

SFB 900 Seminar Series

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TITLE

Exhausted T cells: Metabolic programming in viral hepatitis and role in HCC.

SPEAKER

Prof. Dr. Dr. Bertram Bengsch, Gastroenterology, Hepatology, Endocrinology and Infectiology, Medical Center – University of Freiburg, Germany

LOCATION

Digital Lecture via video conference



06.05.
2021

5.00 PM (s.t.)

» Research of Bertram Bengsch

The immune system is key to the understanding of many infectious, autoimmune and malignant diseases. In the lab, we study how the immune system responds to these challenges with the goal to translate this better understanding to inform therapeutic decisions, such as during immunotherapy, and identify cellular mechanisms controlling immune function to reveal additional targets for the manipulation of immune responses. We utilize advanced single-cell profiling approaches including mass cytometry and imaging mass cytometry in combination with algorithmic deconvolution of the dense data sets.

A major focus in the lab is centered on understanding exhausted T cells (TEX), which constitute a T cell lineage distinct from functional memory and effector cells that is characterized by co-expression of immunoregulatory molecules, an altered transcriptional and epigenetic landscape and reduced effector and memory functionality. We have demonstrated that bioenergetic regulation through immune checkpoints (e.g., PD-1) is an important driver of exhaustion. Further, we have demonstrated heterogeneity and disease associations of different varieties of exhausted T cells in humans that are impacted by therapy. Ongoing projects currently focus on understanding the cellular mechanisms underlying the differential usage of immunometabolism in different subtypes of T cells and understanding the role of peripheral and tissue-resident immune populations.

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