

Joint Symposium 27

Translational Molecular Imaging and Therapy + Oncology & Theranostics + Cardiovascular + Inflammation & Infection / European Society for Molecular Imaging (ESMI)

Friday, October 30, 15:30-17:00

Session Title

Radar on Immune Cell Imaging

Chairperson

Margret Schottelius (Lausanne, Switzerland)

Programme

- 15:30 – 15:58 Bernd Pichler (Tübingen, Germany / ESMI): Unravelling the Universe of the Immune System by Targeted Molecular Imaging
- 15:58 - 16:18 Fabien Hyafil (Paris, France): Clinical Experience in Immune Cell Imaging in Atherosclerosis
- 16:18 - 16:38 Frank Bengel (Hannover, Germany): Clinical Experience in Immune Cell Imaging in Myocardial Infarction
- 16:38 - 16:58 Inge Grondman (Nijmegen, Netherlands): Inflammation and Immunooncology - Same Targets, Different Story?

Educational Objectives

1. To provide an extensive overview over the diverse cell types and cell-specific molecular targets relevant in the context of imaging the immune cells and their activation state, independent from a given pathology
2. To highlight recent translational efforts and clinical advances in immune cell imaging, as exemplified by cardiovascular disease
3. To put immune cell imaging in a broad and more general perspective by showing the common features as well as differences between immune-cell centered imaging approaches in immunooncology versus inflammatory/infectious diseases.

Summary

Immune cell imaging has attracted tremendous interest in the past years, especially in the context of immunotherapy. Here, substantial advances have been made in identifying and understanding the role of different immune cell subsets in the tumor microenvironment (TME) by targeted molecular imaging. However, given the complexity of the TME ecosystem, more precise imaging tools, providing imaging data with enhanced predictive value, are still needed to improve personalized cancer treatment. This session aims at bridging the field of immunooncology with “classical” inflammation and infection imaging, thus trying to cover the entire clinical scope of immune cell imaging (“radar”). There is

significant overlap in the underlying imaging principles, the molecular targets addressed and the tracers used. This session will thus cover the molecular basis of immune cell imaging as well as recent tracer developments and then provide an in-depth overview over immune cell imaging in cardiovascular diseases, as a representative disease spectrum where exact quantification of immune cell infiltration represents a clinically and therapeutically relevant parameter for personalized patient care. This is complemented by a comprehensive overview over the links of these approaches to imaging in the context of immunotherapy, designed to ultimately demonstrate the potential of exploiting this overlap in the diverse aspects of clinical experience of immune cell imaging for advancing the field.

Key Words

Immune system, immune cells, imaging, PET, SPECT, inflammation, infection, cancer, immunotherapy, immunooncology