UNIVERSITETET I OSLO

Jobbnorge ID: 297399
Deadline: 4/8/2026
Website: http://www.uio.no/
Scope: Fulltime
Duration: Fixed Term

PhD Fellowship in RNA modification in Early Embryo Development

About the position

A PhD Fellowship in RNA Modifications in Early Embryo Development is available. This interdisciplinary project aims to investigate how metabolite-derived RNA modifications regulate early embryonic development, and how metabolite or antioxidant supplementation in IVF culture media may improve embryo quality and clinical outcomes.

The project involves analysis of embryo culture media using liquid chromatography-mass spectrometry (LC-MS) and other biochemical approaches to detect changes in metabolite concentrations. In addition, the work integrates cutting-edge low-input RNA modification detection methods, embryo culture and micromanipulation techniques, and bioinformatic analyses, within a strong national and international collaboration network.

The successful candidate will work closely with members of the convergence research environment, including collaborators at the Centre for Embryology and Healthy Development (CRESCO) at the University of Oslo (UiO) and Oslo University Hospital (OUH).

The PhD position will be hosted in the research group led by Professor Arne Klungland at the Department of Microbiology, Oslo University Hospital (OUH). The appointment is for a 3-year period, with the possibility of extension depending on funding and project progress.

The position is expected to start on May 1, 2026.

Project description

Infertility is a major global health issue affecting more than 100 million people worldwide. Data from international registries indicate that fewer than half of IVF procedures result in a clinical pregnancy, partly because less than half of in vitro-fertilized embryos develop to the blastocyst stage.

This project will investigate embryo metabolism both within the embryo and in the surrounding culture medium. In the first part, advanced analytical methods will be used to profile metabolites in embryo culture media, with a particular focus on nutrient and metabolite uptake by developing embryos.

In parallel, the project will apply our previously developed low-input detection methods to characterize intracellular molecular changes, including alterations in the epitranscriptome. We will further examine how these metabolic and epitranscriptomic changes are associated with early embryo development, aneuploidy, and implantation and pregnancy outcomes.

Ultimately, this work aims to explore the potential applications of these approaches in assisted reproductive technologies (ART), including optimization of embryo culture conditions and tailoring nutritional requirements to individual embryos.

The duration of appointment is 3 years.

Your main tasks will be

- Apply advanced low-input liquid chromatography-mass spectrometry (LC-MS) analysis to characterize metabolites in embryo culture media.
- Develop, optimize, and apply omics sequencing approaches and related biochemical assays to detect metabolites in ultra-low-input samples, including oocytes and early embryos.
- Perform in vitro chemical and analytical validation of metabolite detection methods (e.g. oligonucleotide synthesis, reaction optimization, and mass spectrometry validation).
- Design, establish, and conduct metabolite supplementation experiments in embryo culture systems, and collect and process samples for sequencing and metabolite analyses.
- Analyze sequencing and measurement data in close collaboration with chemist and biologist partners; contribute to manuscript preparation and dissemination of results.
- Participate in training activities, annual meetings, and collaborative project tasks.

Qualifications

Qualification requirements

- To be admitted to the PhD programmes at the University of Oslo, an applicant must have a five year master's degree or equivalent studies that have been recognised by the faculty as forming a sufficient basis for admission.
    - The completed master's degree must be in chemistry, analytical chemistry, biochemistry, molecular biology, or a related field.
- To be employed as a PhD Research Fellow, admission to a doctoral program is required, or there must be a binding agreement for admission. Normally, one must apply for admission to a Ph.D. program within 3 months after the start of the research project leading to the Ph.D. degree.
- Strong hands-on laboratory experience, preferably in analytical chemistry methods and instrumentation relevant to nucleic acid chemistry and validation (e.g. LC/GC, mass spectrometry, chromatography, spectrometric techniques). Evidence of these competencies in the candidate's CV is an advantage.
- Interest in method development for applied research involving limited sample material, such as early embryos. Experience with chemical substance analysis is an advantage, and a strong interest in bridging chemistry and biology, particularly in how chemical and analytical approaches can illuminate RNA biology during development, is highly valued but not strictly required.
- Good written and oral English proficiency.
- Strong motivation to work in an interdisciplinary team and excellent communication skills.
- Ability to work independently as well as collaboratively in a multidisciplinary research environment.

Preferred skills

- Knowledge of a Scandinavian language is beneficial but not required.

Personal skills

- Enthusiasm and motivation for laboratory work
- Perseverance and strong problem-solving abilities
- Organizational skills and a proactive approach to learning
- Ability to collaborate effectively and strong communication skills
- Ambition to produce high-quality work and publish results in prestigious journals

Employment in the position is based on a comprehensive assessment of all qualification requirements applicable to the position, including personal qualifications.

We need different perspectives in our work

UiO is an open and internationally oriented comprehensive university that strives to be an inclusive and diverse workplace and academic environment. You can read more about UiO's work on equality, inclusion, and diversity at uio.no.

We fulfill our mission most effectively when we draw upon our variety of experiences, backgrounds, and perspectives. We are looking for great colleagues—could you be the next one?

We will do our best to accommodate your needs. Relevant adjustments may include modifications to working hours, task adaptations, digital, technical, or physical adjustments, or other practical measures.

If you have an immigrant background, a disability, or CV gaps, we encourage you to indicate this in the job application portal. We always invite at least one qualified candidate from each group for an interview. In this context, disability is defined as an applicant who identifies as having a disability that requires workplace or employment-related accommodations. For more details about the requirements, please refer to the Employer portal (Norwegian).

The selections made in the job application portal are used for anonymized statistics that all state employers include in their annual reports.

More information about gender equality initiatives at UiO can be found here.

We hope you will apply for the position with us.

We offer

- Exciting and meaningful tasks in an organization with an important societal mission, contributing to knowledge development, education, and enlightenment that promote sustainable, fair, and knowledge-based societal development.
- A friendly, ambitious, and international research environment.
- Opportunities for national and international collaborations.
- Good welfare schemes.
- Opportunity of up to 1.5 hours a week of exercise during working hours.
- A workplace with good development and career opportunities.
- Membership in the Statens Pensjonskasse, which is one of Norway's best pension schemes with beneficial mortgages and good insurance schemes.
- Salary in position as Doctoral Research Fellow, position code 1017 in salary range NOK from 550 800,- to 600 000,- depending on competence and experience. From the salary, 2 percent is deducted in statutory contributions to the State Pension Fund.

Read more about the benefits of working in the public sector at Employer Portal.

Application

Your application should include:

- Application letter.
- CV.
- A complete list of publications (do not append the publications).

- Transcripts and certificates.
- Contact information for 2-3 references.

Application with attachments must be submitted via our recruitment system Jobbnorge, click "Apply for the position".

When applying for the position, we ask you to retrieve your education results from Vitnemålsportalen.no. If your education results are not available through Vitnemålsportalen, we ask you to upload copies of your transcripts or grades. Please note that all documentation must be in English or a Scandinavian language.

General information

The best qualified candidates will invited for interviews.

Applicant lists can be published in accordance with Norwegian Freedom of Information Act § 25. When you apply for a position with us, your name will appear on the public applicant list. It is possible to request to be excluded from this list. You must justify why you want an exemption from publication and we will then decide whether we can grant your request. If we cannot, you will hear from us.

Please refer to Regulations for the Act on universities and colleges chapter 3 (Norwegian), Guidelines concerning appointment to post doctoral and research posts at UiO and Regulations for the degree of Philosophiae Doctor (PhD) at the University of Oslo.

The University of Oslo has a transfer agreement with all employees that is intended to secure the rights to all research results etc.

University of Oslo

The University of Oslo is Norway's oldest and highest ranked educational and research institution, with 26 500 students and 7 200 employees. With its broad range of academic disciplines and internationally recognised research communities, UiO is an important contributor to society.

The Institute of Clinical Medicine (Klinmed) is one of three institutes under the Faculty. Klinmed is responsible for the Faculty's educational and research activities at Oslo University Hospital and Akershus University Hospital. With about 900 employees spread over approximately 425 man-labour years, Klinmed is the university's largest institute. Our activities follow the clinical activity at the hospitals and are spread across a number of geographical areas.

Additional information

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