

Màj 01/06/2020

UE 2.1. Current concepts in Precision Health

15 ECTS

Parcours « Precision Health »

ST1: From OMICS to systems biology

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This seminar will show how OMICS technologies ([epi]genetics, transcriptomics, genomics, metabolomics and proteomics) can be used for making progress into pathophysiology and precision medicine of complex multifactorial disorders including neurological disorders, type 2 diabetes, and other cardiometabolic diseases. We will tackle multiple next-generation technologies and show how they can be used and integrated.

Duration: 2 days

Program

Provisional schedule

Day#1:

- 9h-9h30: **Introduction to OMICS and integrative approaches**
- 9h-11h00: **Whole-exome sequencing and other DNA-seq technologies: implications in the molecular diagnosis and pathophysiology of monogenic diseases** [EquipEx, PreciDiab, Amélie Bonnefond/Julien Derop and Philippe Froguel]
- 11h-12h: **DNA arrays and genome-wide association studies: implications in the pathophysiology and precision medicine of polygenic disorders** [DISTALZ, Céline Bellenguez]
- 13h30-14h30: **Regulation of gene/protein expression (various RNAs, DNA methylation, histone marks, proteomics) and integration with genetic variants (eQTL, pQTL, eWAS, meWAS)** [EGID, Amna Khamis]
- 14h30-15h30: **High throughput functional genetics and genomics** [DISTALZ, Julien Chapuis]
- 15h30-16h30: **CRISPR/Cas9 for precision health** [Morgane Baron (EGID), Cyril Couturier]

Day#2:

- 9h30-12h: **Integrative genomic (ChIP-seq / total RNA-seq / ATAC-seq / HiC / Capture-C) for precision health:**
 - **function of pancreatic islets** [1h, Ines Cebola, Imperial College London]
 - **pathophysiology of NASH** [1h, Jérôme Eeckhoutte, PreciNASH]
 - **type 2 diabetes** [30min, Amélie Bonnefond, ERC Reg-Seq]
- 13h30-14h30: **Proteomics at the bedside: In vivo MS system for gastric cancer guided surgery** [Isabelle Fournier, ISite SUSTAIN]
- 14h30-15h30: **Single-cell technologies their implications** [30min, Fabien Delahaye CPER/ 30min, Marcos Costa CPER]
- 15-30-16h30: **Metabolomics and systems biology for precision health** [Dominique Rollin, director of MetaboHUB, Bordeaux]

Associated to the following programs of excellence: EquipEx LIGAN, LabEx DISTALZ, LabEx EGID, ERC Reg-Seq, RHU PreciNASH, PreciDIAB, ISite SUSTAIN