

## Erik Aarntzen

### Short Biography:

Dr. Erik Aarntzen holds a permanent staff position at the Department of Medical Imaging at the Radboudumc. His research group on Immune Imaging performs several clinical studies with a strong translational focus, mainly in the field of onco-immunology. In these studies, multiple tracers, ranging from radiolabelled nanoparticles, autologous immune cells to therapeutic antibodies and small peptides are exploited to better understand the critical components of the immune system at both local and whole-body level.

Erik is also one of the founders and previous co-chair of the European Society for Molecular Imaging (ESMI) study group Onco-Immunology and Therapy, and former board member of the European Association for Nuclear Medicine (EANM) committee Infection and Inflammation.

### Abstract:

The detection of occult infections and low-grade inflammation in clinical practice remains challenging and much depending on readers' expertise. Although molecular imaging, like [18F]FDG PET or radiolabeled leukocyte scintigraphy, offers quantitative and reproducible whole-body data on inflammatory responses its interpretation is limited to visual analysis. This often leads to delayed diagnosis and treatment, as well as untapped areas of potential application. Artificial intelligence (AI) offers innovative approaches to mine the wealth of imaging data and has led to disruptive breakthroughs in other medical domains already. Here, we discuss how AI-based tools can

improve the detection sensitivity of molecular imaging in infection and inflammation but also how AI might push the data analysis beyond current application toward predicting outcome and long-term risk assessment.