

# Biotechnologie/ Bio-procédés

=> Appel (s) 2019-2020 visé(s) dans le(s) programme(s) de travail Bioéconomie, Climat ou NMBP d'Horizon 2020

⇒ Thématiques : *Biotechnologie ; Bioéconomie*

Session « Economie Circulaire » dans Horizon 2020  
Paris, le 25 septembre 2018

# Laboratoire d'Ingénierie des Systèmes Biologiques et des Procédés

## *Laboratory for Biosystems and Chemical Engineering*

**LISBP**



UMR INSA CNRS 5504 INRA 792



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# to meet challenges for the bioeconomy

Enzyme  
Molecular  
Engineering  
and Catalysis

Dr Remaud Simeon Magali,

Sustainable  
Chemical  
Engineering

Dr Ligia Barna

- ❖ *Global systemic approach to synthetic biology* to yield directly exploitable engineered entities, validated for industry
- ❖ *Eco-conception to produce efficient new processes*, based on realistic life cycle assessment and integrated concepts of bioprocess technology.

Microbial  
Engineering

Dr Stéphane Guillouet

Metabolic  
Engineering

Dr Gilles Truan

Molecular  
Physiology and  
Metabolism

Dr Brice Enjalbert

300 pers, 80 PhD,  
3 Technology platforms

# Technology Platforms



## Transcriptome-Biochips - <http://get.genotoul.fr>

Expertise and technology for the analysis of gene expression. Development of innovative technology for future generations of chip-based analysis.



## Engineering and Screening for Original Enzymes (ICEO) - <http://cribligand.genotoul.fr>

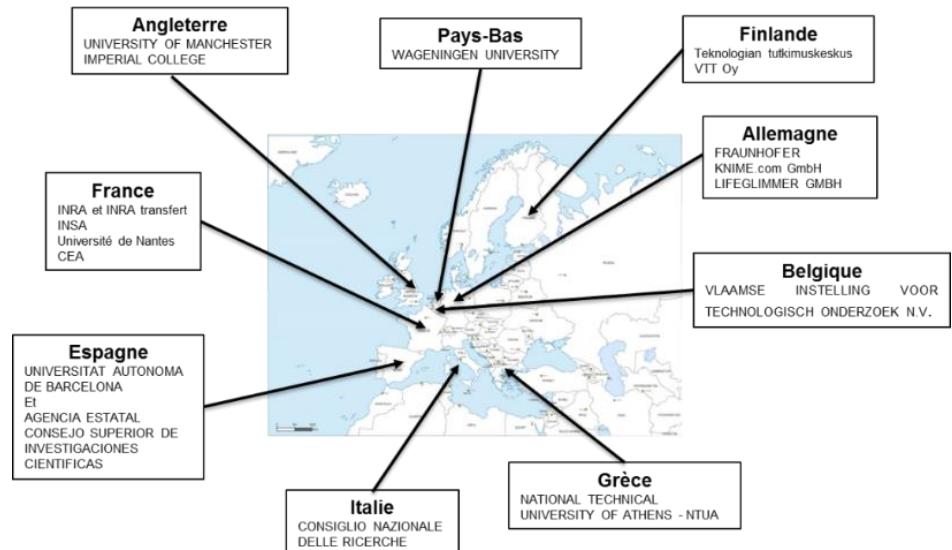
Combinatorial engineering to modify or improve existing enzyme properties in order to adapt the catalysts to specific conditions of use. Generation of large libraries of mutant genes. Metagenomic screening.

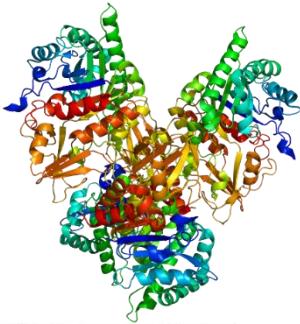


## Metabolomics-fluxomics (MetaToul) - [www.metatoul.genotoul.fr](http://www.metatoul.genotoul.fr)

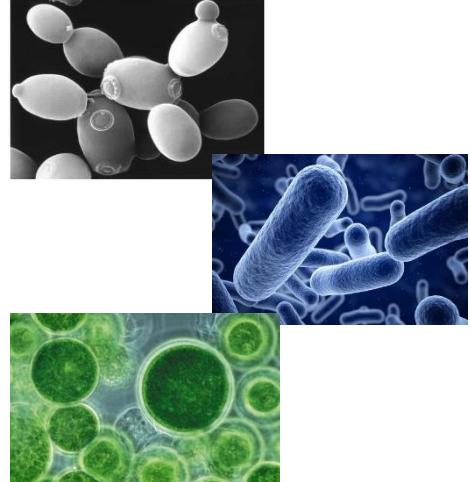
Expertise and state-of-the-art fluxomics NMR and MS methodologies for the functional analysis of metabolic networks. Major focus on artefact-free approaches for the quantification of intracellular metabolite concentrations.

European network and project IBISBA-10  
Resp. M.O Donohue





- **Enzyme and Metabolic Engineering:** rational knowledge-driven improvement of a system's performance based upon in depth understanding of the underlying scientific mechanisms.
- **Systems Biology:** biological systems response in a complex and dynamic manner to their ambient environment.
- **(Bio)Chemical Engineering:** Understanding the fundamental interactions between physico-chemical-biological phenomena involved in (bio)processes to identify bottlenecks, deduce innovation and allow realistic integrated process development (scale up).



**Basic researches with wide applications in Biofuels, Chemistry, Biomaterials, Health, Water resources...**

# Coordonnées

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<http://www.lisbp.fr/fr/index.html>