Title: Immunometabolic circuits that control cell viability

13/05/2025 @ 15:00
Costas Fotakis Room

Affiliation: Max-Planck-Institute of Biochemistry, Martinsried, Germany & Faculty of Medicine, Technical University of Munich

BIO SKETCH

Peter Murray is Professor and Head, Immunoregulation Research Group at the Max-Planck-Institute for Biochemistry in Martinsried, Germany (near Munich) where he moved in 2017 after 19 years at St. Jude Children's Research Hospital in Memphis, Tennessee. He is also an Honorary Professor in the medical faculty at the Technical University of Munich. Murray's laboratory is focused on immune regulatory events mediated by metabolic crosstalk. He is best known for work on macrophages, IL-10 and arginine metabolism in immunity. Current research is his laboratory centers on how the immune system control ferroptosis and more specifically anti-ferroptosis through regulated amino acid metabolism. An extension of this work concerns pro-cancer effects of the immune system that suppress ferroptosis in stressed malignant cells and intersections with snake venom biology and blood-borne parasite biology. Further information can be found: http://www.biochem.mpg.de/murray.

ABSTRACT

Specific enzymes that degrade amino acids are expressed in immune cells (especially myeloid cells) in response to inflammatory stimuli. These enzymes also generate metabolites that control at least four stress response signaling pathways including NRF2 and AHR. Thus, immune signals generate information from metabolites that controls the fate of other cells. I will describe current work on the enzymes and metabolites in the context of specific pathophysiological settings including cancer. I will also explain that the pathways used in immunometabolic amino acids signaling have counterpoints in snake venoms and Trypanosomes that we use to further understand the human systems.