ANALYTIQUE ET BIOSÉPARATION

# INITIATION TO $^{13}$C-FLUXOMICS

THE OBJECTIVE IS TO ACQUIRE THEORETICAL AND PRACTICAL KNOWLEDGE FOR THE ANALYSIS OF METABOLIC SYSTEMS IN CELLS OR TISSUES USING $^{13}$C-FLUXOMICS APPROCHES.

## TARGET AUDIENCE :

The course is intended for PhD students, postdocs, researchers, engineers or technical staff from academia or industry with:

- basic/intermediate knowledge in metabolism, Mammalian cells and health
- ongoing/forthcoming project regarding metabolism, in health domains

## PROGRAM :

- **Day 1 (6h) :**
  - General introduction
  - Metabolic systems
- **Day 2 (6h) :**
  - Data analysis for metabolic network
  - Modeling og metabolic fluxes (cells scale)
  - Experimental design & sampling (theorical part)
- **Day 3 (6h) :**
  - Experimental desin & sampling (practical part)
  - Analysis & data treatment by MS & NMR
- **Day 4 (6h) :**
  - Flux map
  - Feedback & round table
  - Conclusion and Training evaluation

## INSTRUCTORS :

- **Jean-Charles PORTAIS :** University Professor biochemistry & metabolism. Scientific director of MetaboHUB-MetaToul.

- **Justine BERTRAND-MICHEL :** Research Engineer, INSERM
MetaboHUB-MetaToul. Co-director of MetaboHUB-MetaToul platform and head of MetaboHUB-MetaToul-Lipidomics.

- **Nathalie POUPIN :** Researcher, INRAE. Network analysis and bioinformatics.

- **Pierre MILLARD :** Researcher, INRAE. Metabolic systems biology

- **Floriant BELLVERT :** Research Engineer, CNRS. Co-Manager of MetaboHUB-MetaToul-Metabolic networks.

- **Edern CAHOREAU :** Research Engineer, CNRS. MetaboHUB-MetaToul. NMR, isotopic analysis and fluxomics.

- **Ludovic COTTRET:** Research Engineer, INRAE. MetaboHUB-MetaToul network analysis and fluxomics.

## INFOS

**DURATION :** 3 days - 24 Hours

**NUMBER OF PARTICIPANTS :** Min 4 / Max 8

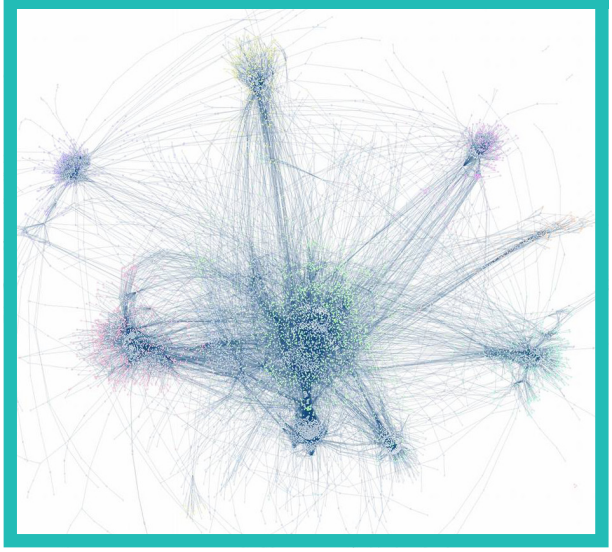
**PRICE :**
Academic : 1300 €
Others : 2500 €
Lunch and educational materials included

**TRAINING COURSE MANAGERS :**

- **Lindsay PEYRIGA** - Application Engineer, CNRS. Co-Manager of MetaboHUBMetaToul-Metabolic networks
- **Maud HEUILLET** - Research Engineer, INRAE. Metabolic networks

**INFORMATION AND REGISTRATION :**
05 61 55 92 53 I fcq@insa-toulouse.fr

**PERIOD OF TRAINING :**
**FROM MAY 26 TO 29 2026**



**The learning outcomes will be assessed throughout the session through quizzes, practical exercises or roundtables.**

**A certificate of attendance will be delivered at the end of the training**