

Postdoc position in cryo-ET studies of regulatory neuronal synapses at the axon initial segment

The Nissen Laboratory at the Department of Molecular Biology and Genetics, Aarhus University, is inviting applications for a fully-funded postdoc position for 2 years, with a possible extension, to work on cryo-electron tomography studies of regulatory synapses at the axon initial segment of neurons.

Expected start date and duration of employment

The starting date is 1st September 2026, or as soon as possible.

Job description

The project aims at determining *in situ* structures of axo-axonic synapses at the axon initial segment (AIS) of neurons through cryo-electron tomography (cryo-ET), and obtaining new insights into the ultrastructural organization and mechanism of AIS, a critical neuronal compartment in formation and regulation of action potentials. Based on prior work in the laboratory, a full pipeline of procedures is established and ample microscope time, generous resources, highly skilled support staff and thriving research communities are available to the project.

Both primary neuronal cultures and brain tissue samples will be used. Targeted identification will be achieved by e.g. cryo-immunofluorescence (cryo-CLEM) and immunogold. Cryogenic focused ion beam milling methods will be used to prepare lamella samples for high resolution cryo-EM imaging and tomography. From AI assisted image analysis, 3D models for key proteins and biomolecular complexes will be fitted into 3D reconstructions. Specific complexes will be approached by sub-tomogram averaging and single-particle analysis when relevant.

The project will entail the following specific aims:

- Ultrastructural insights into the organization of axo-axonic synapses and subcomplexes using cryo-ET
- Investigating and developing advanced procedures for targeting and lift-out experiments with native brain tissue samples
- *In situ* structure determination of AIS constituents and their adaptation to axo-axonic synapses
- Mechanistic/biophysical models for synaptic interactions with action potential signals generated at AIS

Examples of other tasks:

- Establish and develop experimental protocols and pipelines and implement data management compliance.
- Presentation of your work in various meetings (locally at the department, national and international meetings, and conferences)
- Publish results in international journals
- Work closely with the PI and colleagues in the lab to help build a sound and inspiring culture in the lab
- Assist with project supervision of junior researchers and students
- General procedures and responsibilities of the lab

Your profile

Applicants should hold a PhD in protein biochemistry, biophysics, molecular cell biology or similar.

Essential:

- Experience in sample preparation for cryoET studies and acquisition and analysis of cryo-EM data
- Knowledge of bioinformatics tools and data mining

Application Deadline:
19 April 2026

Institute/Faculty:
Department of
Molecular Biology and
Genetics

Faculty:
Faculty of Natural
Sciences

**Academic contact
person:**
Poul Nissen
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Vacant positions:
1

Number of months:
24

Hours per week:
37

**Expected date of
accession:**
01/09/2026

- Good communication skills in English (oral/written) and for scientific disseminations
- Ability to take ownership and drive projects forward independently
- Have a collaborative mindset

Desirable:

- Proven track record in neurobiology and cell biology
- Experience with pathways and complex networks in cell biology

Finally, applicants should:

- Be curious and ambitious
- Take pride in being a good colleague and scientist

Who we are

The laboratory is located at the Department of Molecular Biology and Genetics at Aarhus University and is part of the neuroscience center DANDRITE of the Nordic EMBL Partnership for Molecular Medicine and the PROMEMO Center of Excellence of the Danish National Research Foundation

What we offer

The laboratory offers:

- outstanding experience in the field to support the project with state-of-the-art infrastructure
- access to the Aarhus University cryo-EM facilities (EMBION) including two Titan-Krios microscopes (K2 and K3), Aquilos2 with iFLM microscope. Upgrade to a new 300 kV microscope and cryo-plasma-FIB dedicated to cryo-ET research is expected in a near future
- an international and interdisciplinary environment, including for example the CryoNET network, the Nordic EMBL Partnership and international collaborators.
- good scientific and very friendly atmosphere of large and interacting communities for e.g. structural biology, molecular cell biology, computational biology, neurobiology, and molecular medicine that encourages lively, open, and critical discussions
- a work environment with close working relationships, networking, social activities, and work-life balance
- a workplace characterised by professionalism, equality, dialogue, and appreciation of a healthy work-life balance

Place of work and area of employment

The place of work is Department of Molecular Biology and Genetics, Aarhus University, Universitetsbyen 81, 8000 Aarhus C

The area of employment is Aarhus University with related departments.

Contact information

For further information, please contact:

Professor Poul Nissen, email: pn@au.dk

Deadline

Applications must be received no later than 19th April 2026.

Application procedure

Shortlisting is used. This means that after the deadline for applications – and with the assistance from the assessment committee chairman, and the appointment committee

if necessary, – the head of department selects the candidates to be evaluated. All applicants will be notified whether or not their applications have been sent to an expert assessment committee for evaluation. The selected applicants will be informed about the composition of the committee, and each applicant is given the opportunity to comment on the part of the assessment that concerns him/her self. Once the recruitment process is completed a final letter of rejection is sent to the deselected applicants.

Letter of reference

If you want a referee to upload a letter of reference on your behalf, please state the referee's contact information when you submit your application. We strongly recommend that you make an agreement with the person in question before you enter the referee's contact information, and that you ensure that the referee has enough time to write the letter of reference before the application deadline. Unfortunately, it is not possible to ensure that letters of reference received after the application deadline will be taken into consideration.

If you wish to add a referee **after** you have submitted your application, you must send this person's details (name, job title, place of work, and email address) as well as the name of the position you have applied for to: HR.Nattech@au.dk

Formalities and salary range

Natural Sciences refers to the [Ministerial Order on the Appointment of Academic Staff at Danish Universities under the Danish Ministry of Science, Technology and Innovation](#).

The application must be in English and include a curriculum vitae, degree certificate, a complete list of publications, a statement of future research plans and information about research activities, teaching portfolio and verified information on previous teaching experience (if any). Guidelines for applicants can be found [here](#).

Appointment shall be in accordance with the collective labour agreement between the Danish Ministry of Taxation and the Danish Confederation of Professional Associations. Further information on qualification requirements and job content may be found in the [Memorandum on Job Structure for Academic Staff at Danish Universities](#).

Salary depends on seniority as agreed between the Danish Ministry of Taxation and the Confederation of Professional Associations.

Aarhus University's ambition is to be an attractive and inspiring workplace for all and to foster a culture in which each individual has opportunities to thrive, achieve and develop. We view equality and diversity as assets, and we welcome all applicants.

Research activities will be evaluated in relation to actual research time. Thus, we encourage applicants to specify periods of leave without research activities, in order to be able to subtract these periods from the span of the scientific career during the evaluation of scientific productivity.

Aarhus University offers a broad variety of services for international researchers and accompanying families, including relocation service and career counselling to expat partners. Read more [here](#). Please find more information about entering and working in Denmark [here](#).

Aarhus University also offers a Junior Researcher Development Programme targeted at career development for postdocs at AU. You can read more about it [here](#).

At the Faculty of Natural Science at Aarhus University, we strive to support our scientific staff in their career development. We focus on competency development and career clarification and want to make your opportunities transparent. On [our website](#), you can find information on all types of scientific positions, as well as the entry criteria we use when assessing candidates. You can also read more about how we can assist you in your career planning and development.

The application must be submitted via Aarhus University's recruitment system, which can be accessed under the job advertisement on Aarhus University's website.

Aarhus University

Aarhus University is an academically diverse and research-intensive university with a strong commitment to high-quality research and education and the development of society nationally and globally. The university offers an inspiring research and teaching

environment to its 38,000 students (FTEs) and 8,300 employees, and has an annual revenues of EUR 935 million. Learn more at www.international.au.dk/