NRS Advanced Technologies Symposium 2025

Speaker Information

Drs. Tjeerd van der Veer, LUMC, Leiden

AI in Lung Imaging: Advanced Assessment of Bronchial Disease and Emphysema

Tjeerd van der Veer is a pulmonologist and researcher specializing in alpha-1 antitrypsin deficiency (AATD), COPD and bronchiectasis. Based at Leiden University Medical Center, he applies advanced imaging techniques and artificial intelligence (AI) to improve disease diagnosis, risk assessment, and personalized treatment strategies. His research focuses on quantitative CT imaging to better evaluate structural lung changes and their clinical implications in chronic airway diseases. Clinically, he is involved in managing AATD and severe emphysema and is dedicated to advancing precision medicine in respiratory care.

Dr. Pascal Barbry, Université Cote d'Azur, Nice

Integrating single cell and spatial transcriptomics in healthy and pathological lungs

Pascal Barbry is research director at the French National Center for Scientific Research (CNRS). He holds the chair "AI for computational biology data and bio-inspired AI" at 3IA Côte d'Azur Institute since 2020. Creator and head of the Physiological Genomics group and of the UCA GenomiX platform (since 1999), he directed the Institute of Molecular and Cellular Pharmacology from 2004 to 2017 (20 teams, 25M€ annual budget). He is also Coordinator of the Academy "complexity of life" at University Côte d'Azur, Scientific leader of the Equipex+ 4D-OMICS (since 2021), Founding member and member of the executive board of the National Infrastructure France Genomics, President of the Canceropôle Provence-Alpes-Côte d'Azur (since November 28, 2019), Member and then President (since 2014) of the scientific council of the association Vaincre la mucoviscidose. Pascal Barbry's current scientific work is to develop new applications of genomics and nucleic acid sequencing in different fields: human lung cell atlas; use of DNA as a cold storage medium; viral epidemiology using wastewater; design and fabrication of genome-wide DNA microarrays; functional genomics of non-coding RNAs. Earlier in his career, he worked on the molecular and cellular pharmacology of epithelial ion channels, in link with several renal and respiratory pathologies (cystic fibrosis, hypertension).

Dr. Jan Willem Duitman, AUMC, Amsterdam

Label-free 4D-Imaging of Pathophysiological Cell and Tissue Changes in Precision-cut Lung Slices

Dr. Jan Willem Duitman is an Assistant Professor at the department of Pulmonary Medicine at the Amsterdam University Medical Center (AUMC) and a Principal Investigator at the department of Experimental Immunology. Over the last years he has established his own research line focusing on the development and progression of pulmonary fibrosis in Interstitial Lung Diseases (ILDs).

He performed his PhD in the Academic Medical Center in Amsterdam focusing on the transcriptional regulation of acute inflammatory responses during bacterial pneumonia. Towards the end of his PhD he gained interest in the pathophysiology of pulmonary fibrosis and shifted his focus investigating the role of proteases in pulmonary fibrosis development. As postdoctoral research fellow he worked at the lab of Prof. Dr. Bruno Crestani in Paris where he also gained a lot of clinical knowledge on interstitial lung diseases and pulmonary fibrosis.

In his current position he connects clinical research within the ILD center of expertise at the AUMC and pre-clinical research on pathophysiological mechanisms underlying the development and progression of pulmonary fibrosis. Jan Willem is PI of the P4O2 ILD cohort that aims to identify risk factors and biomarkers for progressive fibrotic ILD. Moreover he is leading a public-private consortium that develops targeted drug delivery for the treatment of pulmonary fibrosis. In collaboration with Dr. Lieuwe Bos he is also one of the PIs of the BALI cohort that investigates the phenotypes observed in ARDS patients using broncho-alveolar lavage fluid.

Recently he developed, in collaboration with Prof. Dr. Marloes Groot, an experimental system of precision-cut lung slices (PCLS) in combination with real-time label-free imaging technology (higher harmonic generation microscopy) to study cell dynamics and interactions and tissue morphological and extracellular matrix changes. Within the DoPredict project this technology is used to develop an innovative system to predict responses to lung treatments.

Dr. Simon Jochems, LUMC Leiden

Long-term co-culture with nasal epithelial cells induces tissue-resident memory-like T cells

Simon Jochems studied biomedical sciences at Utrecht University, followed by a PhD in virology at the Institut Pasteur in Paris. During his postdoc in the Liverpool School of Tropical Medicine, he developed assays to study nasal immune responses in the setting of controlled human bacterial and viral infections using minimally-invasive sampling methods1. In 2019, he moved to LUMC where he studies immune responses to infection, including SARS-CoV-2, and vaccination in tissues. His team was the first to show that after a respiratory viral infection antigen-specific nasal tissue-resident memory T cells are induced in humans 2. His group also showed that systemic and nasal mucosal immune responses to SARS-CoV-2 differ strongly between high-income and low-income countries, highlighting the effect of interindividual differences on immune responses to infection and vaccination3. Supported by an ERC starting grant and VIDI fellowship his research is currently focusing on how tissue-based immunity is impacted by age.

Dr. Sam van Beuningen, University Utrecht, Utrecht

AI and Automation for Patient Derived Living Technologies

Sam van Beuningen is an Assistant Professor and leads a research team in AI and Automation for Cellular Disease models within the Department of Cellular Disease Models (UMC Utrecht) and the Regenerative Medicine Center Utrecht. He has an educational background in molecular biology and holds a PhD in cell biology from Utrecht University. During his PhD project, he gained extensive experience in various molecular biology and advanced microscopy techniques at the Department of Cell Biology (Utrecht University). After obtaining his PhD, Sam continued his career as a Data Science consultant for various large Dutch enterprises. Here he developed various data and machine-learning solutions to improve business processes. Since 2021 he is working within the Centre for Living Technologies where he combines his molecular biology and microscopy knowledge with his data science experience. Sam and his team run the Cellular Screening Technologies facility and the AI lab for Living Technologies where they develop automated lab and AI pipelines for the screening and analysis of patient derived technologies.

Anneloes van Krimpen, MSc, Erasmus MC, Rotterdam

Spatial dynamics of anti-tumor immunity in the tumor-draining lymph node

Anneloes van Krimpen is a PhD candidate in the group of Ralph Stadhouders at the department of Pulmonary Medicine, Erasmus MC in Rotterdam, The Netherlands. Anneloes obtained her Master's degree in 'Infection and Immunity' at the Erasmus University Rotterdam, where she developed a keen interest in omics technologies and bioinformatics. During her PhD, she studied ways in which cancer disease outcome and immunotherapy response may be altered by the spatial organization of the tumor-draining lymph node, as well as molecular mechanisms underlying immunotherapy resistance in various cancers, including melanoma and non-small cell lung cancer.

Dr. Mieke Metzemaekers, Erasmus MC, Rotterdam

CRISPR/Cas9-based human T cell engineering

Mieke Metzemaekers is an immunologist working at the Erasmus MC Pulmonary Medicine department (Rotterdam, the Netherlands) and chair of the NRS Young Investigator Board. She obtained her PhD with Prof. Paul Proost at KU Leuven (Leuven, Belgium) working on neutrophils and inflammatory proteins in autoimmunity, auto-inflammation and COVID-19. In 2021, Mieke was awarded EMBO and EU-MSCA fellowships to join the group of Dr. Ralph Stadhouders (Erasmus MC) for postdoctoral training in gene regulation and bioinformatics. Employing state-of-the art immunological, (epi)genomics and computational approaches, her current research aims to unravel the molecular mechanisms that underpin cytotoxic lymphocyte (dys)function in health and disease.

Carli Koster, MSc, RuG, Groningen

In vitro models for studying neuro-immune interactions in asthma

Carli Koster is a PhD candidate at the Molecular Pharmacology department at the University of Groningen. Under the supervision of Prof. Reinoud Gosens, Prof. Barbro Melgert and Dr. Mihaly Balogh she investigates sensory neuron-mast cell interactions in asthma pathology. Her research utilizes advanced stem cell models and the innovative NeuroChip system to explore the complex mechanisms underlying neuroplasticity in allergic inflammation.