SAHLGRENSKA AKADEMIN
INSTITUTIONEN FÖR BIOMEDICIN

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Avdelningen för Medicinsk Kemi och Cellbiologi
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Scholarship announcement – postdoc

Here is announce a stipend in biochemistry at the Institute of Biomedicine, Department of medical biochemistry and Cell Biology.

Titel: Investigating the role and function of a novel protein implicated in the biogenesis of the respiratory chain

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 a yet uncharacterized protein Rdl2 is a novel interactor of Mrx4, a key factor of a translational feedback loop in mitochondriathe mitoribosome. We now plan to characterise this new factor for its role in the feedback loop. A few key questions are: Is Rdl2 interacting with newly synthesized cytochrome b? Is the new factor important for binding of Mrx4 to the ribosome or to Cbp3-Cbp6? How is biogenesis of the respiratory chain affected when Rdl2 is genetically removed? What effect has genetic ablation of Rdl2 for the accumulation of mitochondrial proteins?

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 biogenesis, using genetic as well as biochemical methods. It is a requirement to have substantial experience in this field and in using baker´s yeast as the model system.

The stipend is scheduled for 2023-06-01 – 2025-05-31

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