Protonation Dynamics for Protein Function (SFB 1078)

The SFB "Protonation Dynamics for Protein Function" looks at the movement of hydrogen ions which allows, for example, the coordination of different function sites in complex proteins and forms the basis for the conversion of light signals in plants and cyanobacteria. The aim of the SFB is to understand protonation dynamics as a determining factor of protein function at a fundamental physical and chemical level. This will be achieved by combination of new biophysical experiments with molecular stimulation and quantum chemical calculations. Research into the fundamentals of protein function can be useful in the long term for the technical implementation of new concepts such as light-driven water splitting or oxygen reduction (in energy sciences).

Speaker: Prof. Dr. Holger Dau

holger.dau@fu-berlin.de · www.SFB1078.de

Cellular Approaches to the Suppression of Unwanted Immune Reactions (SFB 650)

Disorders caused by undesired immune reactions such as auto immune diseases, allergies and transplant rejections are of considerable clinical and economic significance. Currently available therapies employ non-specific immunosuppressants which are associated with limited effectiveness, substantial side effects and require long-term application with accompanying high costs. The purpose of the projects of SFB650 is the development of new strategies for the selective modulation of undesirable immunological reactions and to foster their transition to the clinic. Our common vision is to use the mechanisms of peripheral tolerance for therapeutic purposes and to switch off pathological and undesirable immunological reactions permanently by targeting mechanisms regulating the immunological homeostasis. Hence, a key question in all projects is, which mechanisms do regulate the balance between auto-reactivity versus peripheral tolerance or destruction versus protection. How novel, clinically applicable therapeutic concepts can be derived from this knowledge is the core perspective in transfer of scientific results "from bench to bedside".

Speaker: Prof. Dr. Hans-Dieter Volk

hans.dieter.volk@charite.de · www.sfb650.charite.de

Priming and Memory of Organismic Responses to Stress (SFB 973)

The Collaborative Research Center (SFB) 973 has been established in July 2012 and is funded by the German Research Foundation. The centre combines ecological research with molecular biology and biochemistry. Target organisms of this SFB are currently bacteria, fungi and plants. Scientists pursue two main objectives in this research: one is to elucidate molecular, biochemical and physiological mechanisms which play a role in priming of stress responses and memory of stressful events – for example, low temperature stress or infestation of plants by pest insects. Another objective is to gain knowledge on how stability and predictability of environmental conditions affect the stress responses of organisms. An integrated research training group is associated with the SFB, thus enabling an integrated education in the fields of ecology and molecular biology and biochemistry. The speaker at the SFB is Prof. Dr. Monika Hilker from the Institute of Biology at the Freie Universität of Berlin. The University of Potsdam and the Max Planck Institute for Molecular Plant Physiology in Potsdam-Golm are also participating in this centre.

Speaker: Prof. Dr. Monika Hilker

hilker@zedat.fu-berlin.de

Scientific coordinator: Dipl.-Biol. Tobias Otte

tobias.otte@fu-berlin.de · www.sfb973.de

Inflammatory Cardiomyopathy – Molecular Pathogenesis and Therapy (SFB/TR 19)

With their extensive scientific and/or clinical experience on the field of inflammatory cardiomyopathy and a high international reputation, several university clinics and university and non-university research institutions joined together to form the collaborative research centre Transregio 19 (SFB/19).

Objectives of the sections A to C in the SFB/TR19 are:

A. Elucidation of structural determinants of the DCMi at the cellular and molecular level.
B. Characterisation of virus-host interactions and their relevance for the clinical course of DCMi.
C. Development of new experimental and clinical treatment approaches taking into account the knowledge of molecular pathogenesis gained in the sections A and B.

Speaker: Prof. Dr. Heinz-Peter Schultheiss

Contact: Heiderose Kuhn

heiderose.kuhn@charite.de · www.sfb-transregio-19.de