

Session Title: The Promise and Peril of Mind-Brain-Body Interactions in Health and Disease

Summary

The intimate relationships that exist between mind, brain and body, particularly those that are involved in the regulation of the immune system, have been recognized for more than 100 years. Theories related to the mechanisms and consequences of these interactions have evolved over time. But what has remained consistent is the understanding that these relationships are essential to the maintenance of health and wellbeing. They optimize our biological and behavioral responses to the environment and anticipate threats to homeostasis. An understanding of the dark side of these relationships has also persisted across time, where the activities and processes of the mind and brain lead to dysregulation of the immune system and contribute to deterioration of health and wellbeing.

In this PNIRS **Asia-Pacific** symposium, each speaker will discuss different aspects of mind-brain-body interactions and their role in promotion of health and disease. Professor Nicolas Rohleder, chair of the Health Psychology program at the Friedrich-Alexander University Erlangen-Nürnberg, will begin the symposium by delineating the physiological pathways that link contents of the mind, including psychological stress and negative emotions, with activities of the immune system. He will present data illustrating the importance of these pathways in promoting inflammation and how dysregulation of this relationship during chronic stress contributes to some of the most prevalent and pervasive diseases. Professor Melissa Rosenkranz, Distinguished Chair in Contemplative Neuroscience at the University of Wisconsin-Madison, will follow this presentation with a discussion of these relationships in the context of a highly prevalent chronic inflammatory disease of the airways – asthma. Dr. Rosenkranz will share data describing the priming effect that psychological stress has on airway inflammatory responses in asthma and how these responses lead to deterioration in brain health, contributing to long-term cognitive decline and risk for dementia. She will then highlight mental training as a clinical approach to harness brain-body interactions to improve disease control in asthma. Dr. Bach Tran, Professor of Health Economics at the Hanoi Medical University and Adjunct Faculty at the Johns Hopkins Bloomberg School of Public Health will build on this, providing a scoping review of the literature on mindfulness research and its applications in health interventions. In his talk, Dr. Tran will describe dominant themes in mindfulness-related research over the past 75 years and what the results of this research can tell us about what is needed for optimal and efficient incorporation of these mind-body interventions into clinical practice. Finally, Dr. Ilia Karatsoreos, Professor of Psychological and Brain Sciences at the University of Massachusetts – Amherst, will discuss the role of circadian rhythms in optimizing physiological functions, mental and physical health. He will present data detailing the importance of circadian rhythms in orchestrating the response of neural tissues to immune threats and promoting optimal behavioral and physiological shifts that synchronize with diurnal rhythms. Dr. Karatsoreos will also describe how variations and disruptions in timing leading to loss of synchronization among multiple body tissues contribute to disease.