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

Co-funded by the European Union

PhD Position 04 job vacancy

Reference:	**PP04**
Title:	**SMN-dependent DNA repair in spinal muscular atrophy: consequences for muscle differentiation and fusion**
Hiring institution:	**Lyon1**
Location:	University Claude Bernard Lyon 1, Villeurbanne, France.
Start date:	As from 1st September 2027
Duration:	36 months
Application deadline:	15th January 2027

Job description

Objective:	The recruited doctoral fellow (DF04) will investigate how SMN-dependent repair of oxidative DNA damage contributes to skeletal muscle dysfunction in spinal muscular atrophy (SMA), with a focus on muscle differentiation and fusion. Preliminary findings from our team suggest that the Survival Motor Neuron (SMN) protein promotes the recruitment of base excision repair factors, including OGG1 and XRCC1, to oxidatively damaged chromatin. Whether this mechanism is impaired in SMA muscle cells, and whether such impairment contributes to defective muscle formation, remains unknown. Using patient-derived SMA myoblasts and control cells, the doctoral fellow will combine molecular analyses of DNA repair with established assays of myogenic differentiation, myoblast fusion and myonuclear accretion. The project has three complementary objectives: 1. Characterize oxidative DNA damage and repair kinetics in myoblasts and differentiated myotubes. 2. Determine how SMN regulates the recruitment of OGG1 and XRCC1 to oxidatively damaged chromatin in muscle cells. 3. Assess whether antioxidant treatments reduce oxidative DNA damage and improve myogenic differentiation, myoblast fusion and myonuclear accretion in SMA cells. By linking DNA repair mechanisms to functional outcomes in human muscle cells, this project will test whether impaired genome maintenance contributes to defective muscle formation in SMA. It will also evaluate the potential of antioxidant interventions to alleviate these cellular alterations.
Collaborations and co-supervisions:	No co-supervision is planned.
Supervisors:	Ambra Giglia-Mari (ambra.mari@univ-lyon1.fr)
Place of work:	Institut NeuroMyoGène Unité Physiopathologie et Génétique du Neurone et du Muscle UMR CNRS 5261 – INSERM U1315 - Université Claude Bernard Lyon 1 8 Avenue Rockefeller - F-69008 Lyon
Required degree:	Master's degree or equivalent in cell biology, molecular biology, biomedical sciences or a related discipline.

Skills/Experience:	Experience in mammalian cell culture and standard molecular and cellular biology techniques is required. Familiarity with fluorescence microscopy, quantitative image analysis and protein analysis would be an asset. Previous experience in muscle biology, myogenic differentiation or DNA repair would be advantageous but is not mandatory. The candidate should demonstrate scientific curiosity, rigor in experimental design and data analysis, and the ability to work both independently and collaboratively.
Keywords:	Spinal muscular atrophy; SMN; skeletal muscle; oxidative DNA damage; base excision repair; antioxidants; myogenic differentiation; myoblast fusion; myonuclear accretion.

Mandatory requirements

Eligibility:	The doctoral fellow: - 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, - **must be in possession of a master's degree** at the date of the call deadline. Applicants who have completed their cursus but not yet been awarded the formal master's degree by that date will not be considered eligible. - 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

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. 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**: 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. **Additional Insurance**: 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. **Paid Leave**: 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. **Transport**: 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. **Sports and culture:**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.

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