

# Postdoctoral position in multi-omics analysis of inflammatory skin diseases

The research group of Mikkel Heide Schierup at the Bioinformatics Research Centre at the Department of Molecular Biology and Genetics, Aarhus University, invites applications for a 3-year postdoctoral position in methods development and analysis of multi-omics and clinical data for inflammatory skin diseases. The start date is October 1st, 2025, or as soon as possible thereafter.

## Research context

The project will be part of the new DREAM (Dermatology Research Across Multiple Disciplines) Center financed by the LEO Foundation. You will be part of building this new center which spans over Aarhus University and Aarhus University Hospital, involving both Health and Science at AU. The overall project will both use an existing clinical cohort, develop the framework for a new cohort and analyse data from the existing cohort.

The present position will perform methods development for multi-omics analysis and apply it to data from the existing cohort. The scientific purpose is to identify drivers of multitissue inflammation. The data sources are registry data, cohort phenotypes, single-cell transcriptomics and microbiomes.

## Expected start date and duration of employment

This is a 3-year position from October 1, 2025, or as soon possible.

## The position may include the following tasks:

- Make approaches to integrate clinical, paraclinical and sociodemographic patient data with advanced multi-omics analyses.
- Develop computational models to map co-expression networks and predict systemic disease transitions.
- Characterise intestinal microbiome changes and their correlation with inflammatory diseases.

Computational modelling will use the GenomeDK ([genome.au.dk](http://genome.au.dk)) computational infrastructure to analyse and integrate datasets into a systems medicine pipeline. Co-expression networks will be mapped to the human protein-protein interaction network, predicting disease-disease relationships and systemic disease transitions. Particular attention will be given to regulatory pathways amenable to therapeutic intervention, such as protein kinase modulators.

Integration of gut microbiome and skin omics data: The focus will be on the intestinal microbiome's role in inflammatory diseases. Stool samples from psoriasis patients with conditions like spondylarthritis or inflammatory bowel disease will undergo metagenomic sequencing and metabolomics analyses. This will help correlate microbiome composition with systemic disease states, refine computational models with microbiome-driven mechanisms and lay the groundwork for studies on microbiome modulation as a therapeutic strategy.

Integrating clinical expertise and advanced molecular analyses ensures iterative refinement of predictive models. The clinical population ensures that multi-omics insights are directly translated into actionable models and patient-centered strategies

## Expected outcomes

- Predictive models mapping co-expression networks to systemic disease pathways.
- Comprehensive characterisation of microbiome changes in multiorgan inflammatory diseases.

Should you have any doubts or require further information, Prof. Mikkel Heide Schierup ([mheide@birc.au.dk](mailto:mheide@birc.au.dk)) is available for informal discussions regarding the potential fit for

**Application Deadline:**  
01 August 2025

**Institute/Faculty:**  
Department of  
Molecular Biology and  
Genetics

**Faculty:**  
Faculty of Natural  
Sciences

**Academic contact  
person:**  
Mikkel Heide Schierup  
[mheide@birc.au.dk](mailto:mheide@birc.au.dk)  
+4527782889

**Vacant positions:**  
1

**Number of months:**  
36

**Hours per week:**  
37

**Expected date of  
accession:**  
01/10/2025

the position from the bioinformatics perspective and Associate professor Anders Kirch Dige (anders.kirch.dige@clin.au.dk) from the clinical perspective.

The University is keen for its staff to reflect the diversity of society and thus welcomes applications from all qualified applicants regardless of their personal background.

### **Qualifications and the selection process**

Applicants for this position must hold a PhD degree (or equivalent level of education) in bioinformatics, data science, genetics, or in molecular biology with an emphasis on quantitative methods.

Applicants are asked to submit the following documents:

- a cover letter stating the relevant experience and projects and motivation for applying for the position [maximum two pages],
- a cv and a list of publications,
- a maximum of three relevant publications.

### **International applicants**

International applicants are encouraged to check [Family and work-life balance](#) and [Attractive working conditions](#) for further information about the benefits of working at Aarhus University and in Denmark, including healthcare, paid holidays and, if relevant, maternity/paternity leave, childcare and schooling. Aarhus University offers a broad variety of services for international researchers and accompanying families, including a [relocation service](#) and career counselling for expat partners. For information about taxation, see [Taxation aspects of international researchers' employment by AU](#).

### **The work environment**

This position will be based in the Bioinformatics Research Centre (BiRC), Dept. of Molecular Biology and Genetics, with co-supervision from the Department of Dermatology at Aarhus University Hospital nearby. BiRC employs about 30 staff, postdocs and PhD students working on various aspects of computational biology and hosts a number of collaborations with the Hospital. BiRC hosts the genomeDK supercomputer, which will be available for the current project. BiRC is also responsible for the Masters in Bioinformatics education with around 30 students per year. BiRC thus offers a dynamic working environment with many young people, where the majority are international and the working language is English.

The research group of Mikkel H. Schierup currently employs six postdocs and six PhD students in a variety of projects in evolutionary genomics. The working environment is very collaborative and PhD students and postdocs are encouraged to develop their own independent projects

### **Place of work and area of employment**

The place of work is Bioinformatics Research Centre, Universitetsbyen 81, 8000 Aarhus C, and the area of employment is Aarhus University with related departments.

### **Contact information**

For further information, please contact: Mikkel H. Schierup, email: [mheide@birc.au.dk](mailto:mheide@birc.au.dk), phone +4527782889

### **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/](http://www.international.au.dk/)*