Laboratory TIMC UMR CNRS UGA 5525
Director : Philippe Cinquin

Team **Thé**rapie **R**ecombinante **Ex**périmentale
Director : Pr Toussaint
Bâtiment Jean Roget 8th Floor
38000 GRENOBLE – France

https://www.univ-grenoble-alpes.fr/english/

Corresponding
Dr LE GOUELLEC Audrey
+33 (0)6 86 76 31 71
alegouellec@chu-grenoble.fr

Grenoble, August 24, 2020

Object : Postdoctoral position in Mass Spectrometry (bacterial and human metabolome), University of Grenoble Alpes – France

Reference(s) : 0001-08

Post-doctoral opportunity linked to the Thematic Project (grant number RF20190502416) coordinated by Prof. Toussaint Bertrand and Dr Le Gouellec Audrey. The PD will work with metabolome performing activities with the Liquid Chromatography-Mass Spectrometry (LC-MS) group at the Grenoble Excellence in Lipidomics and Metabolomics (GEMELI) in the University of Grenoble Alps' Faculty of Medicine, France, under the supervision of Dr Audrey Le Gouellec. Candidates must hold a Ph.D. degree in chemistry, biochemistry, biomedicine, or related fields and had 3 years' experience in metabolomics. Candidates must have biochemistry interpretation skills to propose metabolic pathways and also have knowledge in Bioinformatics for data processing from MS techniques, including chemometric tools (Molecular network, PCA, PLS-DA, ...).

The project deals with the evolution of the metabolism of the pathogen *Pseudomonas aeruginosa* (*P. a*.) during the course of cystic fibrosis (CF) chronic lung infections. We have constituted a longitudinal bank of *P. a*. clinical isolates from 32 chronically infected CF patients, with each isolate representing either early or late stage of within-host bacterial adaptation. We then thoroughly characterized both the bacterial isolates (untargeted metabolomics profiles, and >20 clinically relevant phenotypes) and the patients' clinical respiratory status (from clinical records of Forced Expiratory Volume in one second: FEV1). Finally, we applied cutting edge multiscale statistical methods to peer into the complex relationships between bacterial metabolism, phenotypes and clinical outcomes. We will further analysis metabolites datasets correlated to bacterial resistance towards antibiotics and virulence of *P. aeruginosa*. We will use Feature-based molecular networking (FBMN) in GNPS to complete the identification of unknown-metabolites of interest (L.-F. Nothias *et al.*, "Feature-based molecular networking in the GNPS analysis environment," *Nat. Methods*, pp. 1–4, Aug. 2020).

Registration: Submit Curriculum Vitae documented; letter of interest and one reference letter by Sept 15, 2020 to the email: alegouellec@chu-grenoble.fr including "PDCysticfibrosis" in the subject.
The selected candidate will receive a Post-Doctoral fellowship from the CNRS in the amount of 2,650 € monthly net income.

Dr LE GOUELLEC Audrey