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

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PhD Position 18 job vacancy

Reference:	**PP18**
Title:	**Alterations of ribosomal RNA epitranscriptomics across the spectrum of muscle biology: from normal to pathological myogenesis**
Hiring institution:	**CLB**
Location:	Centre Léon Bérard, Lyon, France
Start date:	As from 01st January 2027
Duration:	36 months
Application deadline:	6th May 2026

Job description

Objective:	**The recruited doctoral fellow (DF18)** will develop the computational and bioinformatics aspects of a collaborative project investigating how ribosomal RNA chemical modifications (i.e., rRNA epitranscriptomics) guided by small non-coding RNAs (snoRNAs), contribute to muscle biology in health and disease. This project addresses a fundamental gap: while ribosome heterogeneity has emerged as a critical regulatory mechanism in development and cancer, its role across the spectrum of muscle pathologies—from normal myogenic differentiation to pediatric cancer and inherited muscle diseases—remains unexplored. The PhD student will: 1. Identify alterations of rRNA epitranscriptomic profiles using fusion negative rhabdomyosarcoma (FNRMS) patient tumors, normal pediatric skeletal muscle and muscular dystrophy patient samples (RiboMethSeq and HydraPsiSeq datasets). Modification signatures associated with clinical outcomes in FNRMS (survival, relapse, therapy response), or normal development and degenerative disease will be identified through statistical modeling and machine learning. Analysis will include profiling across distinct myogenic cell states (proliferative, progenitor-like, differentiating) to determine whether ribosome heterogeneity underlies the differentiation blockade characteristic of FNRMS. 2. Infer snoRNA expression from epitranscriptomic data to determine the origin of rRNA epitranscriptomics alterations. Integrate multi-omics datasets (epitranscriptomics, transcriptomics, DNA methylation, clinical data) using methods (mixOmics, WGCNA, MOFA) to decipher regulatory networks controlling rRNA modification heterogeneity, including snoRNA expression, alternative splicing analysis, and identification of epigenetic drivers. 3. Develop predictive models for patient stratification and identify high-priority snoRNA candidates for therapeutic targeting based on integrated clinical, molecular, and functional data. Datasets are already available for 30 FNRMS and 10 normal pediatric skeletal muscle. The PhD student will be jointly supervised at Cancer Research Center of Lyon (CRCL) by the V. Marcel team (specializing in ribosome biology and epitranscriptomic analysis) and the M. Castets team (specializing in rhabdomyosarcoma and muscle biology). A postdoctoral bioinformatician with dual expertise in epitranscriptomics and pediatric cancer will provide daily supervision.
Collaborations and co-supervisions:	The PhD project will be co-supervised and implemented in collaboration with V.Marcel lab and M.Castets lab.
Supervisors:	Virginie Marcel - virginie.marcel@lyon.unicancer.fr Hermes Paraqindes (Castets lab) - hermes.paraqindes@lyon.unicancer.fr
Place of work:	Centre de Recherche en Cancérologie de Lyon - 28 rue Laennec - 69008 Lyon
Required degree	Master's degree or equivalent in bioinformatics, computational biology, or related field.

Skills/Experience:	Experience in at least one of the following areas: RNA biology, cancer, muscle physiology - Strong interest in RNA biology, cancer and translational research - Demonstrated academic excellence is a prerequisite - Excellent organisation and communication skills and a collaborative mindset - Flexible and co-operative with a well-structured and autonomous working style - Fluency in written and spoken English is a must These skills/experiences are a must: - Programming proficiency in R and/or Python for data analysis - Knowledge of Linux/Unix command-line and HPC environments - Version Control (Git) and reproducible workflows (Snakemake, Nextflow, R markdown, quarto) - Statistical knowledge (regression models, hypothesis testing); supervised and unsupervised learning - Advanced data visualization skills (ggplot2, plotly, seaborn) - Solid experience with NGS data analysis (RNA-seq, ATAC-seq or similar NGS) These skills/experiences are a plus: - Practical experience in laboratory environment - Experience with multi-omics data integration methods (mixOmics, MOFA), network analysis (WGCNA, gene regulatory networks) and pathway enrichment tools - Prior work with clinical/patient data: survival analysis (Kaplan-Meier, Cox models), biomarker discovery, patient stratification
Keywords	Bioinformatics, epitranscriptomics, multi-omics, pediatric cancer, heterogeneity, ribosome, muscle, rhabdomyosarcoma

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 **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 €3,558.** This amount corresponds to a gross monthly salary estimated to €2402.85, and to an estimated net monthly salary before income tax of €1788.65 (after deduction of the contribution to the additional insurance). On top of the monthly salary, the doctoral fellow will have access to a budget of 4752 € to cover relocation expenses.
Other benefits:	**Social Protection**: The doctoral 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 candidate will take out supplementary health insurance, which is mandatory. €73.20 is payable by the employee and €79.32 by the employer. **Paid Leave**: The doctoral fellow is entitled to up to **25 days of paid leave annually** and up to 32 days of so-called "RTT" (compensation time for extra hours worked under the French 35-hour work week law) in accordance with national labour law, and will enjoy the same employment rights as other public-sector employees, including student union membership. **Transport**: The doctoral 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. **Other benefits:** - Home office: the doctoral fellow may work from home for up to 8 days per month. - Meals: the doctoral fellow will have access to the cafeteria at a preferential rate of €3 to €7 per meal, and will benefit from a 20% discount at the Relais H on sandwiches, drinks, salads and desserts.