



Jobbnorge ID: 217284
Deadline: 1/20/2022
Website: <http://www.nmbu.no>
Scope: Fulltime
Duration: Project

Are you interested in gene-editing of structural variants in fish with whole-genome duplication?

Researcher within functional genomics in Atlantic salmon

About the position

The Department of Animal and Aquacultural Sciences, Faculty of Biosciences at the Norwegian University of Life Sciences (NMBU) has a vacant 1.5-year Researcher or 2 year PostDoctor position in functional genomics. The position is financed with the RCN-funded project SalmoSV.

Genomic structural variants including deletions, duplications, inversions, and translocations of genetic sequences, are rich resources for genetic diversity. In particular, Atlantic salmon genomes show extreme levels of genomic structural variants, likely due to their unique history of recent whole-genome duplication. Structural variants in Atlantic salmon genomes are one of the most promising frontiers in both evolutionary genomics and aquacultural genomics. However, due to their complex nature, which and how structural variants have driven adaptive evolution with functional advantage are yet to be clarified.

Currently, we are investigating structural variants in Atlantic salmon from different populations by long-read sequencing technologies and found dozens of interesting candidate genetic variants that may leading phenotypic diversity.

The goal of this project is to reveal the functional impact of target structural variants on early development in Atlantic salmon by gene-editing in cell lines and embryos.

The successful candidate will join CIGENE (<https://cigene.no/>), a multidisciplinary genome biology research group. CIGENE has established excellent wet lab facilities (CIGENE genomics lab) for automated high-throughput omics analyses and gene-editing technology, as well as the connected CIGENE Bioinformatics & Computational Unit.

References:

- [1] Lien, et al., <https://doi.org/10.1038/nature17164>
- [2] Bertolotti, et al., <https://doi.org/10.1038/s41467-020-18972-x>
- [3] Saitou and Gokcumen, <https://doi.org/10.1007/s00239-019-09911-6>
- [4] Straume and Kjærner-Semb <https://www.nature.com/articles/s41598-019-57295-w>

Main tasks

The main purpose of the post-doctoral position is to qualify for work in high-level scientific positions.

The goal of this project is to reveal the functional impact of target structural variants on early development in Atlantic salmon using CRISPR-Cas9 and/or Tol2 transgenesis in embryo and/or cell lines.

To achieve this goal, the recruited researcher/postdoc will collaborate with the ongoing Atlantic salmon genomics project team at CIGENE.

The candidate will:

- Participate in the selection process of targets from the candidate list
- design, develop and perform CRISPR experiments and Tol2 transgenesis of salmon embryos and/or cell lines
- investigate phenotype in Atlantic salmon embryo, skin and liver cell lines
- Illumina-based DNA, RNA sequencing in collaboration with bioinformatics researchers
- disseminate research in leading scientific journals in the field
- Work with other researchers, including PhD and master's students

Planned starting date is April 1st. 2022.

Competence

The applicant must document expertise and interest in the research subject.

Required Academic qualifications

- PhD degree in genetics, molecular biology or related field
- Experience with gene-editing

- Experience in molecular biology

The following experiences and skills will be preferred:

- Experience with construction of vectors
- Experience with CRISPR in animals
- Experience with cell cultures
- Experience with imaging

You need to:

- Have good collaborative skills and high motivation
- Have ability to work independently displaying initiative and creative thought
- Have analytical and academic approach to research questions
- Be proficient in English, both written and spoken

Remuneration and further information

The position is placed in government pay scale position code 1109 Researcher, or code 1352 Postdoctoral Fellow, wage framework 24 (salary grade 59-77), depending on qualifications. Seniority Promotion in position.

Please don't send application by email. Application needs to be submitted via JobbNorge to be processed.

If you have questions please contact Dr. Marie Saitou (about project overview) and Dr. Guro Katrine Sandvik (about technical detail)

<https://cigene.no/people/>

[information to applicants](#)

Application

Applications should include (electronically)

1. A letter of intent includes:
 - Why are you interested in this particular project?
 - How can you contribute to the project based on your specific skillsets?
2. Curriculum vitae + publication list (a short description of the applicants contribution to each paper must be included)
3. Materials that show the applicant's skill: Attach a one-page copy of lab notebook which includes results/notes from a relevant experiment
4. Task related to the applicant's knowledge: One-page A4 report which explains "Efficient methods for insertion of a specific sequence into the Atlantic salmon genome (potential and existing)".
5. Copies of degree certificates and transcripts of academic records (all certified)
6. At least two academic reference persons.

To apply online for this vacancy, please click on the 'Apply for this job' button above and submit required documents. If you are on external website than JobbNorge, please go to JobbNorge job ad page [ledige-stillinger/stilling/217284](#) and make sure you read and understand the entire job description.

Applications sent by email or applications without required documents may not be reviewed.

Application deadline: 20.01.2022

However, we will start reviewing as we receive applications, and the position is open until filled.

- Short-listed candidates will be asked to give a 10-minute presentation about "Efficient methods for insertion of a specific sequence into the Atlantic salmon genome (potential and existing)". in the interview.
- Short-listed candidates will be asked to submit copies of degree certificates and transcripts of academic records (all certified)

About The Faculty of Biosciences

The Faculty of Biosciences is organized into two departments: Department of Animal and Aquacultural Sciences and Department of Plant Sciences.

The main objective of the Faculty of Biosciences is to contribute to the development of sustainable agriculture and food production systems through basic and applied research on plants and animals including fish (aquaculture). The faculty houses Centre for Integrative Genetics (CIGENE) and the research center for Research-based Innovation (SFI) - Foods of Norway.

The faculty is responsible for bachelor- and master programmes in Biology, Animal Science and Plant Science, and international master programmes in Genome Science, Agroecology, Plant Science, Aquaculture, Animal Breeding Genetics and Feed Manufacturing Technology. PhD programmes include Animal Science and Aquaculture, and Plant Sciences. There are currently 480 bachelor and master students, and 90 PhD students, enrolled in these programmes. The faculty has approximately 220 permanent and temporary scientific employees, including technicians, and 18 administrative positions.

The Norwegian University of Life Sciences (NMBU)

NMBU has a particular responsibility for research and education that secures the basis for the life of future generations. Sustainability is rooted in everything we do and we deliver knowledge for life. NMBU has 1,900 employees of which about 300 phd scholarships and 6,700 students. The university is divided into seven faculties.

NMBU believes that a good working environment is characterised by diversity.

We encourage qualified candidates to apply regardless of gender, functional ability, cultural background or whether you have been outside the labour market for a period. If necessary, workplace adaptations will be made for persons with disabilities. More information about NMBU is available at www.nmbu.no.

Additional information

Place of service:

Universitetstunet 3 1430 Ås (Ås Municipality)