Master Thesis Project: Bringing muscle proteins into shape

There is an opportunity for a Master's thesis in the Clausen lab at the Research Institute of Molecular Pathology (IMP). Overall, the lab aims to better understand how cellular proteins are quality controlled. In this context, a major research interest comprises the folding and assembly of muscle proteins.

A major player bringing muscle proteins into shape is the myosin chaperone UNC-45. We have shown that UNC-45 oligomers compose a molecular assembly line for putting muscle myosin filaments together. Still, the precise mechanism and factors involved in myosin folding remain elusive. Elucidating these and reconstituting myosin folding in a test tube would be a milestone in the field, allowing also to address the molecular causes of severe human myopathies.

The project will focus on the identification and characterization of novel folding factors for muscle myosin using an integrative approach combining biochemistry, structural biology and cell biology. The project offers a wide spectrum of cutting-edge life science techniques such as: CRISPR/Cas9 knock-out, sophisticated protein expression and purification techniques, protein biochemistry, mass spectrometry, structure determination with both X-ray crystallography and cryo-EM. For further information about the group and projects please have a look at *http://clausen.imp.ac.at* and *https://ubiquitin.at*.

IMP is a leading institute for basic research located within the Vienna BioCenter. It offers access to state-of-the-art facilities in a stimulating international environment. The successful applicant will receive a monthly stipend.

To apply to the position please send your CV and a cover letter to:
Dr. Tim Clausen, *tim.clausen@imp.ac.at*

Further reading:

1. *Gazda, L., ..., Clausen, T. (2013) The myosin chaperone UNC-45 is organized in tandem modules to support myofilament formation in C. elegans. Cell 152, 183–195.*
2. *Hellerschmied, D, and Clausen, T. (2014) Myosin chaperones. Curr. Opin. Struct. Biol. 25, 9–15.*
3. *Hellerschmied, D. ..., Clausen, T. (2018) UFD-2 is an adaptor-assisted E3 ligase targeting unfolded proteins. Nat. Commun. 9, 484.*