

14F012_ Elements of Proteomics and Metabolomics: Translation to Human Diseases

Description

This course will provide an overview of the most recent developments and tools used in metabolomics and proteomics to get a deeper insight into challenging biological questions. A case study trying to decipher the mechanism of brain toxicity induced by environmental toxicants will be the common thread of the course. Knowledge issued from metabolomics –aiming at the study of small molecules– and proteomics –focused on the study of proteins– will be integrated to unravel and understand the mechanisms involved in the development of neurodegeneration. The course will go through the methods and techniques used in the different steps of these ‘omics approaches, from sample preparation, liquid chromatography and mass spectrometry techniques, to data analysis, interpretation, and integration into a systems biology context.

Objectifs

The purpose of this course is to develop an integrative and complementary view of proteomics and metabolomics by introducing the concepts, workflows and tools most widely used in both fields, with the aim to provide the students the foundations needed to develop further competences in an interdisciplinary context.

Modalités pédagogiques

The course will comprise lectures built around actual research topics, personal and group work on proposed bibliography, active discussions, guided work on bioinformatics and data analysis, and laboratory visits.

Enseignants

Prof. S. Rudaz (Analytical Sciences, Section of Pharmaceutical Sciences, University of Geneva)
Prof. J.-C. Sánchez (Translational Biomarker Group, Faculty of Medicine, University of Geneva)
Dr. J. Boccard (Analytical Sciences, Section of Pharmaceutical Sciences, University of Geneva)
A. Hainard (Proteomics Core Facility, University of Geneva)
Dr. V. González-Ruiz (Analytical Sciences, Section of Pharmaceutical Sciences, University of Geneva)
Dr. D. Schwartz (Translational Biomarker Group, Faculty of Medicine, University of Geneva)

- **Code:** 14F012
- **Responsables:** Prof. S. Rudaz, Prof. J.-C. Sanchez
- **Contact :** Prof. J.-C. Sanchez, Translational Biomarker Group, Departement de Médecine Interne des Spécialités, CMU. +41 22 37 954 86, Jean-Charles.Sanchez@unige.ch
- **Option donnée en:** 2016-2017, 2017-2018, 2018-2019
- **Année d'étude:** B2-3 (Med), M1 (Pharm)
- **Semestre:** A
- **Horaire et salle:** jeudi après-midi, CMU
- **Site Chamilo:** <https://chamilo.unige.ch/home/courses/14F012/index.php>
- **Discipline :** Biomedical Sciences, Pharmaceutical Sciences
- **Category :** Life Sciences, Systems Biology, Biochemistry
- **Etudiants min:** 8
- **Etudiants max:** 16
- **Ouvert aux étudiants d'autres facultés:** YES, 6 students max.
- **Langue:** Anglais
- **Type d'examen:** active participation, oral examination