

Doctoral thesis in Synthetic Biology (Microbiome engineering, Precise editing of mammalian genomes)

Summary

One or two pre-doctoral opportunities will be available in the Translational Synthetic Biology group led by Marc Güell at Pompeu Fabra University.

Description

Synthetic Biology is an emerging field of research where scientists construct new biological systems and redesign existing ones. Our ability to modify genomes has profoundly affected how we perform scientific research, and future therapies. Emergent consequences of reinventing biology have already started to reach society. For example, engineered human immune T cells (CAR-T) cure cancers with outstanding performance¹, or 'ex vivo' gene therapy has successfully cured severe genetic diseases such as 'bubble boys'² or sickle cell disease³. Biological technology will have a growing influence in our lives. One or two positions will be made available to develop novel methodologies to engineer biological systems:

Precise editing of mammalian genomes: Despite enormous progress, precise introduction of new alleles in mammalian genomes still results difficult. Our goal is to explore novel alternatives to precisely re-write genomes safely and efficiently.

Microbiome engineering: The skin is populated by numerous microorganisms which profoundly affect host health. We aim to develop precise genetic methodologies to modulate skin microbiome population and behaviour to enable novel therapeutic strategies for skin disease and wellbeing.

Find more information on the principal investigator at <http://marcguell.net>

Qualifications

- Degree in engineering, experimental sciences or medicine
- Interest in applied genetic engineering (gene therapy, microbiome engineering)
- Curiosity and motivation to develop new biotechnologies
- Strong academic track record will be appreciated

Applicants please send CV and motivation letter to marc.guell@upf.edu

¹ <https://www.cancer.gov/about-cancer/treatment/research/car-t-cells>

² <https://www.technologyreview.com/s/601390/gene-therapys-first-out-and-out-cure-is-here/>

³ <http://fortune.com/2017/03/03/sickle-cell-gene-therapy-cure/>