Postdoc in ”Mutational processes during spermatogenesis and their consequences”

Are you interested in human health and big data collaborative projects at the cross road of genomics, population genetics and statistical learning then the Bioinformatics Research Centre at Aarhus University (Denmark) invites you to apply for a fulltime 2-year post-doctoral position in the field of bioinformatic and statistical genomics.

You have a PhD and proven research experience in bioinformatics, population and/or statistical genomics. You will join a multi-disciplinary team where you will contribute both new analytical frameworks and data analysis of both publicly available and in house generated data. The data will consist of deep sequencing of testis and sperm samples from men of different ages. The aim is to acquire basic understanding of the mutational and selective processes that occurs during spermatogenesis and to provide a prediction framework for estimating the risk of severe disease directly from sequencing sperm.

Application Deadline:
16 March 2025

Faculty:
Faculty of Natural Sciences

Institute/Faculty:
Department of Molecular Biology and Genetics

Academic contact person:
Mikkel Heide Schierup
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+4527782889

Vacant positions:
1

Hours per week:
37

Number of months:
24

Expected date of accession:
15/05/2025

Expected start date and duration of employment

This is a 2–year position starting 15 May, 2025 or as soon possible thereafter.

Job description

Within the larger project field, it will be flexible whether you will focus on methods development, data analysis, or both. We value independence and offer substantial latitude for you to define your own research project within the broader scope of the collaborative project.
Possibilities include, but are not restricted to

- Creating and using bioinformatics workflows for the detection of de novo mutations from Illumina and Pacbio HIFI data
- Predictions of the phenotypic effect of mutations
- Modelling of the selection process on de novo mutations at the spermatogenesis stage, the mature sperm state and the mutation passed on to children (from trio data)
- Analysis and modelling of the mutational spectrum using non-negative matrix factorisation approaches

The project is funded by the Novo Nordisk foundation as an interdisciplinary Data Science collaborative project between Aarhus University (data science) and the Department of Growth and Reproduction at Copenhagen University Hospital (PI Kristian Almstrup, data generation). You will be supervised by PIs at the Bioinformatics Research Centre (Mikkel Heide Schierup & Thomas Bataillon) in close collaboration with research groups at the Department of Mathematics (PI Asger Hobolth), and the Department of Molecular Medicine (PI Søren Besenbacher).

Your profile

Applicants should hold a PhD in bioinformatics, population/statistical genetics, statistics or similar. The following skills will be an advantage

- Proven experience in handling and analysing large genomic datasets
- Proficient knowledge of coding in R/Python and high performance cluster environments.
- Interest in evolutionary genetics and genome evolution, and experience in bioinformatics.
- High communication (verbal and written) and organizational skills are essential

Who we are

At BiRC we focus on developing computational methods for collecting, handling and analyzing genomic data. Research ranges from formulating models and theories about genome evolution, to constructing algorithms and developing computer programs to

implement new analytical methods.
We have a strong emphasis on molecular and genome evolution, molecular population genetics, firmly grounded in statistical and algorithmic approaches to bioinformatics. Our research spans from addressing purely theoretical questions, to program development, applications to large empirical datasets.

See: https://birc.au.dk/

What we offer

The Bioinformatics Research Centre (BiRC) offers:

- State of the art genomic data and computing facilities,
- An exciting interdisciplinary environment with many national, and international collaborators
- A research climate encouraging lively, open and critical discussion within and across different fields of research
- A work environment with close working relationships, networking and social activities
- A workplace characterised by professionalism, equality and a healthy work-life balance.

Place of work and area of employment

The place of work is Bioinformatics Research Center, Universitetsbyen 81, 3. Building 1872, DK-8000 Aarhus C.

Contact information

For further information on the position please contact:
Mikkel Schierup, mheide@birc.au.dk, +4527782889
Thomas Bataillon, tbata@birc.au.dk, +45 27827282

Deadline

Applications must be received no later than 16 March, 2025.

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/