

A 12-MONTH ENGINEER POSITION IN HIGH RESOLUTION MASS SPECTROMETRY AND MICROFLUIDICS

Toulouse Biotechnology Institute - INSA Toulouse

An engineer position is available at the **Toulouse Biotechnology Institute (TBI)** located on the grounds of INSA-Toulouse, France. The laboratory is affiliated to the French National Centre for Scientific Research (CNRS, UMR INSA-CNRS 5504) and the French National Research Institute for Agriculture, Food and Environment (INRAE, UMR INSA-INRAE 792). TBI is an interdisciplinary research laboratory of 350 people that develops its research activity at the interface between life sciences and process sciences. The candidate will join the **high-throughput enzyme screening facility team (PICT-ICEO)**, <https://www.toulouse-biotechnology-institute.fr/plateformes-plateaux/pict-iceo/> and work in close collaboration with the **MetaToul-FluxoMet platform** (<https://mth-metatoul.com/>). Both platforms belong to a National Research Infrastructure, **IBISBA** (<https://www.ibisba.fr/>) for PICT-ICEO, and **MetaboHub** (<https://www.metabohub.fr/>) for MetaToul-FluxoMet.

Project description

The successful candidate will take part in the **ALADIN project**, a research project funded by the **French National Agency (ANR)**. **ALADIN** aims to build an integrated platform, distributed across several laboratories, open to public and private research programs, to accelerate the discovery and engineering of natural or synthetic biocatalysts and thus end-to-end bioprocess development.

A key axis of ALADIN is devoted to **accelerating the discovery of improved enzymatic catalysts** by setting up an original very high-throughput screening pipeline based on microfluidics. More specifically, we plan to **couple mass spectrometry and droplet microfluidics**, so as to be able to directly analyse the contents of micrometric droplets containing individual cells and then sort out those with the desired product profile.

Job description

The successful candidate will be responsible for **setting up the coupling between a Bruker Impact II HRMS, purchased for this purpose, and a custom-built droplet microfluidic platform**. Specifically, the work will involve, among other things, the design of microfluidic chips adapted to the application, optimization of the interface between the microfluidic chip and the ESI source, determination of parameters to maximize scan rates, and finally application to real samples (enzyme mutant libraries). She/he will join a team of engineers, with a diverse set of expertise, covering high resolution mass spectrometry for metabolites analysis, but also protein engineering, directed evolution and enzyme high-throughput screening.

QUALIFICATIONS

Candidates should have a Master degree in Analytics, Biochemistry, Enzymology, or equivalent. A previous experience in a lab would be appreciated, but recently graduated engineers are also welcome.

Ideally, the candidate should have experience in the field of high-resolution mass spectrometry. Knowledge - or better still experience - of droplet microfluidics and enzyme characterization would certainly be a plus. The candidate should be a team player with strong communication skills.

CONDITIONS

The position is available from March 2025, for 12 months, with possibility of extension.

Salary can be negotiated based on experience and skills.

Closing date for candidature: 2025/02/10.

To apply, please email: Sophie Bozonnet (sophie.bozonnet@insa-toulouse.fr), Sandra Serin (sandra.pizzut@insa-toulouse.fr), Maud Heuillet (maud.heuillet@insa-toulouse.fr) and Floriant Bellvert (bellvert@insa-toulouse.fr).

Attach CV including summary of previous jobs, cover letter and contact information for referees.