



The University of Lyon is an international research university with 154,000 students, 5000 PhD students and 6,800 researchers. With an excellent domestic and international reputation, Lyon University is among France leading universities and it was recently awarded the title of University of Excellence.

The laboratory of **Prof. Christophe MARCELLE** at the Faculty of Medicine, NeuroMyoGene Institute, Lyon, France, invites applications for a 3 year

PhD position: '**Blood cells as a therapeutic tool to repair ailing muscles from heritable muscle diseases**'

Our laboratory is interested in understanding various aspects of early myogenic differentiation in the embryo using the avian (mainly) and rodent models. Our recent work has focused on the process of fusion, whereby myofibres become multinucleated. As a "spin-off" of those fundamental studies, we have initiated a translational program aimed at determining whether blood cells that have been genetically engineered to express the fusion master gene Myomaker (MYMK)¹ can be used to repair dystrophic muscles. We obtained (unpublished) remarkable data showing that blood cells expressing MYMK, fuse to muscles *in vitro* and *in vivo* (both in WT and *Mdx* mice, a model of Duchenne Dystrophy). The research project aims at following a number of leads to significantly improve the efficiency of fusion to myofibres in adult mice. In the *Mdx* model, therapeutic blood cells will carry in addition to MYMK a gene repair toolkit (e.g. CRISPR/Cas9) aimed at correcting mutant nuclei. Molecular (dystrophin expression) and functional recovery will be monitored. This translational project combines innovative approaches and technologies to pave the way for the design of novel strategies to repair muscles of patients affected by hereditary diseases.

¹ Millay, D, O'Rourke, J, Sutherland, L, Bezprozvannaya, S, Shelton, J, Bassel-Duby R, Olson, E (2013). Myomaker is a membrane activator of myoblast fusion and muscle formation. *Nature*, 499:301-305.

Techniques that will be used: FACS, immunohistochemistry, mouse handling, intra-venous injection, cardiotoxin injury of tibialis, cell culture, lentivirus construction and production.

Your qualifications:

- A Master degree in Genetics, Biology, Immunology or a related field
- Experience in mouse handling is preferred
- A strong drive to succeed and an ability to work both independently and in a team
- Solid communication/writing skills (preferably also in English)

We offer:

- 3 year salary
- A position in a vibrant scientific environment and in a research-active international laboratory (<https://www.inmg.fr/marcelle/?lang=en>)

Please send your **complete application documents** (consisting of a CV, list of publications, letter of motivation, names of two references) to (christophe.marcelle@univ-lyon1.fr) by **31.07.2020**.