Exploration of human metabolome in health and disease

Presenting author: Ajda Pristavec
Chris Hammond, Pirro Hysi
King's College London, London, United Kingdom
ajda.pristavec@kcl.ac.uk

The metabolome denotes the ensemble of molecules with a molecular weight <1.5 kDa found in each tissue or body fluid. The levels of these metabolites dynamically change in response to influences including smoking, diet and seasonality, but also with the onset and changes in the severity of a disease. As the final product of the activity of genes, mRNA and proteins, metabolites represent a more direct link between genotypes and phenotypes.
Serum metabolomics studies are scalable and feasible on population-representative cohorts. With panels of up to several thousand molecules, metabolomics can be used for generating hypotheses on associations and causal relationships between metabolites and a disease. This may point to potential early biomarkers of a disease, inform on disease pathogenesis or refine stratification of patients by the severity of their condition.
This talk will explore the power of serum metabolomics for precision medicine and present how the disease risk prediction can be fine-tuned by analysing metabolomic profiles of large cohorts.