

**A unique Postdoctoral Research Associate position that will provide intensive training and the opportunity to drive a molecular physiology project with translational links to human muscle disuse atrophy and de-training. The work will be performed in a multi-disciplinary team laboratory setting with world renowned expertise in myocyte energy metabolism, mitochondrial function and muscle physiology.**

**Research Focus:**

Exercise is known to protect against muscle atrophy in various types of muscle wasting, however, the underlying mechanisms remain unknown. It has been long known that muscle contraction improves mitochondrial content and function. Recently the transcriptional regulators, including members of the PGC and ERR families that mediate this effect, have been discovered. Recent studies utilizing rodent models of muscle atrophy have demonstrated that transgenic overexpression of PGC-1 $\alpha$  and PGC-1 $\beta$  in mice cannot only maintain mitochondrial content/function but also prevent activation of FOXO, subsequent activation of MurF1 and Atrogin-1, and proteasome/autophagy mediated muscle protein breakdown. These exciting studies provide the first evidence linking the molecular circuitry that controls mitochondrial function to atrophy signaling, and leads to the key question regarding how such programs are linked. It is thought that this co-regulation is evolutionarily conserved to tailor the energetic capacity with energetic demand of the cell and muscle mass. The goal is to further understand how transcriptional regulation of mitochondrial energetics relates to atrophy signaling. The long-term goal of this work is to identify novel therapeutic targets for a myriad of muscle and metabolic diseases.

**Job Duties:**

Some aspects of the project named above will be performed by the postdoctoral trainee. The work that the postdoctoral trainee will perform will provide him/her with an opportunity to learn all aspects of molecular biology research including DNA, RNA and protein techniques including western blotting. He/she will also learn aspects of mouse physiology studies including, but not limited to, skeletal muscle physiology and phenotyping. These techniques include hindlimb suspension, organ harvest, mitochondrial function studies, as well as general mouse husbandry. Findings will be validated in human myocytes and tissue.

The work they will perform will provide them an opportunity to learn, among other things, how to prepare a research plan; specific research methods; how to interpret data; how to prepare for and conduct presentations, both verbal and written; leadership skills, how to best interact with others in a research setting; and more. Trainees will be expected to attend and interact in laboratory meetings; as well as to attend and present at formal and informal seminars, both on and off site.

**Required Skills/Experience:**

Candidates must have a Ph.D. and/or M.D. and a strong background in animal physiology and molecular biology is desired. Candidates must be highly self-motivated, independent and possess strong verbal and written communication skills. Interested applicants should submit a single PDF file containing CV, a brief description of research interests and accomplishments to Ms. Teresa Leone at [tleone@sanfordburnham.org](mailto:tleone@sanfordburnham.org)