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Avdelningen för Medicinsk Kemi och Cellbiologi
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Scholarship announcement – postdoc

Herewith we announce a postdoctoral stipend in biochemistry at the Institute of Biomedicine, Department of Medical Biochemistry and Cell Biology.

Titel: Investigating the role and function of novel proteins implicated in the mitochondrial protein quality control

Background: Mitochondria convert chemical energy into ATP by utilizing a system of molecular machines, the respiratory chain complexes. The complexes driving oxidative phosphorylation are a mosaic of proteins encoded by the nuclear and the mitochondrial DNA. Therefore, assembly of the respiratory chain and the ATPase requires not only expression and import of many nuclear encoded proteins but also translation of mitochondrially encoded proteins. The mitochondrial genetic system is responsible for replication and transcription of the mitochondrial genome, and for the synthesis of a few polypeptides within the organelle by mitochondrial ribosomes (mitoribosomes). Dysfunction of these processes underlies many human disorders and aging. It is therefore surprising that so little is known about how mitochondrial protein synthesis and how the proteins are assembled into complexes.

Purpose: Our preliminary data indicate that three yet uncharacterized proteins copurify with the prohibitin/m-AAA protease complex, a key factor of a mitochondrial protein quality control. We now plan to characterize these new factors for their role in maintaining mitochondrial protein homeostasis. A few key questions are: How do these proteins influence the recognition of substrates? Are these proteins important to assemble or to stabilize the prohibitin complex? How is biogenesis of the respiratory chain affected when these factors are genetically removed?

Methods: We will employ a wide array of methodology including yeast genetics, biochemistry, structural biology and biophysics.

Requirements: We are interested in recruiting a postdoc with previous experience in studying mitochondrial protein degradation, using genetic as well as biochemical methods. It is a requirement to have substantial experience in this field and have appropriate methodological know how.

The stipend is scheduled for 2023-10-01 – 2025-09-30

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