

# PhD Position 17 job vacancy

Reference:	<b>PP17</b>
Title:	<b>Fighting muscle atrophy: from atrophy resistant model to new therapeutic target</b>
Hiring institution:	<b>UCA</b>
Location:	Université Clermont Auvergne, Clermont-Ferrand, France
Start date:	As from 01 <sup>st</sup> January 2027
Duration:	36 months
Application deadline:	6 <sup>th</sup> May 2026

## Job description

Objective:	<p>Chronic diseases are characterized by a catabolic state that leads to muscle wasting, resulting in weakness, increased morbidity and reduced survival. Currently, there is no therapeutic treatment for treating muscle atrophy. The ubiquitin-proteasome system (UPS) and selective autophagy play a major role in this process, under these catabolic conditions. To identify new putative therapeutic targets for fighting against muscle atrophy, we compared two catabolic models of prolonged immobilization: one that is susceptible to muscle atrophy and one that is naturally resistant. This comparison revealed several genes that are regulated in opposite ways, and which could therefore underlie the observed phenotypic difference (muscle atrophy versus resistance to atrophy). These genes include some that are involved in the ubiquitination process. Comparing these results with those of other global analyses of muscle atrophy reveals six candidate genes encoding E3 ligases.</p> <p>The <b>recruited doctoral fellow (DF17)</b> will knockdown the expression of these E3 ligases in rodent cultured myotubes, subjected or not to catabolic conditions, to confirm or refute their involvement in the atrophy process. The student will measure: myotube diameter; amount of contractile proteins [by Immuno Blot]; expression levels of atrogenes such as MuRF1, MAFbx, Atg8 [by ddRT-PCR].</p> <p>The subcellular localization of the most promising E3 candidate will be evaluated by immunofluorescence on extracted mouse myofibers.</p> <p>For this E3 candidate, the mechanisms underlying the observed phenotype will be addressed by identifying direct interacting partners by yeast two-hybrid screen, on human muscle cDNA library (subcontracting). The student will confirm and characterize the interactions with the identified partner using complementary biophysic- and/or in cell approaches [Surface Plasmon Resonance, Monolith, or SplitGFP]. He/She will then determine whether these partners are regulators or targets of the E3 ligase candidate using an in-cell degradation assay.</p>
Collaborations and co-supervisions:	The PhD project will be implemented in collaboration with Vincent Gache, Institut NeuroMyogène, 8 avenue Rockefeller, Lyon
Supervisors:	Cécile POLGE – cecile.polge@inrae.fr Lydie COMBARET – lydie.combaret@inrae.fr
Place of work:	Centre de Recherche INRAE, Route de Theix, 63122 Saint Genès Champanelle
Required degree	Master's degree or equivalent in Biology

Skills/Experience:	<p><b>Hard Skills:</b></p> <ul style="list-style-type: none"> <li>- Cell culture (asepsis, line maintenance, cell transfection, functional assays).</li> <li>- Protein biochemistry (extraction, quantification, western blot, purification)</li> </ul> <p><b>Analytical and Theoretical Skills:</b></p> <ul style="list-style-type: none"> <li>- Experimental Design (e.g. including adequate controls (negative and positive controls, loading controls, etc))</li> <li>- Basic bioinformatics (sequence alignment tools, using databases (e.g. uniprot, PDB))</li> <li>- Statistical Analysis (GraphPad Prism or R)</li> </ul> <p><b>Soft Skills:</b></p> <ul style="list-style-type: none"> <li>- Rigorous multitasker,</li> <li>- Resilience and troubleshooting</li> <li>- Scientific curiosity</li> <li>- Autonomy and time management</li> </ul>
Keywords	Muscle atrophy; proteolysis; ubiquitin ligase; rodent cultured myotube; subcellular localization; interactomics

## Mandatory requirements

Eligibility:	<p>The doctoral fellow:</p> <ul style="list-style-type: none"> <li>- 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, <b>for more than 12 months in the 3 years before the application call deadline</b>, unless this time was part of a compulsory national service or a procedure for obtaining refugee status under the Geneva Convention.</li> <li>- must be a <b>doctoral candidate</b> (not already in possession of a doctoral degree at the date of the application call deadline).</li> </ul>
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:	<p>The monthly <b>living allowance, including employer and employees' social charges, is €3,500</b>. This amount corresponds to a <u>gross</u> monthly salary estimated to € 2,500.36, and to an estimated net monthly salary before income tax of € 2,008.53.</p> <p>On top of the monthly salary, the doctoral fellow will receive a <b>mobility allowance</b>, including employer and employees' social charges of €132 per month during 36 months which constitutes gross monthly allowance €94,3 and net monthly allowance of €75,75.</p> <p><b>Social Protection:</b> The doctoral fellow will benefit from <b>full social security coverage</b>, including health insurance, unemployment insurance, and pension contributions. He/she will also have access to occupational health services (<i>médecine du travail</i>), as required by French labour law.</p>
Other benefits:	<p><b>Additional Insurance:</b> The doctoral fellow may choose to subscribe to complementary health insurance plans (MGEN). Host institutions will provide 15 euros per month.</p> <p><b>Paid Leave:</b> The doctoral fellow is entitled to up to <b>44 days of paid leave annually</b>, in accordance with national labour law, and will enjoy the same employment rights as other public-sector employees, including student union membership.</p> <p><b>Transport:</b> The doctoral fellow benefits from significantly <b>reduced fares on public transport</b>, available in all partner cities. Additionally, the host institution will cover 75% of the monthly transportation costs.</p>