



PhD position on **Multi-omics characterization of skeletal muscle in health and disease** at IGBMC – Strasbourg - France

Research topic: **Congenital myopathies** are a class of rare genetic diseases lacking treatment. Their pathomechanisms are not understood. The PhD project aims to unravel the molecular pathways 1) important for the normal maturation of skeletal muscles and 2) altered in several congenital myopathies, using **multi-omics approaches** (single nuclei and bulk transcriptomic, proteomic, lipidomic, metabolomic). The student will analyze the omics data generated by the team from several disease models untreated or treated with previously validated pre-clinical therapies, in order to identify the disease and therapy molecular signatures. He/she will then combine these different multi-omics levels with quantitative imaging/histology and phenotyping into an **integrated view** of these pathologies using different informatic pipelines, **artificial intelligence for big data analysis** and heterogenous multi-layered networks. Wet-bench validation will be done by the student or other team members through western blotting, quantitative PCR, ELISA assays and metabolite dosing. Overall, the student will establish state-of-the-art methodologies for big data integration that could be applied to other diseases, and reveal the main molecular pathways commonly implicated in different myopathies. These pathways will reveal key biomarkers for diagnosis and to follow therapeutic efficiency and novel therapeutic targets.

Offer: A **3-year salary** is available. Start date September-November 2024

Candidate profile: you are a highly motivated and talented student with **expertise in Bioinformatics or Informatics** and a strong interest in human disease. English is the communication language in the team.

Location: The IGBMC institute is a main European center in Biomedical research equipped with 15 cutting-edge core facilities, and is a highly dynamic and international place hosting over 45 independent research groups working on diverse topics.

Strasbourg is a cosmopolitan city in a beautiful countryside, close to Germany and Switzerland and less than 2 hours from the center of Paris by train.

Application: send a pdf file with your CV and contact details for at least two referees to Jocelyn Laporte (jocelyn@igbmc.fr)

References:

.Djeddi et al. Mol Ther. 2021. doi: 10.1016/j.ymthe.2021.04.033

.Gineste et al. Brain 2023. doi: 10.1093/brain/awac489

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