, Nov O, Chervonsky AV, Rudich A, Schoenle EJ, Donath MY, Konrad D: Deletion of Fas in adipocytes relieves adipose tissue inflammation and hepatic manifestations of obesity in mice. J Clin Invest 120(1): 191-202, 2010

Wyss CA, Neidhart M, Altwegg L, Spanaus KS, Yonekawa K, Wischnewsky MB, Corti R, Kucher N, Roffi M, Eberli FR, Amann-Vesti B, Gay S, von Eckardstein A, Lüscher TF, Maier W: Cellular actors, Toll-like receptors, and local cytokine profile in acute coronary syndromes. Eur Heart J 31(12): 1457-69, 2010

Yakushev S, Band M, Tissot van Patot M, Gassmann M, Avivi A, Bogdanova A: Cross-talk between S-nitrosylation and S-glutathionylation in control of the Na,K-ATPase regulation in hypoxic heart. Am J Physiol Heart Circ Physiol 303(11): H1332-43, 2012

Zahnleiter D, Hauer NN, Kessler K, Uebe S, Sugano Y, Neuhauss SC, Giessl A, Ekici AB, Blessing H, Sticht H, Dörr HG, Reis A, Thiel CT: MAP4-dependent regulation of microtubule formation affects centrosome, cilia, and Golgi architecture as a central mechanism in growth regulation. Hum Mutat 36(1): 87-97, 2015

Zuellig RA, Hornemann T, Othman A, Hehl AB, Bode H, Güntert T, Ogunshola OO, Saponara E, Grabliauskaite K, Jang JH, Ungethuem U, Wei Y, von Eckardstein A, Graf R, Sonda S: Deoxysphingolipids, a novel biomarker for type 2 diabetes, are cytotoxic for insulin-producing cells. Diabetes 63(4): 1326-39, 2014

B Scientific and public events

Scientific events

Annual symposia

- September 29-30, 2005: **Opening symposium.** Keynote lectures:
  - **Opening lecture:** C. elegans: A Rosetta Stone for deciphering the human genetic blueprint
    Kevin Strange, Vanderbilt University, Nashville, USA
  - Human research in hypoxia between bench and bedside
    Peter Bärtsch, Medical University Clinic, Heidelberg, Germany
  - Vestibular loss causes hippocampal atrophy and impaired spatial memory in humans
    Thomas Brandt, Neurological Clinic, Ludwig-Maximilian-University Munich, Germany
  - Glucose as a signal to control glucose and energy homeostasis
    Bernard Thorens, Department of Pharmacology and Toxicology, University of Lausanne
  - Integrative human physiology and the cardiovascular system - a step into the future?
    Thomas Lüscher, Cardiology, UZH

- September 22, 2006: **2nd annual main symposium.** Keynote lectures:
  - Endothelium-dependent contractions revisited
    Paul M. Vanhoutte, Department of Pharmacology, University of Hong Kong, China
  - Structural and functional plasticity of skeletal muscle tissue and its molecular basis
    Hans Hoppeler, Institute of Anatomy, University of Bern, Switzerland
  - The diverse functions of the serum and glucocorticoid inducible kinase
    Florian Lang, Institute of Physiology, University of Tübingen, Germany
  - Artificial gravity - an integrative solution for long duration space flights
    Laurence R. Young, Massachusetts Institute of Technology, Cambridge, USA

- August 31, 2007: **3rd annual main symposium.** Keynote lectures:
  - Molecular mechanisms of plaque instability
    Mat J.A.P. Daemen, Department of Pathology, University of Maastricht, Netherlands
  - Brain, balance and behavior
    Adolfo M. Bronstein, Division of Neurosciences and Mental Health, Imperial College London, UK
  - Leptin resistance in melanocortin circuits
    Michael A. Cowley, Oregon National Primate Research Center, Beaverton, USA
  - TOR signaling and control of cell growth
    Michael N. Hall, Biozentrum, University of Basel, Switzerland

- August 22, 2008: **4th annual main symposium.** Keynote lectures:
  - Immune mechanisms in atherosclerosis
    Göran K. Hansson, Department of Medicine, Karolinska University Hospital, Stockholm, Sweden
  - Sleep from mice to humans: a genetic approach
    Mehdi Tafti, Center for Integrative Genomics, University of Lausanne, Switzerland
  - Hypothalamic control of energy homeostasis
    Jens C. Brüning, Institute for Genetics, University of Cologne, Germany
  - Genetic insights into the VHL-PHD-HIF oxygen response pathway
    Patrick H. Maxwell, Division of Medicine, University College London, The Rayne Institute, London, UK

- August 28, 2009: **5th annual main symposium.** Keynote lectures:
  - Inflammation as key player in atherosclerosis
    François Mach, Cardiology Department, Geneva University Hospital, Geneva, Switzerland
  - Hypoxia – Inflammation crossing: Where to go?
    Joachim Fandrey, Institute of Physiology, University of Duisburg-Essen, Essen, Germany
  - The nitric oxide/nitrite cycle in human physiology
    Alan N. Schechter, Molecular Medicine Branch of the National Institutes of Diabetes and Digestive and Kidney Diseases (NIH, NIDDK), Bethesda, USA
  - Water and solute transport across biological membranes: One hundred years of Overton's rule
    Olivier Devuyst, Division of Nephrology, UCL Medical School, Brussels, Belgium

- August 27, 2010: **6th annual main symposium.** Keynote lectures:
  - Minerals in motion: from new transporters towards new concepts
    Prof. René J. M. Bindels, Nijmegen Centre for, Molecular Life Sciences, Radboud University Nijmegen, the Netherlands
  - Powerlines for muscle work: Structural design and functional integration in the oxygen and fuel pathways
    Prof. Ewald R. Weibel, Institute of Anatomy, University of Bern, Switzerland
  - Functional imaging of the brain: a window into the human vestibular system
    Prof. Marianne Dieterich, Department of Neurology, Ludwig-Maximilians University of Munich, Germany
  - Cofactor networks in the control of metabolism
    Prof. Johan Auwerx, Laboratory of Integrative Systems Physiology (LISP), EPFL, Switzerland

- August 26, 2011: **7th annual main symposium.** Keynote lectures:
  - Differential and integral views of genetics in the context of systems biology
    Prof. Denis Noble, Cardiovascular Physiology, University of Oxford, UK
  - Risky communication in atherosclerosis
    Prof. Brenda Kwak, Department of Pathology and Immunology, University of Geneva, Switzerland
  - Skeletal muscle as an endocrine organ
    Prof. Bente Klarlund Pedersen, Centre of Inflammation and Metabolism (CIM), Righospitalet, Copenhagen, Denmark:
  - Potassium channels: Critical determinants of adrenal hormone secretion
    Prof. Richard Warth, Department of Physiology, University of Regensburg, Germany

- August 24, 2012: **8th annual main symposium.** Keynote lectures:
  - Circadian rhythms, sleep and cognition: an integrative and multidisciplinary approach
    Prof. Derk-Jan Dijk, Surrey Sleep Research Centre, University of Surrey, UK
  - Nuclear receptor control of the metabolic syndrome and its cardiovascular complications
    Prof. Bart Staels, Faculty of Pharmacy, University of Lille, France
  - TOR signaling in growth and metabolism
    Prof. Michael N. Hall, Biozentrum, University of Basel, Switzerland
  - What have we learned from congenital polycythemias and Tibetan adaption to high altitude?
    Prof. Josef T. Prchal, Hematology Division, Internal Medicine Department, University of Utah, USA

- August 23, 2013: **9th annual main symposium.** Keynote lectures:
    - Interorgan communication in the control of pancreatic beta-cell mass and function
      Prof. Bernard Thorens, Center for Integrative Genomics, University of Lausanne, Switzerland
    - Cellular mechanisms of skeletal muscle fatigue
      Prof. Håkan Westerblad, Department of Physiology and Pharmacology, Karolinska Institute, Stockholm, Sweden
    - Stress and the programming of brain function and behavior – A focus on aggression
      Prof. Carmen Sandi, Laboratory of Behavioral Genetics, EPFL Lausanne, Switzerland
    - Signaling regulation of endothelial permeability
      Prof. Asrar B. Malik, Center for Lung and Vascular Biology, University of Illinois, Chicago, USA

- August 29, 2014: 10th **annual main symposium.** Keynote lectures:
    - Fraud, plagiarism, and other "minor" problems in science
      Dr. Ton de Craen, Department of Internal Medicine, Leiden University Medical Center, the Netherlands
    - A look into the genome of myocardial infarction
      Prof. Heribert Schunkert, German Heart Center, Munich, Germany
    - Still the better polypill: exercise
      Prof. Bengt Kayser, Institute of Sports Sciences, University of Lausanne

- August 21, 2015: 11th **annual main symposium.** Keynote lectures:
    - Elucidation of oxygen sensing pathways: Implications for physiology and medicine
      Prof. Sir Peter Ratcliffe, Nuffield Department of Medicine, University of Oxford, UK
    - NoncodingRNAs in cardiac (patho)physiology
      Prof. Dr. Dr. Thomas Thum, Institute of Molecular and Translational Therapeutic Strategies (IMTTS), Hannover Medical School, Germany
    - Drugs and placebos: What's the difference?
      Prof. Dr. Fabrizio Benedetti, National Institute of Neuroscience, University of Turin, Italy
    - Klotho: Calcium-phosphate metabolism and aging
      Prof. Dr. Florian Lang, Institute of Physiology, University of Tübingen, Germany

- August 26, 2016: 12th **annual main symposium.**

  Keyonote lectures:
  - The relevance of brown adipose tissue for metabolic health
    Prof. Dr. Joerg Heeren, Institute for Biochemistry and Molecular Cell Biology, University Medical Center Hamburg-Eppendorf, Germany
  - Proteomic variability: Measurement and phenotypic consequences
    Prof. Dr. Ruedi Aebersold, Institute of Molecular Systems Biology, ETH Zurich
  - The new era of Cognitive Computing: Smart Machines
    Dr. Matthias Kaiserswerth, Former Director, IBM Research – Zurich, now Managing Director of the Hasler Foundation, Bern

  Farewell lectures:
  - What did we achieve in those years?
    Prof. Dr. Carsten Lundby, ZIHP Professor, Institute of Physiology, UZH
  - Interplay between HIF-alpha transcription factors, primary cilia and cell cycle tumour suppressor genes in clear cell renal cell carcinoma
    Prof. Dr. Ian Frew, ZIHP Professor, Institute of Physiology, UZH

  Special session «From academia to spin-off»:
  - Dr. David Fluri, InSphero AG, Schlieren
  - Prof. Dr. Emanuela Keller, NeMoDevices – Insights inside the brain, Zurich

  Concluding remarks:
  - The future of integrative and translational research
    Prof. Dr. Alan Schechter, Molecular Medicine Branch, NIDDK, National Institutes of Health, Bethesda, MD, USA, Member of the ZIHP Advisory Board

Mini-symposia

- June 25, 2008: **1st mini-symposium on translational research from bench to bedside**: Gastroenterology

- April 16, 2010: **2nd mini-symposium on translational research from bench to bedside**: «The microvasculature during tissue growth, tissue regression and hypoxia».

- June 11, 2010: **Symposium in honor of Prof. Heini Murer.** *In cooperation with the Institute of Physiology and the University of Zurich*

- November 21, 2011: **3rd mini-symposium on translational research from bench to bedside**: «Visualizing men and mammals: Zurich's imaging experts meet». *In cooperation with the Institute of Forensic Medicine*

Seminar series in integrative human physiology

- October 25, 2005: New anti-inflammatory strategies to reduce atherosclerosis
  Prof. François Mach, Division of Cardiology, University Hospital, Geneva

- November 8, 2005: Alveolar responses to hypoxia
  Prof. Heimo Mairbäurl, Universität Heidelberg, Deutschland

- November 22, 2005: Diabetes, obesity and metabolic syndrome
  Prof. Steve Woods, University of Cincinatti, USA

- December 6, 2005: Recording single neurons in the hum
  Prof. Cristof Koch, Division of Biology, Caltech, Pasadena, CA, USA

- December 20, 2005: Kinins and flow-mediated vascular dilatation
  Chantal M. Boulanger, INSERM, Centre de Recherche Cardiovasculaire Lariboisière, Paris

- January 17, 2006: Deep tissue imaging using 2-photon microscopy
  Prof. Fritjof Helmchen, Institut für Hirnforschung, Universität Zürich

- January 31, 2006: Visualizing the hypoxic response in mammalian cells
  Prof. Joachim Fandrey, Universität Essen, Deutschland

- March 14, 2006: Lox is essential for hypoxia-induced metastasis
  Prof. Amato Giaccia, Department of Radiation Oncology, Stanford University School of Medicine, USA

- April 4, 2006: Exploring the human circadian clock: from behavior to cells to genes and back again
  Dr. Steven A. Brown, Institute for Immunology, Charité-Humboldt University, Berlin, Germany

- April 18, 2006: Understanding Von Hippel-Lindau disease through mouse models
  Dr. Ian J. Frew, Institute of Cell Biology, ETH Zurich

- May 2, 2006: Non-invasive imaging in rodents: towards molecular readouts
  Prof. Markus Rudin, Institute of Biomedical Engineering, University and ETH Zurich

- May 16, 2006: Branching tubes: common theme in the development of epithelial organs
  Prof. Markus Affolter, Division of Cell Biology, Biozentrum, University Basel

- May 30, 2006: Visual images of the body and the multisensory construction of the body schema
  Prof. Francesco Pavani, Department of Cognitive Sciences and Education, University of Trento, Italy

- June 13, 2006: Progenitor cells for cardiovascular repair: molecular mechanisms and clinical relevance
  Prof. Stephanie Dimmeler, Molecular Cardiology, University Frankfurt, Germany

- June 27, 2006: Does the brain become hypoxic during exhaustive exercise?
  Prof. Niels H. Secher, Department of Anaesthesiology, Rigshospitalet Copenhagen, Denmark

- October 24, 2006: Receptors for protons or lipid messengers or both?
  Dr. Klaus Seuwen, Novartis Institutes for Biomedical Research, Basel, Switzerland

- November 7, 2006: Thermophysiology and sleep in humans
  Kurt Kräuchi, Centre for Chronobiology, Psychiatric University Clinics Basel, Switzerland

- November 21, 2006: Adhesion molecules and tissue architecture
  Prof. Therese J. Resink, Department of Research University Hospital Basel, Switzerland

- December 5, 2006: Vascular effects of alveolar hypoxia
  PD Dr. Norbert Weissmann, Justus-Liebig-University Giessen, Germany

- December 19, 2006: Gastrointestinal satiety signals in humans
  Prof. Christoph Beglinger, Gastroenterology and Hepatology, University Hospital Basel, Switzerland

- January 16, 2007: Human path integration: space, time, and memory
  Dr. Stefan Glasauer, Center for Sensorimotor Research, Ludwig-Maximilians-University Munich

- January 30, 2007: Novel roles for connexins in cardiovascular disease
  Prof. Brenda R. Kwak, Division of Cardiology, University Hospital Geneva, Switzerland

- March 20, 2007: Cerebral blood flow: where, when and why?
  Prof. Bruno Weber, Institut für Pharmakologie und Toxikologie, Universität Zürich

- April 3, 2007: Molecular mechanisms involved in immune cell migration across the blood-brain barrier during health and disease
  Prof. Britta Engelhardt, Theodor Kocher Institut, Universität Bern

- April 17, 2007: Muscle adaptations to endurance and resistance exercise: Molecular mechanisms
  Prof. Henning Wackerhage, School of Medical Sciences, University of Aberdeen, UK

- May 8, 2007: Multifaceted roles of PPARs in tissue repair and metabolism
  Prof. Walter Wahli, Center for Integrative Genomics, Universität Lausanne

- May 22, 2007: Regulatory roles of miRNAs in metabolism
  Prof. Markus Stoffel, Institut für Molekulare Systembiologie, ETH Zürich

- June 5, 2007: Myoglobin, a multifunctional oxygen-binding protein
  Prof. Axel Gödecke, Heinrich-Heine-Universität Düsseldorf, Deutschland

- June 19, 2007: The Blue Brain Project: Reverse-engineering the neocortical column
  Dr. Sean Hill, IBM T. J. Watson Research Center, Yorktown Heights, New York and Brain Mind Institute EPFL

- September 25, 2007: Islet inflammation in type 2 diabetes: physiology, pathology and therapy
  Prof. Dr. Marc Y. Donath, Division of Endocrinology and Diabetes, University Hospital, Zurich

- October 9, 2007: Carbonic anhydrases and pH regulation in hypoxia (tentative)
  Prof. Dr. Silvia Pastorekova, University of Bratislava

- October 23, 2007: The role of mouth and gut taste systems in food preference and intake
  Prof. Dr. Antonio Sclafani, Department of Psychology, Brooklyn College of CUNY, Brooklyn, New York

- November 6, 2007: Understanding the physiology of endurance performance: the need for an integrative approach
  Prof. Dr. Bengt Kayser, Institut des sciences du mouvement et de la médecine du sport, Université de Genève

- November 20, 2007: Oxidant stress, progenitor cells and cardiovascular disease: novel therapeutic approaches?
  PD Dr. Ulf Landmesser, Hannover Medical School, Dept of Cardiology and Angiology, Hannover, Germany

- December 4, 2007: Hypoxia signalling pathways in the kidney – two sides of the coin
  PD Dr. Michael Wiesener, University Erlangen-Nürnberg

- December 18, 2007: Epithelial sodium channels in health and disease
  Prof. Dr. Bernard Rossier, Département de pharmacologie et de toxicologie, Université de Lausanne

- February 26, 2008: Cortical plasticity and sleep slow-waves explored by means of high-density EEG
  Prof. Dr. Reto Huber, Zentrum für Schlafmedizin, Kinderspital Zürich

- March 11, 2008: Regulation of NF-◎B-dependent gene expression by protein acetylation
  Prof. Dr. Michael O. Hottiger, Institut für Veterinärbiochemie und Molekularbiologie, Universität Zürich

- April 1, 2008: Towards high content screening of isolated cardiac myocytes
  Dr. Lars Kaestner, Institut für Molekulare Zellbiologie, Universität des Saarlandes, Homburg, Deutschland

- April 15, 2008: Autoimmune myocarditis: a model for inflammatory cardiomyopathy
  Prof. Dr. Urs Eriksson, Klinik für Kardiologie, UniversitätsSpital Zürich

- April 29, 2008: Motor learning in the oculomotor system
  Prof. Dr. Andreas Straube, Neurologische Klinik und Poliklinik, Universität München, Deutschland

- May 13, 2008: How the gut talks to the brain
  Dr. Carel W. Le Roux, Division of Investigative Science, Imperial College, London, UK

- May 27, 2008: The Psychobiology of Human Intelligence
  Prof. Dr. Aljoscha C. Neubauer, Leiter des Arbeitsbereichs Differentielle Psychologie und Persönlichkeitspsychologie, Institut für Psychologie, Universität Graz, Österreich

- September 23, 2008: Vascular Dysfunction: A «sandwich» injury
  Prof. Dr. Zhihong Yang, Departement Medizin, Abteilung für Physiologie, Universität Freiburg

- October 7, 2008: Thin air at the top
  Prof. Dr. Beatrice Beck Schimmer, Physiologisches Institut, Universität Zürich

- October 21, 2008: Extravasal circulation: what cannot be found in textbooks
  Prof. Johannes Vogel, Departement für Vet-Physiologie, Universität Zürich

- November 4, 2008: Synaptic disinhibition in chronic pain states
  Prof. Dr. Hans Ulrich Zeilhofer, Institut für Pharmakologie und Toxikologie, Universität Zürich

- November 18, 2008: Role of oxidative stress in tissue repair and cancer
  Prof. Dr. Sabine Werner, Institut für Zellbiologie, ETH Zurich

- December 2, 2008: Biomimetic materials for pro-angiogenic therapy
  PD Dr. Andreas Zisch, Klinik für Geburtshilfe, UniversitätsSpital Zürich

- December 16, 2008: Regulation of inflammatory gene expression in hypoxia
  Prof. Dr. Cormac Taylor, College of Life Sciences, School of Medicine & Medical Science, Conway Institute, Dublin, Ireland

- February 24, 2009: Assessment of motor function after spinal cord injury: implications for clinical trials
  Dr. Huub van Hedel, Paraplegikerzentrum Balgrist, Universitätsspital Zürich

- March 3, 2009: Pathophysiological role of estrogen metabolism: a new concept with potential implications in proliferative disorders
  Prof. Dr. Raghvendra Dubey, Kilinik für Reproduktions-Endokrinologie, Universitätsspital Zürich

- March 24, 2009: Importance of the Notch pathway in cardiac tissue homeostasis
  Prof. Dr. Thierry Pedrazzini, Departement für Medizin, Universität Lausanne

- April 4, 2009: Acetylation, methylation and micro-RNAs in epigenetic modifications
  Prof. Dr. Steffen Gay, Rheumaklinik, Universitätsspital Zürich

- April 28, 2009: Hypothalamic fatty acid synthesis and energy balance
  Prof. Dr. Tim Moran, Department of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA

- May 12, 2009: Integrative ocular motor physiology
  Prof. Dr. René Müri, Abteilung für Kognitive und Restorative Neurologie, Neurologische Universitätsklinik, Inselspital Bern

- May 26, 2009: Prolyl 4-hydroxylation – beyond collagens and hypoxia-inducible factor?
  Prof. Dr. Johanna Myllyharju, Biocenter Oulu and Institute of Biomedicine, Department of Medical Biochemistry and Molecular Biology, University of Oulu, Finland

- September 22, 2009: Hypoxia signaling in cardiac growth and metabolism
  Dr. Jaya Krishnan, Institut für Zellbiologie und Kompetenzzentrum für Systemphysiologie und Metabolische Krankheiten, ETH Zürich

- October 6, 2009: The intestinal innate immune system: TOLLerate or NOD?
  Prof. Dr. med. Dr. phil. Gerhard Rogler, Klinik für Gastroenterologie und Hepatologie, UniversitätsSpital Zürich

- October 20, 2009: Erythropoietin down-regulates threat processing in biomarker models of antidepressant drug action in healthy and depressed individuals
  Dr. Kamilla Miskowiak, Department of Psychiatry, Copenhagen University Hospital, Rigshospitalet, Copenhagen

- November 3, 2009: From risk factors to endothelial dysfunction: Putative intracellular signaling
  PD Dr. Francesco Cosentino, Klinik für Kardiologie, UniversitätsSpital Zürich

- November 17, 2009: Transcranial MR-guided focused ultrasound treatment in functional neurosurgery
  Prof. Dr. Daniel Jeanmonod, Medizinische Fakultät, Universität Zürich und Department of Physiology and Neuroscience, New York University School of Medicine

- December 1, 2009: The neurogenic vascular niche of the carotid body and its activation by hypoxia, Prof. Dr. José López-Barneo, Instituto de Biomedicina de Sevilla, Hospital Universitario Virgen del Rocío/CSIC/Universidad de Sevilla, Sevilla, Spain

- December 12, 2009: Metabolite profiling in human phenotyping
  Prof. Dr. Hannelore Daniel, Zentralinstitut für Ernährungs- und Lebensmittelforschung, Technische Universität München

- March 2, 2010: Measuring the loss of otolith function
  Dr. Christopher Bockisch, Neurologische Klinik, UniversitätsSpital Zürich

- March 16, 2010: Non-invasive assessment of coronary artery disease progression using magnetic resonance imaging (MRI)
  Prof. Dr. Matthias Stuber, Center for Biomedical Imaging (CIBM), University Hospital Lausanne

- March 30, 2010: Islet inflammation impairs insulin secretion in type 2 diabetes
  Prof. Dr. Marc Y. Donath, Klinik für Endokrinologie, Diabetologie und Klinische Ernährung, UniversitätsSpital Zürich

- April 13, 2010: The hypoxia-tolerant subterranean mole rat as a model for cancer survival
  Prof. Dr. Aaron Avivi, The Institute of Evolution, University of Haifa, Israel

- April 27, 2010: Mapping large scale neuronal networks in real time
  Prof. Dr. Christoph M. Michel, Department of Neuroscience, University of Geneva

- May 11, 2010: HIF-1 as a tissue-specific driving force in gastrointestinal disease
  PD Dr. med. Thorsten Cramer, Medizinische Klinik, Hepatologie und Gastroenterologie, Charité - Universitätsmedizin Berlin, Deutschland

- June 1, 2010: Integration of blood volume, electrolyte, and pressure regulation by natriuretic peptides in health and disease
  Prof. Dr. Dr. Wolf-Georg Forssmann, Forschungseinheit Experimentelle und Klinische Peptidforschung, Klinik für Immunologie und Rheumatologie, Medizinische Hochschule Hannover und Pharis Group/Cardiorentis, Hannover, Deutschland

- September 28, 2010: Cardiovascular side effects of traditional NSAIDs and paracetamol: Painful lessons
  Prof. Dr. Frank Ruschitzka, Klinik für Kardiologie, UniversitätsSpital Zürich

- October 10, 2010: Phylogeny of sleep
  Prof. Dr. Irene Tobler, Institut für Pharmakologie und Toxikologie, Universität Zürich

- October 26, 2010: Mechanisms of gene regulation in hypoxia
  Prof. Dr. Lorenz Poellinger, Department of Cell and Molecular Biology, Karolinska Institute, Stockholm, Sweden

- November 9, 2010: NAD+ as a metabolic regulator of circadian rhythms
  Dr. Gad Asher, Department of Molecular Biology, University of Geneva

- November 23, 2010: Audio-visual-vestibular integration in gaze orienting behavior, Prof. Dr. John van Opstal, Department of Biophysics, Donders Institute for Brain, Cognition and Behaviour, Radboud University Nijmegen, The Netherlands

- December 7, 2010: Angiogenesis between hypoxia and hypertension
  Prof. Dr. Edouard Battegay, Klinik und Poliklinik für Innere Medizin, UniversitätsSpital Zürich

- December 21, 2010: Body weight lowering mechanisms of surgical and non-surgical anti-obesity therapy
  Prof. Dr. Thomas Lutz, Institut für Veterinärphysiologie, Universität Zürich

- March 1, 2011: The role of stem cells in the maintenance of bone homeostasis
  Dr. Peter J Richards, Center for Applied Biotechnology and Molecular Medicine, University of Zurich

- March 15, 2011: Do circadian clock genes play a role in sleep homeostasis?
  Prof. Paul Franken, Center for Integrative Genomics, University of Lausanne

- March 29, 2011: Enteroendocrinology and metabolic receptology – towards novel drug targets
  Prof. Thue W Schwartz, Department of Neuroscience and Pharmacology, University of Copenhagen, Denmark

- April 12, 2011: Regulation of gene expression in response to hypoxia
  Prof. Luis del Peso Ovalle, Biochemistry Department, Universidad Autónoma de Madrid, Spain

- May 3, 2011: Animal models for CNS inflammation: Cytokines, TH subsets, fashion and reality checks
  Prof. Burkhard Becher, Institute of Experimental Immunology, University of Zurich

- May 17, 2011: Modelling working memory
  Prof. Klaus Oberauer, Department of Psychology, University of Zurich

- May 31, 2011: The role of the kidney in acid-base homeostasis
  Prof. Carsten Wagner, Institute of Physiology, University of Zurich

- September 27, 2011: Cardiovascular magnetic resonance beyond three dimensions
  Prof. Sebastian Kozerke, Institute for Biomedical Engineering, University and ETH Zurich

- October 11, 2011: Signals and mechanisms in the control of protein intake
  Prof. Daniel Tomé, AgroParisTech, Institute of Technology for Life, Food and Environmental Sciences, Department of Life Sciences and Health, Paris, France

- October 25, 2011: How to non-invasively image oxygenation in tissue in humans
  PD Dr. Martin Wolf, Division of Neonatology, University Hospital Zurich

- November 8, 2011: TGR5 at the crossroad of inflammatory and metabolic signaling
  Prof. Kristina Schoonjans, Laboratory of Integrative Systems Physiology, EPFL, Lausanne

- November 22, 2011: Milk oligosaccharides, gut microbiota and mucosal immunity
  Prof. Thierry Hennet, Institute of Physiology, University of Zurich

- December 6, 2011: Fatigue in autoimmune diseases: CD40 signaling leads to a TNF dependent increase of NREM sleep
  Prof. Adriano Fontana, Institute of Experimental Immunology, University of Zurich

- December 20, 2011: The physiology of hypoxic response, and the role of HIFs in its modulation
  Prof. Randall S. Johnson, Dept. of Physiology, Development & Neuroscience, University of Cambridge, UK

- February 28, 2012: Brown adipose tissue: heating and slimming us
  Prof. Dr. Jan Nedergaard, The Wenner-Gren Institute, Stockholm University, Sweden

- March 13, 2012: Time, speech and the primate brain
  Prof. Dr. Martin Meyer, Division of Neuropsychology, Institute of Psychology, University of Zurich

- March 27, 2012: The metabolism of hereditary renal cancer
  Dr. Patrick J. Pollard, Nuffield Department of Clinical Medicine, University of Oxford, UK

- April 10, 2012: Genetics and drug discovery - Human as the next animal model
  Prof. Dr. Vincent Mooser, Department of Laboratories, CHUV University Hospital Lausanne

- April 24, 2012: Physiological and clinical relevance of thiazide-sensitive renal distal tubule
  Prof. Dr. Johannes Loffing, Institute of Anatomy, University of Zurich

- May 15, 2012: How muscle fatigue originates in the brain
  Dr. Kai Lutz, Division of Neuropsychology, Institute of Psychology, University of Zurich

- May 29, 2012: The hypoxia connection: its influence on retinal development and neuroprotection
  Prof. Dr. Christian Grimm, Lab for Retinal Cell Biology, Department of Ophthalmology, University Hospital Zurich

- September 25, 2012: Hey bHLH transcription factors control cardiovascular development
  Prof. Dr. Manfred Gessler, Dept. of Developmental Biochemistry, University of Würzburg, Germany

- October 9, 2012: Typical and atypical networks of memory and cognition in the developing brain
  PD Dr. Peter Klaver, MR Center, University Children's Hospital Zurich and Department of Psychology, University of Zurich

- October 23, 2012: Nox family NADPH oxidase: Reactive oxygen species-mediated signaling and its consequences
  Prof. Dr. Ralf P. Brandes, Institute for Cardiovascular Physiology, Faculty of Medicine, Goethe-University, Frankfurt am Main, Germany

- November 6, 2012: Adipose tissue expandability, lipotoxicity and the metabolic syndrome
  Prof. Dr. Antonio Vidal-Puig, Department of Clinical Biochemistry, University of Cambridge, UK

- November 20, 2012: Regulation of vascular growth by FOXO and sirtuin pathways
  Dr. Michael Potente, Institute of Cardiovascular Regeneration, Goethe-University, Frankfurt am Main, Germany

- December 4, 2012: Functional connectivity in magnetic resonance imaging: Applications in basic and clinical research
  Dr. Kay Jann, Dept. of Psychiatric Neurophysiology, University Hospital of Psychiatry, Bern

- December 18, 2012: Sleep at high altitude: pleasure or torture?
  Prof. Dr. Konrad Bloch, Division of Pulmonology, University Hospital Zurich

- February 26, 2013: Prolyl-4-hydroxylase domain enzymes in the cardiovascular system
  Prof. Dr. Dörthe M. Katschinski, Department of Cardiovascular Physiology, University of Göttingen, Germany

- March 12, 2013: From brain to kidney: Osmoregulation in health and disease
  Prof. Dr. Olivier Devuyst, Institute of Physiology, University of Zurich

- March 26, 2013: The airbag theory of late-onset Alzheimer's Disease
  Dr. Dimitrije Krstic, Institute of Pharmacology and Toxicology, University of Zurich

- April 16, 2013: High density lipoproteins – multimolecular modulators of cell survival and function
  Prof. Dr. Arnold von Eckardstein, Institute of Clinical Chemistry, University Hospital Zurich

- April 30, 2013: Mendelian randomization for testing the causality of cardiovascular risk factors
  Prof. Dr. Anne Tybjærg-Hansen, Department of Clinical Biochemistry, Rigshospitalet, Copenhagen University, Copenhagen, Denmark

- May 14, 2013: Strategies for identification and follow-up of complex disease risk genes
  Prof. Dr. Anna Köttgen, Division of Nephrology, University of Freiburg, Germany and Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, USA

- May 28, 2013: Dysfunction of the reward system in patients with schizophrenia
  PD Dr. Stefan Kaiser, Psychiatric University Hospital Zurich and Clinic for General and Social Psychiatry, University of Zurich

- September 24, 2013: Fishing for compliments: Studying vision and its disorders in zebrafish
  Prof. Dr. Stephan Neuhauss, Institute of Molecular Life Sciences, University of Zurich

- October 8, 2013: Understanding clear cell renal cell carcinoma through mouse genetic engineering
  Prof. Dr. Ian Frew, Institute of Physiology, University of Zurich

- October 22, 2013: Conformational PARtiality, the receptor's multiple choice
  PD Dr. Reto A. Schüpbach, Division of Surgical Intensive Care Medicine, University Hospital Zurich

- November 5, 2013: Superficial temporal artery to middle cerebral artery (STA-MCA) bypass: who will benefit most?
  PD Dr. Oliver Bozinov, Division of Neurosurgery, University Hospital Zurich

- November 19, 2013: Tissue-specific regulation of erythropoietin expression in the liver and kidney
  Prof. Dr. Christof Dame, Department of Neonatology, Charité Berlin, Germany

- December 3, 2013: SCN5A: a pluripotent gene leading to different inherited cardiac disorders
  Prof. Dr. Dagmar Keller Lang, Division of Cardiology, University Hospital Zurich

- December 17, 2013: Lysosomal control of energy metabolism
  Prof. Dr. Carmine Settembre, Telethon Institute of Genetics and Medicine (TIGEM), Naples, Italy

- February 25, 2014: Intraoperative neurophysiological monitoring improves outcome in neurosurgery
  PD Dr. Johannes Sarnthein, Division of Neurosurgery, USZ

- March 11, 2014: HIF-PH inhibitors, a novel approach for the treatment of anemia
  PD Dr. Ingo Flamme, Bayer Health Care AG, Wuppertal, Germany

- March 25, 2014: Does altitude training improve sea level exercise performance?
  Prof. Dr. Carsten Lundby, Institute of Physiology, UZH

- April 8, 2014: Blood pressure genomics - how to make use of new methods to investigate cardiovascular risk
  Dr. Georg B. Ehret, Cardiology, Geneva University Hospitals, Geneva

- April 29, 2014: Cystinosis: more than a lysosomal storage disease
  Prof. Dr. Francesco Emma, Division of Nephrology, Bambino Gesù Childrens's Hospital, Rome, Italy

- May 13, 2014: Endothelium and tumor microenvironment determines hematogenous metastasis
  PD Dr. Lubor Borsig, Institute of Physiology, UZH

- May 27, 2014: Evidence that the lunar cycle influences human sleep
  Prof. Dr. Christian Cajochen, Centre for Chronobiology, Psychiatric University Clinics, Basel

- September 23, 2014: Omics methods and technologies for basic and translational research
  Prof. Dr. Ralph Schlapbach, Functional Genomics Center Zurich, UZH/ETHZ

- October 7, 2014: Prefrontal thinning affects functional connectivity and regional homogeneity of the anterior cingulate cortex in major depressive disorder: relevance for treatment response
  Dr. Simona Spinelli, Department of Psychiatry, Psychotherapy and Psychosomatics, Psychiatric University Hospital Zurich

- October 21, 2014: Erythropoietin and its non-erythroid effects: Translational aspects from mice to humans
  Dr. Thomas Haider, Institute of Veterinary Physiology, UZH

- November 4, 2014: Neutrophil function in hypoxia
  Dr. Sarah Walmsley, Academic Unit of Respiratory Medicine, The University of Sheffield Medical School, Sheffield, UK

- November 18, 2014: SUMOylation of LRH-1: Wrestling with atherosclerosis
  Dr. Sokrates Stein, Laboratory of Integrative and Systems Physiology, EPFL, Lausanne

- December 2, 2014: The NO-cyclicGMP pathway in cardiac diseases: new paradigms and translational applications
  Prof. Dr. Jean-Luc Balligand, Institut de Recherche Expérimentale et Clinique (IREC), University of Louvain Medical School, Brussels, Belgium

- December 16, 2014: Visual exploration behavior – a marker of cognitive processing?
  Prof. Dr. René Müri, Division of Cognitive and Restorative Neurology, University Hospital of Neurology, Inselspital, Bern

- February 24, 2015: Mitochondrial control of vascular inflammation
  PD Dr. Stefan Freigang, Institute of Pathology, University of Bern

- March 10, 2015: OH, the places you'll go! Hydroxylases target the protein synthesis machinery
  Dr. Mathew Coleman, School of Cancer Sciences, University of Birmingham, UK

- March 24, 2015: Dietary Potassium and the Renal Control of Salt Balance and Blood Pressure
  Prof. Dr. Johannes Loffing, Institute of Anatomy, UZH

- April 14, 2015: Multimodal monitoring of cerebral hemo¬dynamics, metabolism and oxygenation in neurointensive care
  Prof. Dr. Emanuela Keller, Department of Neurosurgery, USZ

- April 28, 2015: Adipose tissue formation and function and the development of metabolic disorders
  Prof. Dr. Christian Wolfrum, Institute of Food Nutrition and Health, ETH Zurich

- May 12, 2015: Monoclonal light chain-associated renal disorders
  Prof. Dr. Frank Bridoux, Nephrology, Centre Hospitalier Universitaire de Poitiers (CHU), France

- May 26, 2015: Non-invasive EEG recordings of human neocortical population spikes
  Prof. Dr. Gabriel Curio, Neurophysics Group, Department of Neurology with Experimental Neurology, Charité – Universitätsmedizin Berlin, Germany

ZIHP Special Seminars

- June 3 and 6, 2008: Basic mechanisms regulating metabolism and energy homeostasis
  Prof. Daniel P. Kelly, Washington University School of Medicine, USA
  Prof. Bruce M. Spiegelman, Dana-Farber Cancer Institute and Harvard Medical School, Boston, USA

- May 7, 2009: Phospholemman: cardiac Na regulation in health and disease
  Prof. Michael J. Shattock, Cardiovascular Division, King's College London, St Thomas' Hospital, London SE1 7EH, UK

- July 16, 2009: Perlecan domain V improves stroke outcome
  Prof. Gregory J. Bix, Texas A&M, College of Medicine, College Station, Texas, USA

- August 7, 2009: Ligand-targeted molecules for imaging and therapy of cancer and inflammatory diseases
  Prof. Philip S. Low, Department of Chemistry, Purdue University, West Lafayette, Indiana, USA

- November 26, 2009: Epo and performance and how to detect its misuse
  Prof. Giuseppe Banfi, IRCCS Galeazi and School of Medicine, University of Milan, Italy
  Prof. Paul Robach, Ecole Nationale de Ski et d'Alpinisme (ENSA), Medical Department, Chamonix, France

- February 4, 2010: The effect of type 2 diabetes on the cardiovascular response to exercise
  Sophie Lalande, PhD, Division of Cardiovascular Diseases, Mayo Clinic, Rochester, USA

- February 8, 2010: New scanning microscopic technique for cardiac biology
  Dr. Julia Gorelik, National Heart and Lung Institute, Imperial College London, UK

- May 11, 2010: Hyaluronan mediated platelet-endothelial interactions in inflammatory bowel disease
  Carol A. de la Motte, Ph.D., Department of Pathobiology, Cleveland-Clinic, Lerner Research Institute, Cleveland, Ohio, USA

- May 26, 2010: Erythropoietin receptor metabolism and signaling
  Dr. Drorit Neumann, Department of Cell and Developmental Biology, Sackler Faculty of Medicine, Tel-Aviv University, Ramat-Aviv, Israel

- June 24, 2010: The symbiotic nature of animal research
  Prof. Henry E. Heffner, Department of Psychology, University of Toledo, Ohio, USA

- October 19, 2010: Evidences on satiety induced by proteins in animal and in humans
  Prof. Dr. Daniel Tomé, AgroParisTech, Institute of Technology for Life, Food and Environmental Sciences, Department of Life Sciences and Health, Paris, France

- October 22, 2010: Oxygen-regulated expression of the erythropoietin gene in a human renal cell line REPC
  Dr. Stilla Frede, Institute of Physiology, University of Duisburg-Essen, Germany

- November 9, 2010: Differential sleep features within the human brain: local aspects derived from intra-cerebral recordings
  Prof. Lino Nobili Epilepsy Surgery Centre "C. Munari", Centre of Sleep Medicine, Department of Neuroscience, Niguarda Hospital, Milan, Italy

- February 4, 2011: Mitochondrial function in health and disease
  Steen Larsen, Department of Biomedical Sciences, University of Copenhagen, Denmark

- March 23, 2011: S-Nitrosylation and other protein cysteine oxidations: Proteomic identification and role in (hypoxia) cell signalling
  Dr. Antonio Martínez-Ruiz, Servicio de Immunología, Hospital Universitario, Madrid, Spain

- May 2, 2011: Impact of physical fitness on vascular regulation and cognition in older women
  Prof. Marc J. Poulin, Department of Physiology & Pharmacology, University of Calgary, Canada

- May 26, 2011: hCMEC/D3: an in vitro model of human BBB to study transport and cell infiltration to the brain
  Dr. Pierre-Olivier Couraud, Cochin Institute, INSERM/CNRS, Paris-Descartes University, France

- June 1, 2011: Autonomic adjustments to high altitude
  Dr. Mikael Sander, The Heart Centre, Righospitalet, University of Copenhagen, Denmark

- July 14, 2011: The pulmonary physiology of exercise in the forgotten sex
  Prof. Bill Sheel, School of Human Kinetics, Health and Integrative Physiology Laboratory, University of British Columbia, Vancouver, Canada

- September 27, 2011: The anti-metastatic activity of heparin – In vitro approaches to evaluate the mode of action and search for novel targets
  Prof. Dr. Gerd Bendas, Pharmaceutical Institute, Pharmaceutical Chemistry II, University of Bonn, Germany

- 22. November 2011: Entwicklungsstörung der Motorik (F82): eine neue Leitlinie und der Forschungsbedarf für die Zukunft
  Prof. Dr. med. Rainer Blank, Kinderzentrum Maulbronn und Universität Heidelberg, Deutschland

- February 1, 2012: Humans are a sea-level design
  Prof. Peter A. Robbins, Department of Physiology, Anatomy and Genetics, University of Oxford, UK

- March 21, 2012: The hypoxia-induced DNA damage response
  Dr. Ester Hammond, Gray Institute for Radiation Oncology and Biology, Department of Oncology, University of Oxford, UK

- May 4, 2012: Would doping at the SOLA be possible?
  Prof. Carsten Lundby, Institute of Physiology, University of Zurich

- June 11, 2012: Thoracic aortic aneurysm: evolution of surgery and evolution of research
  Prof. Giuseppe Faggian, Cardiovascular Surgery, University of Verona School of Medicine

- June 21, 2012: How to survive at extreme altitude (two lectures)
  - The human lung: did evolution get it wrong?
  - Extreme hypoxia: Lessons from the summit of Mount Everest

  John B. West, School of Medicine, University of California, San Diego, USA

- June 28, 2012: The child is father of the man: The enduring effects of childhood experiences and psychological well-being on adult health
  - Adverse childhood experiences and risk of age-related disease
    Prof. Andrea Danese, Institute of Psychiatry, King's College London, UK
  - Children's self control and their nation's health and wealth
    Prof. Terrie E. Moffitt and Prof. Avshalom Caspi, De-partment of Psychology and Neuroscience, Duke University, Durham, USA and Institute of Psychiatry, King's College London, UK
    This ZIHP Special Seminar was organized together with the Klaus-Grawe-Foundation.

- October 30th, 2012: Fetal programming by glucocorticoids: The epigenome and beyond
  Prof. Stephen G. Matthews, Departments of Physiology, Obstetrics and Gynecology and Medicine, Faculty of Medicine, University of Toronto, Canada

- November 22, 2012: The age-old tale of skeletal muscle vasodilation: New ideas regarding erythrocyte dysfunction and intravascular ATP in human physiology
  Dr. Brett Kirby, Department of Medicine – Hematology Division; Duke University Medical Center, USA

- May 17, 2013: Heightened sympathetic drive in cardiovascular disease: causes, consequences and therapies
  Dr. James Fisher, School of Sport and Exercise Sciences, University of Birmingham, UK

- June 5, 2013: Carbon dioxide partial pressure, syncope and cerebral perfusion
  Prof. Johannes J. van Lieshout, Department of Internal Medicine & Laboratory for Clinical Cardiovascular Physiology, Academic Medical Center of the University of Amsterdam, Netherlands and School of Biomedical Sciences, University of Nottingham Medical School, Queen's Medical Centre, United Kingdom

- June 11, 2013: Feed-back mechanisms for erythropoietin - Why does it decline so fast despite sustained hypoxia?
  Dr. Niels Vidiendal Olsen, D.M., D.M.Sc., Department of Neuroanesthesia, The Neuroscience Centre, Copenhagen University Hospital Department of Neuroscience and Pharmacology, University of Copenhagen, Denmark

- August 15, 2013: Molecular mechanisms and therapeutic approaches targeting islet inflammation in type 2 diabetes
  Prof. Jan Ehses, Child & Family Research Institute, University of British Columbia, Vancouver, Canada

- August 21, 2013: Acoustic fatheads: Parallel adaptations for underwater hearing in whales, turtles, and sea birds
  Prof. Darlene R. Ketten, Department of Otology and Laryngology, Harvard Medical School, Boston, USA and Biology Department, Woods Hole Oceanographic Institution, Woods Hole, USA

- August 21, 2013: Do whales become seasick?
  Prof. Hannes Petersen, Faculty of Medicine University of Iceland & Dept. of Otorhinolaryngology Head and Neck Surgery, Landspitali, University Hospital, Reykjavik, Iceland

- September 19, 2013: The role of the HIF oxygen-sensing pathway in metabolic rewiring and disease.
  Prof. Julián Aragonés, Immunology Department, Hospital Universitario de la Princesa, Madrid, Spain

- September 19, 2013: Cerebral erythropoietin regulates the neural respiratory control system during the postnatal development
  Prof. Jorge Soliz, Pediatrics, Faculté de Médecine, Université Laval, Québec, Canada

- October 14, 2013: O_2 sensing: causes and consequences
  Prof. Nanduri R. Prabhakar, Institute for Integrative Physiology & Center for Systems Biology of O_2 Sensing, University of Chicago, Illinois, USA

- October 31, 2013: Novel anti-fibrotic mechanisms regulating TGFbeta1 signaling in renal epithelia
  Dr. Karen Nolan, Diabetes Research Centre, Conway Institute, University College Dublin, Ireland

- October 31, 2013: Regulation of IL-1beta-induced inflammatory signaling by hydroxylases
  Dr. Carsten Scholz, Systems Biology Ireland, Conway Institute, University College Dublin, Ireland

- November 28, 2013: The carotid body neurogenic niche and adaptation to hypoxia
  Prof. José López-Barneo, Institute of Biomedicine of Seville (IBiS), University Hospital «Virgen del Rocio»/CSIC/University of Seville

- March 11, 2014: Pharmacological studies and pathogen interactions using human brain endothelial cells under laminar flow in vitro
  Pierre-Olivier Couraud, Institut Cochin, Paris, France

- March 28, 2014: The squeaky transporter gets the grease: the role of PIP2 on serotonin transporter function
  Prof. Dr. Harald H. Sitte, Center of Physiology and Pharmacology, Institute of Pharmacology, Medical University of Vienna, Vienna, Austria

- April 7, 2014: Placental molecular responses to hypoxia at high altitude
  Prof. Dr. Graham J. Burton, Centre for Trophoblast Research, University of Cambridge, UK

- April 14, 2014: Transcript Studies in Renal Cell Carcinoma
  Prof. Dr. W. Kimryn Rathmell, University of North Carolina at Chapel Hill, USA

- October 31, 2014: Relationship between [Hb] and exercise capacity in high altitude Tibetan natives
  Prof. Dr. Peter D. Wagner, Distinguished Professor of Medicine and Bioengineering, School of Medicine, University of California, San Diego, USA

- November 13, 2014: Some physiological and clinical aspects of long-duration space-flights
  Prof. Dr. Oleg Yu. At'kov, Cosmonaut and Head of the Dept. of Medical Care and of the Research Clinical Center of the Russian Railways, Chairman of the Dept. of Instrumental Methods of Diagnostics of the Russian State Medical University, Vice-President of the Open Joint Stock Company Russian Railways

- January 20, 2015: Iron homeostasis – a balancing act
  Prof. Dr. Martina Muckenthaler, Center of Molecular Medicine, University Clinic of Heidelberg, Germany

- February 26, 2015: Why «less is more»: biology and application of the stress tolerance in hypometabolic critters
  Dr. Thomas A. Gorr, Institute of Veterinary Physiology, University of Zurich

- May 8, 2015: microRNAs: The missing link between hypoxia and CD4+ T helper cells?
  Dr. Yogesh Singh, Institute of Physiology I, Eberhard Karls University Tübingen, Germany

- June 8, 2015: Erythropoietin and Metabolism: Looking beyond red blood cells
  Dr. Constance Tom Noguchi, Chief, Molecular Cell Biology Section, Molecular Medicine Branch, NIDDK National Institutes of Health, USA

- November 19, 2015: The interaction between air pollution and exercise in humans
  Prof. Michael Koehle, School of Kinesiology, University of British Columbia, Vancouver, Canada

- March 18, 2016: Oxygen Imaging by Phosphorescence Quenching
  Sergei A. Vinogradov, PhD, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA

- June 24, 2016: Developing AAV as a tool for gene delivery to the retina
  Sanford Boye, Retinal Gene Therapy Group, University of Florida, USA

- September 12, 2016: The blood-brain barrier in a dish: design of a patient-specific in vitro model using human induced pluripotent stem cells
  Asst. Prof. Abraham Al-Ahmad, Dept. of Pharmaceutical Sciences, Texas Tech University Health Sciences Center, Amarillo, USA

- October 12, 2016: What does it take to live to 120 years? Genetic and evolutionary aspects of human longevity
  Prof. Dr. Almut Nebel, Institute of Clinical Molecular Biology, Kiel University, Germany

- November 25, 2016: Iron Overload in Sickle Cell Anemia
  Prof. Dr. med. Ariel Koren, Pediatric Hematology Unit and The Ruth and Baruch Rappaport School of Medicine, Technion - Israel Institute of Technology, Haifa, Israel

- November 25, 2016: Hereditary Hemolytic Anemias: The Emek Medical Center Experience
  Dr. med. Carina Levin, Pediatric Hematology Daycare Unit, Emek Medical Center, Afula, Israel; The Ruth and Bruce Rappaport Faculty of Medicine, Technion - Israel Institute of Technology, Haifa, Israel

- December 7, 2016: New tools to investigate the regulation of kidney and gonadal development
  Dr. Karin Kirschner, Institut für Vegetative Physiologie, Charité – Universitäts-medizin Berlin, Deutschland

Sponsorship of international events, conferences, or symposia organized by ZIHP members

- November 17, 2005: **2. Zürcher Stroke-Symposium** «Erholung nach Schlaganfall: Mechanismen und Therapien»

- November 25-30, 2007: **«Hypoxia, from Integrative Biology to Human Disease»**, Monte Verità, Ascona, Switzerland

- January 27-28, 2011: **Swiss Eye Research Meeting (SERM) 2011**, Biel, Switzerland

- February 18, 2011: «**Animal sleep: a research topic and a model**», International symposium in honor of Prof. Irene Tobler Borbély, University of Zurich

- October 9–14, 2011: **The impact of hypoxia on cells, mice and men,** Monte Verità, Ascona, Switzerland

- December 9, 2011: **Pain models in humans and animals**, Vetsuisse Faculty of Bern, Switzerland

- January 26 - 27, 2012: **Swiss Eye Research Meeting (SERM) 2012,** Biel, Switzerland

- July 10-14, 2012: **20th Annual Meeting of the Society for the Study of Ingestive Behavior,** ETH Zurich

- August 3-7, 2012: **The 2nd International Leh Symposium 2012**, Leh, Ladakh, India

- August 21-25, 2012: 26th **Conference of European Comparative Endocrinologists (CECE)**, University of Zurich, Irchel

- September 19 - 23, 2014: **Ventilation and Circulation in Hypoxia: from mechanisms to patients and back,** Leh, Ladakh, India

- September 26-28, 2014: **8th International Symposium on the CGRP family of peptides,** Monta Verità Conference Centre, Ascona

- September 22, 2015: **first Swiss parabolic flight**

- September 4-7, 2016: **2nd European Meeting on Phototransduction,** Monte Verità Conference Centre, Ascona, Switzerland

- September 24-28, 2016: **4th international Issyk-Kul Leh Symposium**, «Cardio-Pulmonary Acclimatization and Adaptation to High Altitude: from Physiology to Clinical Practice»
  Cholpon Ata (Lake Issyk-Kul), Kyrgyzstan

- October 22, 2016: **second Swiss parabolic flight**

- October 24-26, 2016: **Joint Franco-Italian-Swiss multinational meeting on blood-brain interfaces**
  Lyon, France

- November 21-22, 2016: **ARCHES (Audiological Research Cores in Europe) Meeting 2016**, University of Zurich, Switzerland

Seminar series on career possibilities organized by the PhD Program imMed in collaboration with the Institute of Physiology

- November 29, 2007: Christian Zahnd, Molecular Partners Spin-off Firma

- December 13, 2007: Prof. Roland Wenger, Physiologiesches Institut, UZH: akademische Karriere, Mann

- January 10, 2008: Detlef Niesen, Novartis Head External Relations

- January 24, 2008: Prof. Ulrike Ehlert, Klinische Psychologie und Psychotherapie: akademische Karriere, Frau, Mutter

- September 24, 2008: Dr. Andrea Arz de Falco, Bundesamt für Gesundheit (BAG)

- October 2, 2008: Dr. Marco Ziegler, Partner McKinsey Zürich. Dr. in Chemie der Universität Fribourg, Research Fellow at UC Berkeley, USA, Dr. Valentina Sartori, Associate McKinsey Zürich. Dr. sc. tech. ETH, Master in Chemical Engineering Politecnico di Milano, Dr. Panco Georgiev, Associate McKinsey Zürich, Dr. med. Universität Zürich, MD/PhD program of University of Zurich and ETH

- November 26, 2008: Dr. Sigrid Aigner, Senior Medical Advisor at Bristol-Myers Squibb SA

- December 10, 2008: Dr. Rosmarie Waldner, Science Journalism, Zentrum für Technologiefolgen Abschätzung, Science-et-cité etc.

- January 21, 2009: Dr. Finola Kathleen Kirstein, Novartis Pharma AG

- September 30, 2009: Dr. sc.nat. Alfred Köpf, European Patent Attorney, Rentsch & Partner, Zurich

- October 21, 2009: Dr. Willy Kinzy, Recruitment Research Basel, F. Hoffmann-La Roche AG, Basel

- November 18, 2009: Dr. Panco Georgiev, Senior Associate, McKinsey & Company, Zurich, Dr. Petra Jantzer, Partner, McKinsey & Company, Zurich, und Marina Mueller, Recruiting Coordinator, McKinsey & Company, Zurich

- December 2, 2009: Dr. sc. nat. et lic.jur. Thomas Wirz, Rechtsanwalt, Maier & Hagger Rechtsanwälte, Zurich

- January 13, 2010: Simone Camargo & Lubor Borsig, Institute of Physiology, UZH

- January 27, 2010: Hooman Momen, Editor, Bulletin of the WHO / Coordinator, WHO Press

- February 10, 2010: Irène Hediger, Swiss Artists in Labs (AIL), Zurich University of the Arts, Zurich

- October 27, 2010: Andreas Caduff, Solianis Monitoring AG, Zurich

- December 8, 2010: Thomas Hempfling, Springer Basel AG & Birkhäuser Basel

- February 2, 2011: Dr. Gabriela Huber-Wegmann, Novartis AG, Basel

- April 20, 2011: Dr. sc. nat. Jürg Lustenberger, Dipl. Pharm. Med. SwAPP, Clinical Trials Center, University Hospital Zurich

Seminar series Vision 2020 organized by the imMed PhD Program

- **Personalized medicine**
    - November 8, 2012: Advanced therapy medicinal products and personalized medicine: state-of-the-art and future perspectives
      Dr. Maria Cristina Galli, Istituto Superiore di Sanita, Rome/Italy and Vice chair Gene Therapy Working Group, European Medicines Agency:

    - November 27, 2012: Evolutionary and population genetics in personalized medicine
      Dr. Lluis Quintana-Murci, Unit of Human Evolutionary Genetics, Institut Pasteur, Paris/France:

    - January 31, 2013: Genetic testing and personalized medicine: An overview
      Dr. Thomas Binz, Federal Office of Public Health, Head of Biosafety and Human Genetics, Bern

    - February 28, 2013: Therapeutic antibodies and personalized medicine: Fiction or reality?
      Prof. Dario Neri, Institute of Pharmaceutical Sciences, ETH Zürich

- **Functional Food - Food and Health**
    - April 29, 2013: Food, functions, health claims and consumers
      Prof. Liisa Lähteenmäki, Department of Business Administration, Aarhus University, Aarhus, Denmark

    - June 5, 2013: The concept of biofortification and the state-of-the-art with «Golden Rice»
      Prof. emerit. Ingo Potrykus, Chairman of the Golden Rice Humanitarian Board, ETH Zurich

    - June 12, 2013: The concept of probiotics - On the path to the Holy Grail
      Prof. Dr. Christophe Lacroix, Institute of Food, Nutrition and Health, ETH Zurich

- **Aging**
  - October 10, 2013: Yeast as a relevant model for aging
    Prof. Dr. Yves Barral, Institute of Biochemistry, ETH Zurich

  - October 17, 2013: Life Length and Telomeres, a Key Biomarker for Aging and Health
    Stephen J. Matlin, CEO of Life Length, Madrid, Spain

  - November 21, 2013: Nutrigenomic approaches to slowing the aging process
    Dr. Jamie L. Barger, LifeGen Technologies, Madison, WI / USA

  - January 22, 2014: From cancer metabolism to aging: Sirtuins provide some clues
    Prof. Raul Mostoslavsky, Harvard Medical School, Boston / USA

  - February 6, 2014: Novel approaches towards healthy aging: Enhancement of protein quality control
    Prof. Adam Antebi, Max Planck Institute for Biology of Ageing, Cologne / Germany

- **Regenerative Medicine**
  - May 15, 2014: Endogenous tissue growth: the new concept in cardiovascular tissue repair and beyond
    Dr. Andreas Emmendörffer, V.P. Operations, Xeltis, Zurich, Switzerland

  - May 22, 2014: Biofabrication to create 3D scaffolds: how to design and build complex elastic structures for regenerative medicine
    Prof. Dr. Günter Tovar, Institute of Interfacial Process Engineering and Plasma Technology, University of Stuttgart, Germany

  - June 5, 2014: New ways to rewire the injured CNS
    Prof. Martin Schwab, Brain Research Institut, University and ETH Zurich, Switzerland

  - June 26, 2014: Induced pluripotency: challenges and opportunities for regenerative medicine
    Dr. Paul Fairchild, Co-Director of the Oxford Stem Cell Institute, Oxford, UK

- **Synthetic Biology**
  - October 23, 2014: The biological machine? Synthetic biology and the engineering of biology
    Prof. Dr. Sven Panke, Bioprocess Laboratory, ETH Basel

  - December 11, 2014: Integration of environmental signals at cell-matrix adhesion sites
    Prof. Dr. Benjamin Geiger, Weizman Institute of Science, Rehovot, Israel

  - January 22, 2015: Synthetic biology and smart therapeutic nanosystems
    Guillermo de la Cueva Méndez, Andalusian Centre for Nanomedicine and Biotechnology (BIONAND), Málaga, Spain

- **A trillion Microbes & Me**
    - July 2, 2015: Probiotics: from myth to molecular modes of action
      Dr. Patrick Veiga, Senior Scientist - Danone Nutricia Research, Life Science Department, Visiting Scientist - Harvard School of Public Health, Dept. of Immunology and Infectious Diseases

    - July 16, 2015: Gut Microbiota confers protection against Malaria
      Miguel Soares, Instituto Gulbenkian de Ciência Oeiras, Portugal

    - December 3, 2015: Back to the Future of Human Milk Oligosaccharides
      Lars Bode, School of Medicine, Department of Pediatrics, University of California, San Diego

- **Genetic testing**
    - June 16, 2016: Human Genome at Bargain Price
      Prof. Dr. Karl Heinimann, University Hospital Basel

    - June 30, 2016: Genetic testing in domestic animals – how champions are bred
      Prof. Dr. Tosso Leeb, University of Berne

    - July 28, 2016: Genetic testing in humans - the hype of precision medicine
      Prof. Dr. Sabina Gallati, University of Bern

    - September 1, 2016: Towards Data Driven Medicine
      Dr. Gioia Althoff, Sophia Genetics, Switzerland & France

- **Tissue Engineering**
    - September 29, 2016: Materials, cells or tissue for bone repair
      Dr. Arnaud Scherberich, Department of Biomedicine, University Hospital Basel

    - November 3, 2016: Biofabricating Living Tissues
      Prof. Dr. Marcy Zenobi-Wong, Cartilage Engineering & Regeneration, Dept Health Sciences & Technology, ETH Zurich

    - December 15, 2016: Biomimetic Materials in Tissue Regeneration
      Dr. Martin Ehrbar, Department of Obstetrics, University Hospital Zurich

imMed Alumni events

- February 5, 2015: **1st event Alumni PhD Program**
  Christian Caprara, Swiss Stem Cell Foundation, Gentilino/TI and Micha Häuptle, GlycoVaxyn AG, Schlieren

- January 14, 2016: **2nd event Alumni PhD Program**
  Female perspectives
  Charlotte Maag, MSD Merck, Sharp & Dohme, Lucerne
  Federica Storti, Lab for Retinal Cell Biology, UZH, Roche fellowship
  Susanna Sluka, Deputy Head of the Newborn Screening Lab, University Children's Hospital Zurich
  Magdalena Herová and Jeannine Winkler, Biotechnology Space Support Center, Lucerne

Public events

Public event series Wissen-schaf(f)t Wissen

- 22. September 2008: Lauf um mein Leben: Der neue Thriller von Beat Glogger
  Lesung mit Hintergrundtalk, Beat Glogger, Wissenschaftsjournalist, Mikrobiologe und ehemaliger Sportler

- 27. Oktober 2008: Mit Eispickel und Stethoskop
  Prof. Oswald Oelz, ehem. Chefarzt am Stadtspital Triemli, Extrembergsteiger und Höhenmediziner

- 24. November 2008: Muskelkraft und Molekularbiologie
  Werner Günthör, früherer Weltmeister im Kugelstossen
  Hans Hoppeler, Muskelforscher an der Universität Bern

- 12. Januar 2009: Schmerzfrei dank Krafttraining - Wissenschaftlich bewiesen oder Wunschdenken?
  Dr. med. Sandra Thoma, CEO von Kieser Training Schweiz und Dr. med. Walter O. Frey, CEO von move>med - Swiss Olympic Medical Center

- 27. April 2009: Pillen gegen das Altern
  Prof. Felix Gutzwiller, Leiter des Instituts für Sozial- und Präventivmedizin der Universität Zürich und Ständerat und Prof. Roland Jakob, emeritierter Orthopäde des Kantonsspitals Freiburg

- 25. Mai 2009: Vom Dinosaurier zum Elefanten: Wie Giganten funktionieren.
  PD Dr. Marcus Clauss, Vetsuisse-Fakultät, Universität Zürich und Dr. Alex Rübel, Direktor des Zürcher Zoos

- 15. Juni 2009: Medizinische Check-ups: Sinnvolle Vorsorge oder kostspielige Strategie?
  Prof. Thomas Lüscher, Direktor der Klinik für Kardiologie, UniversitätsSpital Zürich und Initiant von Double Check und Dr. Jürg Kuoni, Arzt und Initiant von Healthcheck GmbH – Kompetenz in Gesundheitsförderung.

- 19. Oktober 2009: Evolution des Menschen: Einflüsse von aussen und von innen
  Josef H. Reichholf, Evolutionsbiologe und Buchautor
  an der Zoologischen Staatssammlung München.

- 16. November 2009: Sehen und Nicht-Sehen
  Christina Fasser, Geschäftsleiterin der Selbsthilfeorganisation Retina Suisse und Prof. Christian Grimm, Augenklinik des UniversitätsSpitals Zürich.

- 14. Dezember 2009: Evolutionäre Medizin: Was Mumien der modernen Medizin erzählen
  PD Dr. Frank Rühli, Anatomisches Institut der Universität Zürich

- 11. Januar 2010: Weltraummedizin: Was macht die Schwerkraft mit unserem Körper?
  Prof. Hanns-Christian Gunga vom Zentrum für Weltraummedizin in Berlin und Prof. Oliver Ullrich, Weltraum-Biotechnologe an der Universität Zürich.

- 8. März 2010: Impfen - Zwischen Fluch und Segen?
  Prof. Dr. med. Christoph Berger, Infektiologe des Kinderspitals Zürich und Dr. med. Klaus von Ammon, Spezialarzt FMH und Homöopath aus Stäfa.

- 12 April 2010: Tier beisst Mensch
  Tier-Neurologe PD Dr. Frank Steffen, Klinik für Kleintierchirurgie der Universität Zürich.

- 31. Mai 2010: Malaria: Endlich Fortschritte in der Bekämpfung
  Prof. Christian Lengeler, Schweizerisches Tropen- und Public Health-Institut und Dr. Felix Grimm, Institut für Parasitologie der Universität Zürich.

- 25. Oktober 2010: Evolution der menschlichen Kultur
  Prof. Carel van Schaik, Professor für Biologische Anthropologie an der Universität Zürich.

- 29. November 2010: Menschliche Evolution aus dem Computer
  Prof. Christoph Zollikofer und Dr. Marcia Ponce de León vom Anthropologischen Institut der Universität Zürich.

- 17. Januar 2011: Wirtschaft, Wissenschaft und ihre Wechselwirkung
  Dr. Hans Vontobel, Ehrenpräsident des Verwaltungsrats Bank Vontobel AG und Vontobel Holding AG.

- 14. März 2011: Virtuelle Autopsie: Vom Skalpell zum Scanner
  Prof. Michael Thali, Institut für Rechtsmedizin der Universität Zürich.

- 4. April 2011: Der Schlaf von Hamstern, Fliegen und Elefanten
  Prof. Irene Tobler, Institut für Pharmakologie und Toxikologie der Universität Zürich.

- 23. Mai 2011: Vertrauen, Fairness und Grosszügigkeit: Wie beeinflussen Sexual- und Neurohormone unser Sozialverhalten?
  Prof. Ernst Fehr, Institut für Volkswirtschaftslehre der Universität Zürich.

- 20. Juni 2011: Prostata - Wenn eine kleine Drüse Probleme macht
  Prof. Tullio Sulser, Klinik für Urologie, Universitätsspital Zürich.

- 3. Oktober 2011: Massgeschneiderte Medizin der Zukunft?
  Prof. Ernst Hafen, Institut für Molekulare Systembiologie der ETH Zürich

- 14. November 2011: Das «Knie der Nation»
  Skirennfahrer Pirmin Zurbriggen und Sportarzt Bernhard Segesser

- 5. Dezember 2011: «Emergency Room» - zwischen Realität und Fiktion
  Prof. Edouard Battegay, Direktor der Klinik und Poliklinik für Innere Medizin des USZ

- 27. Februar 2012: Künstliches Herz statt Spenderherz: Die Herzchirurgie von morgen?
  Prof. Volkmar Falk, Direktor der Klinik für Herz- und Gefässchirurgie des Universitätsspitals Zürich

- 26. März 2012: Operation Orang-Utan: Lehren und Lernen auf Sumatra
  Prof. Jean-Michel Hatt, Direktor der Klinik für Zoo-, Heim- und Wildtiere der Vetsuisse-Fakultät Zürich

- 7. Mai 2012: Nicht nur die Liebe geht durch den Magen …
  Prof. Michael Fried, Direktor der Klinik für Gastroenterologie und Hepatologie des Universitätsspitals Zürich

- 4. Juni 2012: «Denn sie können nichts dafür»: Hirnreifung beim Kind und Jugendlichen
  Prof. Lutz Jäncke, Neuropsychologe an der Universität Zürich

- 29. Oktober 2012: Der Mensch unter Wasser: Faszination und Gefahr des Tauchens
  Prof. Dr. Erich Russi, Direktor der Klinik für Pneumologie des Universitätsspitals Zürich

- 19.November 2012: Von Cortison bis Viagra: Wie man die Höhenkrankheit behandeln kann
  Prof. Dr. Marco Maggiorini, Leiter der Medizinischen Intensivstation des Universitätsspitals Zürich

- 3. Dezember 2012: Schwindel: Verwirrungen des sechsten Sinns
  Prof. Dr. Dominik Straumann, Leitender Arzt der Klinik für Neurologie des Universitätsspitals Zürich

- 11. März 2013: Epo wirkt auch im Gehirn: Nach Blutdoping nun Gehirndoping?
  Prof. Max Gassmann, Direktor des Instituts für Veterinärphysiologie an der Universität Zürich und Vorsteher des ZIHP

- 8. April 2013: Fittes Gehirn: Lernen und Neuroplastizität im Alter
  Prof. Martin Meyer, Assistenzprofessor für Plastizitäts- und Lernforschung des alternden Gehirns an der Universität Zürich

- 6. Mai 2013: Amputationswunsch von gesunden Gliedern: Xenomelie oder wie das Gehirn den Körper wahrnimmt
  Prof. Peter Brugger, Leiter der Abteilung für Neuropsychologie am Universitätsspital Zürich

- 3. Juni 2013: Der Schmerz: Alarm und Fehlalarm in unserem Körper
  Prof. Hanns Ulrich Zeilhofer, Institut für Pharmakologie und Toxikologie der Universität Zürich *(In Zusammenarbeit mit dem Zentrum für Neurowissenschaften Zürich (ZNZ))*

- 21. Oktober 2013: Leben unter Schwerkraft: Braucht jede Zelle die Schwerkraft?
  Prof. Oliver Ullrich, Anatomisches Institut der Universität Zürich

- 11. November 2013: Blutdoping: Einfach, wirkungsvoll und kaum nachweisbar!
  Prof. Carsten Lundby, ZIHP-Assistenzprofessor an der Universität Zürich

- 2. Dezember 2013: Kokain und das Ego: Soziales Denken und Handeln bei Kokainkonsumenten
  Prof. Boris Quednow, Psychiatrische Universitätsklinik Zürich

- 3. März 2014: Allergien: Amoklauf des Immunsystems
  Dr. Georg Schäppi, Biologe und Geschäftsleiter von aha! Allergiezentrum Schweiz

- 7. April 2014: Sichere Lebensmittel: Vom Stall bis auf den Teller
  Prof. Roger Stephan, Direktor des Instituts für Lebensmittelsicherheit und -hygiene der Universität Zürich

- 5. Mai 2014: Krank werden im Spital: ein paradoxes Risiko
  PD Dr. Hugo Sax, Leiter der Abteilung für Spitalhygiene am Universitätsspital Zürich

- 27. Oktober 2014: Frühe Geburt - späte Folgen?
  Prof. Bea Latal, Co-Leiterin der Abteilung Entwicklungspädiatrie am Kinderspital Zürich

- 17. November 2014: Immer mehr Zappelphilippe? Ursachen und Behandlung von ADHS
  Prof. Susanne Walitza, Ärztliche Direktorin des Kinder- und Jugendpsychiatrischen Dienstes des Kantons Zürich

- 8. Dezember 2014: Medicine goes nano: kleine Partikel ganz gross
  Prof. Beatrice Beck Schimmer, Anästhesistin am UniversitätsSpital Zürich

- 23. Februar 2015: Lungentransplantation; Pioniergeist mit langem Atem
  Dr. Walter Weder, Direktor der Klinik für Thoraxchirurgie am UniversitätsSpital Zürich. Er führte die erste erfolgreiche Lungentransplantation in der Schweiz durch.

- 23. März 2015: Ein zurückgewonnenes Lächeln dank Wiederherstellungschirurgie
  Prof. Pietro Giovanoli, Direktor der Klinik für Plastische Chirurgie am UniversitätsSpital Zürich

- 20. April 2015: Mit dem Skalpell am ungeborenen Kind
  Prof. Martin Meuli, Direktor der Klinik für Kinderchirurgie am Kinderspital Zürich. Er operierte als einer der weltweit Ersten ein ungeborenes Kind im Mutterleib, das an einem offenen Rücken litt.

- 18. Mai 2015: Neurochirurgie: Höchste Präzision durch innovative Technologie
  Prof. Luca Regli, Direktor der Klinik für Neurochirurgie am UniversitätsSpital Zürich

- 19. Oktober 2015: Keine Zeit zum Schlafen
  Prof. Christian Baumann, Leitender Arzt an der Klinik für Neurologie am UniversitätsSpital Zürich

- 2. November 2015: Reagieren Frauen anders auf Stress als Männer?
  Prof. Dr. Ulrike Ehlert, Leiterin des Instituts für Klinische Psychologie und Psychotherapie an der Universität Zürich

- 30. November 2015: Wenn Stress unter die Haut geht
  Dr. Siegfried Borelli, Leitender Arzt am Dermatologischen Ambulatorium des Zürcher Stadtspitals Triemli

- 11. April 2016: Lästige Stiche oder Krankheitsübertragung?
  Prof. Alexander Mathis, Leiter des Nationalen Zentrums für Vektor-Entomologie, Universität Zürich

- 9. Mai 2016: Vorsicht Sonne! - Welcher Schutz ist der beste?
  Prof. Dr. med. Stephan Lautenschlager, Chefarzt am Dermatologischen Ambulatorium, Stadtspital Triemli, Zürich

- 23. Mai 2016: Therapie krebskranker Tiere - Hilfe oder Qual?
  Prof. Dr. med. vet. Carla Rohrer Bley, Leiterin Onkologie, Zürcher Tierspital

- 20. Juni 2016: Wie beeinflusst die Darmflora unsere Gesundheit?
  Prof. Dr. Gerhard Rogler, leitender Arzt an der Klinik für Gastroenterologie, UniversitätsSpital Zürich

- 3. Oktober 2016: Wenn die Erinnerung verblasst
  Prof. Dr. Roger Nitsch, Leiter des Instituts für Regenerative Medizin, Universität Zürich. Prof. Nitsch ist Pionier in der Alzheimerforschung und hat mit seinem Team den Antikörper «Aducanumab» entwickelt, der die Behandlung der Krankheit revolutionieren könnte.

- 14. November 2016: Entwickelt sich mein Kind «normal»?
  Prof. Dr. Oskar Jenni, Leiter der Abteilung Entwicklungspädiatrie, Kinderspital Zürich. Prof. Oskar Jenni ist Nachfolger des Authors Remo Largo als Leiter der Abteilung Entwicklungspädiatrie.

- 28. November 2016: Familienplanung im Zeitalter des «Social Freezings»
  Prof. Dr. Brigitte Leeners, Leitende Ärztin an der Klinik für Reproduktions-Endokrinologie, UniversitätsSpital Zürich

Contribution to the Parcours des Wissens within the 175th anniversary celebration of the University of Zurich (March 8-16, 2008)

The ZIHP participated with the following projects:

- Research for sick hearts: atherosclerotic plaques, cardiovascular regenerative medicine, heart failure and cardiac arrhythmia (Cardiovascular Research, Cardiovascular Surgery and Clinic for Cardiology)
- Physical inactivity and its consequences (Institute of Physiology)
- The body balance: food intake, obesity and type 2 diabetes (Institute of Veterinary Physiology)
- Regulation and coordination of the brain: sleep, eye and head movements (University Children's Hospital, Institute of Pharmacology and Toxicology and Department of Neurology)

Zurich Researchers' Nights

- September 26, 2008: Several ZIHP members presented their research
- September 25, 2009: Several ZIHP members presented their research

Scientifica - Zürcher Wissenschaftstage

- August 26-28, 2011: several short presentations of ZIHP members around the topic *Energie für den Körper* and sponsoring of the exhibition of a walkable model of the human intestine (organized by ZIHP member Prof. Gerhard Rogler).

- August 30-September 1, 2013: The ZIHP participated with one booth on nanoparticles: «Magnetische Nanopartikel in der Medizin: Freund oder Feind? ». In addition, several short presentations and booths organized by ZIHP members

Electronic newsletter (ZIHP-News)

The newsletter archive can be found on the website: Services > Newsletter. Some *ZIHP News* appeared as *Special Issue* in a printed version.

Further activities

- 9. Dezember 2005: Tag der offenen Türen im Labor für Klinische Vestibulo-Okulomotorik: Besichtigung des neuen Linearbeschleunigerlabor.