

Dear CRC 1149 members,

The new year is only 4 months old, and the CRC already has some highlights we would like to report. One is the International Symposium of the CRC, and the status seminar of the civil-military network "Regenerative Medicine". Furthermore, there are some new GEROK and Gender funding announcements.

We wish you all the best for the upcoming spring.

Sabine Vettorazzi
Melanie Haffner-Luntzer

International Symposium on Trauma Research

Trauma can affect everyone, at any time, from birth to death and represents a major global healthcare burden. The current burning questions are:

Who is most at risk to develop complications after trauma? How do organs, cells and molecules react to the trauma impact? Which comorbidities are major disturbance factors for the healing process?



These core research questions were addressed during the International Trauma Symposium, which took place from the 22nd to 24th of February this year. The principal investigators of the CRC1149 presented their latest findings and discussed their projects with highly recognized international experts. Well known scientists of the trauma field provided exciting and entertaining keynote lectures. The meeting covered both cutting-edge basic and translational research. We also enjoyed the social program and the Conference Dinner at the Wiley Club, which gives the opportunity not only to deepen the scientific discussions, but also to foster friendship with our international guests.

Application for Funding within the Excellence Strategy

The Cluster of Excellence funding line is designed to support funding in internationally competitive research fields at universities. Clusters of Excellence are intended to form an important part of the strategic and thematic planning of the applicant university, hone their profiles. They are also intended to create excellent training and career building opportunities for young researchers.

We are proud that Ulm University and the Medical Faculty has supported our application for the Cluster of Excellence *Trauma Research Centre Ulm* (TRCU). The application is based on our long-standing tradition in successful trauma research and treatment in Ulm University. The pre-existing Centre for Trauma Research (ZTF),

which was established in 2015 as an interfaculty central unit of Ulm University, integrates physical and psychological trauma research and serves as the structural focal point of the TRCU. The draft proposal was submitted end of March to the German Research Foundation. The decision about the invitation to submit a full proposal will be announced end of September. Keep your fingers crossed!

Status Seminar of the Joint Trauma Research Network UUlm-BWK Ulm

The joint trauma research network between Ulm University and the Military Hospital Ulm (BWK) Ulm was established in 2015 and is funded by the German Armed Forces. The collaboration aims to investigate the consequences of trauma at the cellular and molecular level and to develop new therapies for bone fractures, cartilage, skin, and nerve injuries, as well as psychological posttraumatic disorders. The BWK also aims to improve regeneration by the application of bioactive



molecules, the development of new cell-based therapies and the modulation of inflammatory processes. On March 28th, the principal investigators of the eight projects presented their latest research findings at the second status meeting of the consortium.

GEROK Position and Gender Equality Funding

Dr. med **Martin Wepler** holds a **GEROK position** in the lab of Peter Radermacher, Institute for Anesthesiological Pathophysiology and Process Engineering. The aim of the project “Effects of the oxytocin-receptor-system and early life maternal separation on the cardiovascular system and outcome after murine hemorrhagic shock” is to investigate if the oxytocin system and psychological trauma affect the function of cardio-vascular system (heart function, systemic circulation). In addition he plans to investigate the outcome after hemorrhagic shock. Therefore he will use heterozygote (Oxytocin-receptor+/-) and homozygote (Oxytocin-receptor+/-) mice.

Dr. Melanie Haffner-Luntzer is supported by Gender Equality Funding of the CRC1149 in the lab of Anita Ignatius, Institute of Orthopaedic Research and Biomechanics (UFB). Her project entitled “Influence of chronic psychosocial stress on fracture healing and posttraumatic inflammatory response” aimed to investigate the interplay of psychological and physical trauma in the context of bone healing. The project will be conducted in cooperation with the group of Stefan Reber, Clinic for Psychosomatic Medicine and Psychotherapy. Mice exposed to the chronic subordinate

colony housing (CSC) paradigm, a model for chronic psychosocial stress, will receive a femur fracture to analyse the inflammatory response and healing cascade *in vivo*.

Dr. Sabine Vettorazzi is supported by Gender Equality Funding of the CRC1149 in the lab of Jan Tuckermann Institute of Comparative Molecular Endocrinology (CME). The aim of the project "A novel target to limit inflammation and to reduce glucocorticoid associated side effects relevant for trauma" is to investigate a new kinase that is already described to have anti-inflammatory effects and improve bone quality. The analysis will be done *in vivo* in mouse model with conditional knockout of the kinase in important immune cells (myeloid cells) in blunt chest trauma. The *in vivo* studies will be complemented with *in vitro* primary cell culture.

Awards

Dr. Sabine Vettorazzi was awarded with the **Hugo-Schottmüller price of the German Sepsis Society** in December 2016. The price (3000€) assigns young scientists for outstanding publications in basic research of sepsis. Dr. Sabine Vettorazzi was awarded for her Nature Communications publication "Glucocorticoids limit acute lung inflammation in concert with inflammatory stimuli by induction of SphK1".



<http://sepsis-gesellschaft.de/DSG/Deutsch/Forschung/Forschungspreise/Preistraeger>

Dr. Sabine Vettorazzi was one of the **10 nominated for the academics young scientist award** in April 2017. The prize honours young scientists for their excellent dedication, trend-setting ideas or exemplary action that have a sustainable impact on research, science and progress.



Dr. Katharina Ernst from the group of Holger Barth, Institute for Pharmacology and Toxicology, received the "Young Scientist Merck Award 2017". Her work concerning the interactions of Hsp70 with bacterial toxins was awarded with 2500€ from the Deutsche Gesellschaft für Pharmakologie und Toxikologie.

The CRC congratulates the winners most warmly for their excellent work!

Announcements

The **5th CRC Retreat** will take place on May 21st - 23rd 2017

Location: Hotel Oberstdorf (www.hotel-oberstdorf.de)

We are happy to see you all there and discuss with you the recent achievements and outlook of the projects.



Call for applications for the 2nd Funding Period

The CRC calls for projects for the 2nd funding period. New projects should complement and strengthen all research groups, particularly research group B. We aim to include projects focussing on the interplay between physical and psychological trauma consequences (psychological trauma load as a confounding factor for physical trauma) and projects addressing the adaptive immune response after trauma. Principle investigators should have an internationally visible track record in the field reflected by outstanding publications and relevant third-party funding.

Application deadline: 31.05.2017

Please find instructions for the application on the CRC 1149 homepage:

<http://www.uni-ulm.de/einrichtungen/sfb-1149>

Next seminar series 2017

Guest speaker

May 18th 2017

16:00 "Acute trauma-induced coagulopathy
– from bench to bedside"

Prof. Dr. Karim Brohi

N27 Multimedia

24. SFB seminar

June 22th 2017

16:00 "Glucocorticoid function in immune-metabolism"

Prof. Dr. Jan Tuckermann

N27 Multimedia

16:45 meeting

Selected New Publications

Haffner-Luntzer M, Müller-Graf F, Matthys R, Hägele Y, Fischer V, Jonas R, Abaei A, Gebhard F, Rasche V, Ignatius A. Evaluation of high-resolution In Vivo MRI for longitudinal analysis of endochondral fracture healing in mice. PLoS One. 2017 Mar 23;12(3):e0174283.

Finan, B., C. Clemmensen, Z. Zhu, K. Stemmer, K. Gauthier, L. Muller, M. De Angelis, K. Moreth, F. Neff, D. Perez-Tilve, K. Fischer, D. Lutter, M. A. Sanchez-Garrido, P. Liu,

J. Tuckermann, M. Malehmir, M. E. Healy, A. Weber, M. Heikenwalder, M. Jastroch, M. Kleinert, S. Jall, S. Brandt, F. Flamant, K. W. Schramm, H. Biebertmann, Y. Doring, C. Weber, K. M. Habegger, M. Keuper, V. Gelfanov, F. Liu, J. Kohrle, J. Rozman, H. Fuchs, V. Gailus-Durner, M. Hrabe de Angelis, S. M. Hofmann, B. Yang, M. H. Tschop, R. DiMarchi and T. D. Muller (2016). Chemical Hybridization of Glucagon and Thyroid Hormone Optimizes Therapeutic Impact for Metabolic Disease. *Cell*. epub ahead of print.

Liu, P., M. Baumgart, M. Groth, J. Wittmann, H. M. Jack, M. Platzer, J. P. Tuckermann and U. Baschant (2016). Dicer ablation in osteoblasts by Runx2 driven cre-loxP recombination affects bone integrity, but not glucocorticoid-induced suppression of bone formation. *Sci Rep* 6: 32112.

Mueller KM, Hartmann K, Kaltenecker D, Vettorazzi S, Bauer M, Mauser L, Amann S, Jall S, Fischer K, Esterbauer H, Müller TD, Tschöp MH, Magnes C, Haybaeck J, Scherer T, Bordag N, Tuckermann JP, Moriggl R. Adipocyte Glucocorticoid Receptor Deficiency Attenuates Aging- and Hfd-Induced Obesity, and Impairs the Feeding-Fasting Transition. *Diabetes*. 2016 Sep 20.

Jiang D., Muschhammer J., Qi Y., Kügler A., de Vries J. C., Saffarzadeh M., Sindrilaru A., Vander Beken S., Wlaschek M., Kluth A. M., Ganss C., Frank N. Y., Frank M. H., Preissner K. T., and Scharffetter-Kochanek K. 2016. Suppression of neutrophil-mediated tissue damage – a novel skill of mesenchymal stem cells. *Stem Cells*.

Knöller E, Stenzel T, Broeskamp F, Hornung R, Scheuerle A, McCook O, Wachter U, Vogt JA, Matallo J, Wepler M, Gässler H, Gröger M, Matejovic M, Calzia E, Lampl L, Georgieff M, Möller P, Asfar P, Radermacher P, Hafner S. Effects of Hyperoxia and Mild Therapeutic Hypothermia During Resuscitation From Porcine Hemorrhagic Shock. *Crit Care Med*. 2016 May;44(5):e264-77