MuSkLE PhD programme
Building, maintaining and repairing the functional locomotor system

Co-funded by the European Union

# PhD Position 07 job vacancy

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| Reference: | **PP07** |
| Title: | **Role of TRPV1 channels in exertional heat stroke** |
| Hiring institution: | **UCBL** |
| Location: | University Claude Bernard Lyon 1, Villeurbanne, France. |
| Start date: | As from 01st January 2027 |
| Duration: | 36 months |
| Application deadline: | 6th May 2026 |

## Job description

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| Objective: | Climate change is expected to increase the frequency and intensity of heatwaves, contributing to a rising incidence of heat-related illnesses such as exertional heat stroke (EHS). EHS affects young and healthy individuals—including athletes, military personnel, and outdoor workers—during strenuous physical activity in hot environments. It primarily damages skeletal muscle and can rapidly progress to multi-organ failure without prompt medical care. While the clinical signs of EHS are well described, the molecular mechanisms driving susceptibility remain poorly understood. Our recent identification of TRPV1 gene variants in individuals who experienced EHS suggests a potential role for this highly calcium-permeable ion channel in muscle responses to heat and exertional stress. However, TRPV1 function in skeletal muscle is still largely unexplored. This project aims to fill this gap and to contribute to strategies that reduce vulnerability to heat stress in a warming climate.<br>**The recruited doctoral fellow (DF07)** will investigate the physiological role of TRPV1 in skeletal muscle under basal and heat-stress conditions. **The recruited doctoral fellow (DF07**) will characterize the molecular and pathophysiological mechanisms associated with exertional heat stroke. **The recruited doctoral fellow (DF07)** will also explore translational applications, including the identification of susceptibility biomarkers and the evaluation of pharmacological modulation of TRPV1 for personalized prevention.<br>To address these objectives, we have generated a knock-in mouse model carrying a TRPV1 mutation (R7772C) identified in a patient who suffered an EHS episode, using a CRISPR-Cas9 strategy. **The recruited doctoral fellow (DF07) will** combine advanced cellular and molecular techniques (subcellular fractionation, western blot, muscle fiber isolation, calcium imaging, ion optix, histology etc.) with *in vivo* assessments of muscle performance, thermoregulation, and metabolic responses under normal and heat-stress conditions. This integrative approach will support the development of predictive tools and innovative strategies to mitigate heat-related risks. |
| Collaborations and co-supervisions: | The PhD project will be in collaboration with the Grenoble Institute of Neurosciences. |
| Supervisors: | Sylvie Ducreux- sylvie.ducreux@univ-lyon1.fr<br>Julien Fauré – julien.faure@univ-grenoble-alpes.fr |
| Place of work: | CarMen Lab, IRIS team, Groupement Hospitalier Est, B13,<br>59 boulevard Pinel, 69500 Bron |
| Required degree | Master's degree or equivalent in Physiology or Cell biology |

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| Skills/Experience: | Strong background in physiology or cell biology. Skills in biochemistry, calcium imaging, microscopy, and animal experimentation are also highly valued. |
| Keywords | Heat stroke, calcium homeostasis, ion channel, TRP, mouse model, excitation-contraction coupling |

## Mandatory requirements

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| Eligibility: | The doctoral fellow:<br>- should not have resided or carried out his/her main activity (work, study) in the country where he/she is being recruited, i.e., France, **for more than 12 months in the 3 years before the application call deadline,** unless this time was part of a compulsory national service or a procedure for obtaining refugee status under the Geneva Convention.<br>- must be **a doctoral candidate** (not already in possession of a doctoral degree at the date of the application call deadline). |
| Languages: | Oral and written skills must meet the standards of academic English used in international research. |

## Job details

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| Type of contract: | Full time position |
| Gross salary: | The monthly **living allowance, including employer and employees' social charges, is €3,500.** This amount corresponds to a gross monthly salary estimated to €2,440 and to an estimated net monthly salary before income tax of approximately €1,976.<br><br>On top of the monthly salary, the doctoral fellow will receive a **mobility allowance,** including employer and employees' social charges of €4,752 over the 36 months of the working contract. This amount corresponds to a gross monthly allowance estimated to €92 and to an estimated net monthly allowance before income tax of approximately €74. |
| Other benefits: | **Social Protection**:<br>The fellow will benefit from **full social security coverage**, including health insurance, unemployment insurance, and pension contributions. He/she will also have access to occupational health services (*médecine du travail*), as required by French labour law.<br><br>**Additional Insurance**:<br>The fellow may choose to subscribe to complementary health insurance plans, at affordable rates (approximately €70 *per* month), of which 50% is paid by the employer.<br><br>**Paid Leave**:<br>The fellow is entitled to up to **33.5 days of paid leave annually** (for 35 hours worked per week), in accordance with national labour law, and will enjoy the same employment rights as other public-sector employees.<br><br>**Transport**:<br>The fellow benefits from significantly **reduced fares on public transport**, available in all partner cities. Additionally, the host institution will cover 50% of the monthly transportation costs.<br><br>**Relocation assistance via Espace Ulys** (EURAXESS center of the Université de Lyon): the candidate can be provided with special relocation assistance and help for immigration and administrative, accommodation, healthcare and integration formalities.<br><br>**Sports and culture:**<br>The fellow will enjoy the cultural environment provided by the Lyon 1 campuses, where numerous exhibitions and activities open to the general public are organised throughout the year. The fellow may play his/her favourite sport in the largest University Sports Association in France, where over 30 activities are on offer year-round through the Sports & Physical Activity University Department. The fellow may also join one of the 70 student associations that unite the University. |