Institute of Molecular and Cell Biology

A*STAR

SEMINAR ANNOUNCEMENT

We would like to invite you to attend this seminar hosted by Prof. Walter Hunziker:

Date: 24 November 2017, Friday

Time: 2:00PM – 3:00PM

Venue: Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

Speaker: Prof. Imola Wilhelm, Senior Research Associate, Institute of Biophysics, BRC, HAS, Szeged

Title: The neurovascular unit in inflammatory and metastatic processes of the brain

One of the most important functions of the neurovascular unit is the formation of the blood-brain barrier (BBB) which is an active interface between circulation and CNS. The BBB plays a crucial role in the protection of the brain and in the maintenance of the homeostasis of the CNS. Inflammatory processes of the brain often involve cells of the blood brain barrier, including cerebral endothelial cells, pericytes and astrocytes. We have systematically investigated the expression of pattern recognition receptors (PRRs) – the principal receptors of the innate immune system - in CECs and brain pericytes. We could show that these cells not only express PRRs but can form functionally active inflammasomes as well. This can lead to an increased interleukin 1beta release indicating that these cells might have an important and well-controlled regulatory role in neuroinflammation. Besides inflammatory processes the BBB plays a crucial in the formation of brain metastases as well. We have shown that metastatic cells can impair the tight junctions of the brain endothelium, can activate the Rac and PI3K pathways, release proteolytic enzymes and use the mesenchymal type of cell movement. Our results indicate that the BBB plays an important role in the pathogenesis of CNS disorders and can be a target of future therapeutic approaches.

Biography:

Imola Wilhelm was born in Transilvania and graduated from the Medical University of Targu – Mures, Romania in 2003 with the qualification of summa cum laude. After graduating she joined the Biological Research Centre of the Hungarian Academy of Sciences in Szeged, and she has been working in the Physiology and Pathology of the Blood-Brain Barrier Research Group since 2004. She obtained her PhD from the University of Szeged in theoretical medicine. In 2016 she was appointed as senior research scientist (level of research associate professor) at the same institute and meantime she is professor at the University of Arad, Romania as well. Her research interest is focused on the function of the neurovascular unit and blood-brain barrier under physiological and pathological conditions.

ALL ARE WELCOME *(No registration required)*