Universität Zürich[UZH]

ZIHPNews

Zurich Center for Integrative Human Physiology

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As integrative as it gets: Impressions from the 11th ZIHP Symposium

Christina Giger

Oxygen sensing, micro RNA, placebos and bone degeneration – the ZIHP symposium again offered outstanding keynote lectures and presentations by young scientists across the broad range of integrative human physiology. Excellent posters were presented and lively discussed. Minds and networks were broadened, collaborations initiated.

What makes us suffer at high altitude? The first keynote speaker, Prof. Sir Peter Ratcliffe from the University of Oxford, dedicates his research to the question how reduced oxygen availability – hypoxia – influences the organism. He investigates the regulation of erythropoietin (EPO), the hormone responsible for the increase in red blood cells following hypoxia. His team discovered Prolyl-hydroxylases and their regulation of the hypoxia inducing factor (HIF). The elucidation of hypoxia sensing pathways was a big step not only for high altitude research but also for cancer biology, because these pathways are also up-regulated by oncogenes. Ratcliffe emphasized though, that the influence of the HIF-pathway can have different visible or non-visible effects on cancer development and that therefore there will be no universal cure for cancer.

miRNAs in heart disease

Besides cancer, the most common cause of death in Switzerland is heart failure. It can be caused by different pathologies, for example vessel occlusion or inflammation of the heart muscle. This often leads to pathological heart growth. Prof. Thomas Thum from the Hannover Medical School is interested in the influence of non-coding RNA, especially micro RNA (miRNA) during heart growth and cardiac remodelling. He found that treatment against specific miRNA in heart-diseased mice can prevent cardiac dysfunction or reduce problems after a heart attack. He also successfully tested those treatments in pigs. These findings could be of particular interest in those types of myocardial infarction where no vessel is occluded and a catheter is not the right treatment.

Various posters presented by young scientists also showed the importance of non-coding RNA in human physiology and pathology. Discussions emerged at Thum's talk were continued at the large poster session before people gathered again to hear the next interesting keynote lecture.

Biochemistry or just imagination?

Is it biochemistry or is it just imagination what makes placebos effective – or even more important: Is

there a difference? Prof. Fabrizio Benedetti from the University of Turin explained the analogies and differences of placebos and "real" drugs. Besides the specific biochemical action of a drug, the patient gets used to the ritual of the administration by a syringe or the look and taste of a pill given by a person of trust – and likewise the brain gets used to it. If then a placebo is administered in the same way, the brain sends the exact same signals to the body and this will activate the exact same biochemical pathways and therefore have the same effect as when the drug is given. Even known drug side effects can be induced by a placebo! Moreover, when Benedetti gave a painkiller drug to a patient covertly, it had a much weaker effect as if administered by a known ritual. Some drugs even had no effect at all. Benedetti explained this with the psychological effect of the drug, the very same effect that renders placebos effective.

Calcium and aging

Prof. Florian Lang from the University of Tübingen closed the symposium with his talk on calcium metabolism and aging. He investigates the role of the enzyme klotho in calcium extraction from bones and bone reformation. Klotho knockout mice show disturbances in bone metabolism that are also associated with aging. Moreover, they die early showing multiple other disorders associated with aging. This suggests an important role of klotho in the aging process, also because mice overexpressing klotho live longer than normal mice.

The day ended with the awards ceremony for the best talk and the best four posters. Congratulations to: Irina Alecu from the Institute of Clinical Chemistry, UZH (best presentation), Tasneem Arsiwala from the Center for Molecular Cardiology, USZ, Iliana Karipidis from the University Clinic for Child and Adolescent Psychiatry, Magda Langiewicz from the Division of Visceral and Transplantation Surgery, USZ and Elisa Randi from the Institute of Physiology, UZH (best posters).

A big thank you to all participants and see you again at the next ZIHP Symposium on August 26, 2016!

→ Photo album of the 11th ZIHP Symposium

Antrittsvorlesungen von ZIHP-Mitgliedern

3. Oktober 2015
→ Ersatzteile mit Eigenleben
PD Dr. Benedikt Weber, Universitäts-Spital Zürich

31. Oktober 2015
→ Bariatrische Chirurgie – Mythen und Fakten
PD Dr. Marco Bueter, Universitäts-Spital Zürich

16. November 2015
→ Zelle im Stress – Stoffwechsel auf Sparflamme: Zur Biologie und Translation einer zentralen Überlebensstrategie
PD Dr. Thomas A. Gorr, Institut für Veterinärphysiologie, UZH

imMed PhD Program graduate courses

November - December 2015
→ Aspects of sensory motor transformation: Balance, eye movement control, motion perception
Deadline for registration:
October 21, 2015

January 11/12, 2016
→ Flow cytometry
Deadline for registration:
November 30, 2015

imMed PhD Program – new students

Since the last recruitment round 13 new students who were accepted to the PhD Program in Integrative Molecular Medicine (imMed) started their work here in Zurich. Welcome!

Bugarski Milica, Institute of Anatomy, UZH
Chen Tse-Hsiang, Division of Cranio-Maxillo-Facial and Oral Surgery, UZH
Chen Rong, Division of Visceral and Transplant Surgery Research, USZ
Gebert, Katrin, Insitute of Clinical Chemistry, USZ
Gennaro Federico, Department of Health Sciences and Technology, ETHZ
Günter Julia, Center for Regenerative Medicine, USZ/UZH
Hadzic Adisa, Institute of Anatomy, UZH
Ingold Sabrina, Institute of Forensic Medicine, UZH
Klee Katrin, Lab for Retinal Cell Biology, USZ/UZH
Lucienne Marie, Division of Metabolism, University Children's Hospital Zurich
Olsen Nanna, Institute of Physiology, UZH
Rudnik Michal, Division of Rheumatology, USZ
Steiger Julia, Center for Regenerative Medicine, USZ/UZH

Stress und seine Folgen

Die Herbstausgabe von

WISSEN-SCHAFT WISSEN

ZIHP-Mitglieder und ihre Forschungspartner präsentieren aktuelle Themen aus den Bereichen Physiologie und Medizin und laden die interessierte Öffentlichkeit zur Diskussion ein.

19. Oktober 2015
→ Keine Zeit zum Schlafen
Prof. Dr. Christian Baumann, Leitender Arzt an der Klinik für Neurologie, UniversitätsSpital Zürich

2. November 2015
→ Reagieren Frauen anders auf Stress als Männer?
Prof. Dr. Ulrike Ehlert, Leiterin des Instituts für Klinische Psychologie & Psychotherapie, Universität Zürich

30. November 2015
→ Wenn Stress unter die Haut geht
Dr. Siegfried Borelli, Leitender Arzt am Dermatologischen Ambulatorium des Zürcher Stadtspital Triemli

Montags von 18:15 - 19:45 Uhr.
Eintritt frei!
Universität Zürich Zentrum
Rämistrasse 71
Hörsaal KOL-F-101

Events

September 16, 2015 - PhD Thesis Defense
→ Biomarkers in autosomal dominant polycystic kidney disease
Katja Petzold, Inst. of Physiology, UZH

September 21, 2015
→ Innovative strategies to treat protein misfolding in inborn errors of metabolism: Pharmacological chaperones and proteostasis regulators
Dr. Soren W. Gersting, Molecular Pediatrics, Dr. von Haunersche Children's Hospital LMU, Munich, Germany

September 22, 2015
→ Generation of a mouse model of clear cell renal cell carcinoma
Dr. Sabine Harlander, Institute of Physiology, UZH

September 28, 2015
→ Interaction of hypoxia and zinc in pancreatic beta cells
Dr. Philipp Gerber, USZ

September 28, 2015 - PhD Thesis Defense
→ Molecular basis of aortic diseases
Janine Meienberg, Center for Cardiovascular Genetics and Gene Diagnostics, UZH

September 29, 2015
→ Dietary phosphate intake modulates renal NaCl reabsorption and blood pressure
Dr. Arezoo Daryadel, Instit. of Physiol., UZH

October 2, 2015
→ Sleep and pain interactions: Developing effective treatments for insomnia and pain in osteoarthritic older adults
Michael V. Vitiello, Dept. of Psychiatry and Behavioral Sciences, University of Washington, Seattle, USA

October 6, 2015
→ The development of in vivo and in vitro models of idiopathic membranous nephropathy
Dr. George Haddad, Inst. of Physiol., UZH

October 7, 2015
→ Infra-slow neural and cardiac fluctuations control behavioral arousability during mouse NREM sleep
Anita Lüthi, Département des Neurosciences Fondamentales, Univ. de Lausanne

October 9, 2015
→ Modelling changes in sleep timing and duration across the lifespan: changes in circadian rhythmicity or sleep homeostasis?
Anne Skeldon, Department of Mathematics, University of Surrey, UK

October 13, 2015
→ The cancer anorexia-cachexia syndrome: pathological mechanisms and treatment options
Prof. Dr. Thomas Riediger, Institute of Veterinary Physiology, UZH

October 14, 2015
→ Cortical mechanisms of loss of consciousness: insight from sleep
Marcello Massimini, Dept. Biomed. & Clinical Sciences, Univ. of Milan, Italy

October 20, 2015
→ HIF-1 @ the BBB: A mediator or disruptor of brain homeostasis?
Dr. Lara Ogunshola, Institute of Veterinary Physiology, UZH

October 23, 2015
→ Sleepiness and driving
David Schreier, Sleep-Wake-Centre, Dept. of Neurology, University Hospital Bern

October 26, 2015
→ The Lausanne Institutional Biobank, a new integrated research infrastructure
Prof. Dr. Vincent Mooser, Department of Laboratories, CHUV Lausanne

October 27, 2015
→ Glyco-proteomic approaches in life sciences
Dr. Andreas J. Hülsmeier, Institute of Physiology, UZH

November 3, 2015
→ Myoglobin outside of muscles: new location, new role
PD Dr. Thomas A. Gorr, Institute of Veterinary Physiology, UZH

November 9, 2015
→ What humanized hemato-lymphatic mouse models can contribute to medicine
Prof. Dr. Markus G. Manz, USZ

November 10, 2015
→ At the crossroad of hypoxia and inflammation: implications in tumor progression
Jesus Glaus Garzon, Institute of Physiology, UZH

Press review

→ Grippemittel helfen gegen Kolibakterien
Gerät der Bakterienhaushalt im Darm aus dem Gleichgewicht, kann es zu Krankheiten kommen. Forschende um das ZIHP-Mitglied Thierry Hennet zeigen auf, wie ein spezifisches Kohlehydrat der Darmschleimhaut gewisse Kolibakterien stark vermehrt und damit Entzündungen verursacht. Diese könnten mit Grippemitteln behandelt werden.
Medienmitteilung UZH, 25.8.2015

→ Unser Körper, ein Produkt evolutionärer Kompromisse
Infektionen und Zivilisationskrankheiten wie Rückenschmerzen oder Adipositas haben viel mit unserer evolutionärer Geschichte zu tun. Für eine erfolgreiche Behandlung braucht es deshalb entsprechende Kenntnisse, sagt ZIHP-Forscher Frank Rühli.
UZH News, 6. August 2015

Congratulations!

ZIHP-Mitglied Prof. Dr. Konrad E. Bloch wurde zum → ordentlichen Professor ad personam für Pneumologie, speziell klinische Atmungsphysiologie befördert.

Recent publications

Aradi B, Kato M, Filkova M, Karouzakis E, Klein K, Scharl M, Kolling C, Michel BA, Gay RE, Buzas EI, Gay S, Jüngel A: → Protein Tyrosine Phosphatase Nonreceptor Type 2 (PTPN2), an Important Regulator of IL-6 Production in Rheumatoid Arthritis Synovial Fibroblasts. Arthritis Rheumatol [Epub ahead of print], 2015

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

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

Fenollar-Ferrer C, Forster IC, Patti M, Knoepfel T, Werner A, Forrest LR: → Identification of the first sodium binding site of the phosphate cotransporter NaPi-IIa (SLC34A1). Biophys J 108(10): 2465-80, 2015

Gaisl T, Schlatzer C, Schwarz EI, Possner M, Stehli J, Sievi NA, Clarenbach CF, Dey D, Slomka PJ, Kaufmann PA, Kohler M: → Coronary artery calcification, epicardial fat burden, and cardiovascular events in chronic obstructive pulmonary disease. PLoS One 10(5): e0126613, 2015

Gassmann M, Muckenthaler MU: → Adaptation of iron requirement to hypoxic conditions at high altitude. J Appl Physiol (1985) [Epub ahead of print], 2015

Ghisleni C, Bollmann S, Poil SS, Brandeis D, Martin E, Michels L, O'Gorman 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

Gutermann IK, Niggemeier V, Zimmerli LU, Holzer BM, Battegay E, Scharl M: → Gastrointestinal bleeding and anticoagulant or antiplatelet drugs: systematic search for clinical practice guidelines. Medicine (Baltimore) 94(1): e377, 2015

Hay DL, Chen S, Lutz TA, Parkes DG, Roth JD: → Amylin: Pharmacology, Physiology, and Clinical Potential. Pharmacol Rev 67(3): 564-600, 2015

Lutz TA, Meyer U: → Amylin at the interface between metabolic and neurodegenerative disorders. Front Neurosci 9: 216, 2015

Milkereit R, Persaud A, Vanoaica L, Guetg A, Verrey F, Rotin D: → LAPTM4b recruits the LAT1-4F2hc Leu transporter to lysosomes and promotes mTORC1 activation. Nat Commun 6: 7250, 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, 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

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

Xiu D, Geiger MJ, Klaver P: → Emotional face expression modulates occipital-frontal effective connectivity during memory formation in a bottom-up fashion. Front Behav Neurosci 9: 90, 2015

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