

## DC11: The effects of manipulating nutrient metabolism and nucleotide supplementation on organ pathophysiology

**Host institution:** Biodonostia Health Research Institute, Neurosciences department, San Sebastián, Spain.

**Supervisor:** Dr. Ian Holt

**Co-Supervisors:** Dr. Antonella Spinazzola, University College London, Queen Square Institute of Neurology, London, United Kingdom (Academic); Dr. Thomas Frischmuth, baseclick GmbH, Neuried, Germany (Industrial).

**Project description:** We have showed that nutrient and metabolite availability has a profound impact on mitochondrial DNA metabolism, and that manipulating nutrient usage can improve mitochondrial function in *in vitro* models of mtDNA disease; yet, the molecular bases and the effect *in vivo* are elusive. Here, the successful student will use advanced imaging techniques (PET/MRI) and will develop and employ new labelling procedures to characterize the impact of changes in metabolite availability and nucleic acid precursors to organ pathophysiology and the process of mtDNA replication, using mouse models of mtDNA disorders.

**Host laboratory:** The host laboratory is based in the Basque country in the north of Spain, which invests twice the national average in research and boasts a high density of research institutes with complementary skills and technologies. The group and the close collaborator at UCL are leaders in the field of mitochondrial DNA and disease, and skilled and highly motivated doctoral students have driven many of the group's successes.

**Secondments:** This project is carried out in strong collaboration with the following groups, and visits to their laboratories are expected during the project. A willingness to travel and spend time abroad is therefore essential:

- Dr. Antonella Spinazzola, University College London, London, United Kingdom;
- Dr. Thomas Frischmuth, baseclick GmbH, Neuried, Germany;

### Eligibility conditions

- Candidates must have a degree from a recognized University or equivalent institution of higher education.

### Required Skills

- While experience in animal handling or molecular biology would be advantageous the host laboratory prizes intelligence, aptitude and commitment over knowledge of specific skills.

### Enquiries

For general information about the MITGEST Doctoral Network visit the project website ([www.mitgest.eu](http://www.mitgest.eu)) or send an email to ([info@mitgest.eu](mailto:info@mitgest.eu)).

For additional information on this project please contact Dr. Carlo Vascotto ([ian.holt@biodonostia.org](mailto:ian.holt@biodonostia.org); [i.holt@ucl.ac.uk](mailto:i.holt@ucl.ac.uk)).

### How to apply

To complete your online application, visit the MITGEST recruitment web page (<https://www.mitgest.eu/open-positions/>).

### Application deadline

The closing date for applications is **November 15<sup>th</sup> 2022**.



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