



Thursday 21 July
1115-1215

Understanding Biological Heterogeneity through Mass Cytometry with Helios

Dr Nina Lane, Field Applications Specialist, Fluidigm

Introduction to Mass Cytometry with Helios

Mass cytometry uniquely enables high-dimensional single-cell proteomic analysis for system-level discovery and comprehensive functional profiling applications. The large 40-plus marker proteomic panels routinely analyzed using mass cytometry provide simultaneous measurement of the breadth of cell types and the depths of their functions in a single tube. This efficient, high-information-per-tube approach is particularly valuable when sample size and instrument access are limited. We will describe the basic principles and workflow of the technology, including recent advancements incorporated into Helios™, a CyTOF® system.

Oisín Huhn, Obstetrics and Gynaecology, University of Cambridge, UK

Phenotype Analysis of Human Tissue-Resident Natural Killer Cells

Natural killer (NK) cells are lymphocytes that function in both immune defence and reproduction and are an attractive candidate for cancer immunotherapy. The characteristics of tissue NK cells differ from circulating NK cells since their phenotype and function are modified by the local microenvironment. Initial studies have shown phenotypic similarities between tumour-infiltrating NK cells and uterine NK cells during pregnancy. We will discuss the reasons for choosing mass cytometry to uncover the heterogeneity within the tissue-resident natural killer cell niche, the uniqueness of our samples and the first optimisation steps to use this technology. Our goal is then to assess the functional relevance of newly identified subsets.