

# <sup>13</sup>C-FLUXOMICS IN BIOTECHNOLOGY

*The objective is to acquire theoretical and practical knowledge for the analysis of metabolic systems in microorganisms using <sup>13</sup>C-fluxomics approaches*

## TARGET AUDIENCE

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

- basic/intermediate knowledge in metabolism, microbiology and/or biotechnology
- ongoing/forthcoming project regarding metabolism, microbiology and biotechnology

## Organizers :

### Lindsay Peyriga

Assistant Engineer, INRAE

Co-Manager of MetaboHUB-MetaToul-  
Metabolic networks

### Maud Heuillet

Research Engineer, INSA

MetaboHUB-MetaToul

Mass spectrometry and isotopic analysis

## PROGRAM

### Day 1

- General Introduction
- Biotechnology & Metabolism
- Metabolic systems

### Day 2

- Module 1 « Experimental design and sampling » [Theoretical and practical courses] :
  - Theoretical course
  - Practical course
  - High Throughput fluxomics using a robotic platform

### Day 3

- Module 2 « Analysis and data treatment»
- Module3 « Calculation of metabolic fluxes »
- Module 4 « metabolic networks for metabolome mining»

### Day 4

- «Modelling metabolic fluxes in genome-scale metabolic networks»
- Feedback & round table
- Conclusion and Training evaluation

**Instructors :**

**Stéphanie Heux**

Research director, INRAE  
Metabolic engineering and biotechnology

**Jean-Charles Portais**

University Professor – biochemistry  
& metabolism  
Scientific director of MetaboHUB-MetaToul

**Noémie Butin**

PhD student  
MetaboHUB-MetaToul  
MS, isotopic analysis and fluxomics

**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


**Fabien Jourdan**

Research director, INRAE  
MetaboHUB-MetaToul  
Network analysis and bioinformatics

**Cécilia Berges**

Engineer INRAE  
MetaboHUB-MetaToul  
Robotics, isotopic analysis and fluxomics

**INFOS**

 **From 06 to 09 October  
2020**

Duration :  
**4 days – 30 hours**

 **Location: INSA Toulouse**

 **Prices:**  
Academic : 900 €  
Private Compagny : 1800 €

Information & Registration :  
 **05 61 55 92 53**  
 **fcq@insa-toulouse.fr**

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