

Jobbnorge ID: 280948
Deadline: 7/13/2025
Website: <http://www.nord.no/no>
Scope: Fulltime
Duration: Fixed Term

Faculty of Biosciences and Aquaculture

PhD position - Sugar Kelp Priming for Strengthening Host Immunity

About the position

A three-year PhD fellowship is available at the Faculty of Biosciences and Aquaculture, Nord University (Bodø, Norway), connected to the 'Algal and Microbial Biotechnology' division.

FBA invites applications from outstanding candidates for a three-year PhD fellowship with the broader goal to enhance kelp immunity and resistance to biofouling through defense elicitation.

Integrated in an international team of collaborators (CCMAR PT, CNRS FR, GEOMAR DE & NORD NO), combining expertise in kelp cultivation, defense elicitation, the kelp microbiome, 'omics and bioinformatics skills and resources, this project aims to characterize the potential and value of priming kelp immunity to enhance resistance to bio-fouling and pathogens, and to characterize a mechanistic explanation at the molecular level.

The candidate will be located in Norway, Bodø and have at least one research stay at the Roscoff Research station in France.

The KELP-SHIELD project 'Sugar Kelp Priming for Strengthening Host Immunity, Enhancing Long-term Defense' focuses on immune priming, a method to enhance biotic stress defense readiness. This method is well-established in crops but novel in macroalgae. Immune elicitors (pathogen-derived molecules or environmental cues) trigger immune responses. While oligoguluronates enhance kelp defenses, they may disrupt biofilms protecting against epibionts, highlighting trade-offs between immune elicitation, microbiome health, and biofouling resistance. Their effectiveness across kelp life stages remains unstudied. DNA methylation regulates immune priming in plants, enabling epigenetic memory of pathogen infections and potential transgenerational immunity. Its role in the kelp *S. latissima* remains unknown. The proposed research links molecular mechanisms, aquaculture applications, and microbial ecology to advance understanding of kelp immune mechanisms and their role in sustainable aquaculture. This study will establish a mechanistic basis for immune elicitor integration into kelp farming.

Key questions

- 1) How do different *S. latissima* strains vary in immune responses to *Eurychasma dicksonii* and oligoalginates, and is there a host-pathogen cross-talk similar to plant pathosystems?
- 2) Can immune elicitation in gametophytes enhance pathogen resistance in sporophytes, and how do these responses depend on DNA methylation?
- 3) How does immune priming influence microbiome composition, herbivore resistance, and biofouling in *S. latissima*?

The position will be available from 6th of January 2026.

The application deadline is 13th of July 2025

Candidates must comply with Nord University's residency requirements.

Qualification requirements

- MSc degree or equivalent in a relevant discipline such as genetics, epigenetics, phycology, and biosciences.
- Grade average of B or better both for the programme in total and the master's thesis
- Drylab skills in molecular biology including DNA extraction, Qubit quantification
- Experience with kelp sampling and cultivation methods
- Experience with stress experiments of macroalgae both at the gametophyte- and sporophyte stage
- Thesis background preferably in plants or algae
- Strong computational skills (using R, modelling software, working on a remote linux-based server) and experience in analyzing Next Generation Sequencing data, including PCA, outlier analysis, GO-term enrichment analysis.
- Ability to work independent and in teams.
- High motivation and adherence to time lines.
- Demonstration of strong interest in and drive to work on the topic

- The grades at the qualifying MSc examination needs to be B or better (ECTS scale from A-E) to be admitted to the PhD program.
- See admission requirements: [PhD in Biosciences](#)
- It is assumed that the person who is hired is admitted to the faculty's doctoral program Final project outline with plan for the doctoral work must be approved and agreed upon no later than 3 months after accession. Termination may be considered if admission to the doctoral program is not available within this deadline, due to lack of annual reporting of progress and/or serious failure in progress and in duty work. For admission requirements and regulations, see our [web page](#)
- For the position, good English skills are required both written and oral. The thesis can be written in English or Norwegian (or a Scandinavian language)
- It is an advantage that the applicant masters Norwegian (or a Scandinavian language) both written and oral

Desirable qualifications:

- Experience in microbiome work
- Background in Phycology
- Experience in Next Generation Sequencing
- Papers published in peer-reviewed journals or presented at (inter)national conferences

Candidates who already have a PhD degree will not be considered for the position.

Qualified applicants will be ranked according to the following criteria:

- Theme and perspectives from the applicant's master's study. Project outline with description of project idea and plan for implementation
- The applicant's description of motivation for the doctoral work and opportunities for completion
- Relevant experience from research work
- Ability to work independently, goal-oriented and systematically
- Personal suitability

We offer

The annual salary for doctoral researchers (code 1017) is set to NOK 536 200,- .

- Advantages within the Government Pension Fund for borrowing, insurance and pension
- Creative and collegial working environment
- A workplace with progressive development
- Flexible working hours
- Active university sports team

General information

The person who is appointed must abide by the applicable laws, agreements, and directives. The responsibilities and duties associated with the position may change with future reorganization at Nord University.

The public sector workforce is expected to reflect the diversity of the population in general. Nord University therefore encourages qualified candidates with disabilities, gaps in their CV, immigrant backgrounds or different life experience to apply.

If applicants indicate they have disabilities or gaps in their CV, their details may be used anonymously for the purposes of governmental annual review.

Contact information

Further information about the position can be obtained by contacting :

- Associate Professor Alexander Jüterbock, alexander.juterbock@nord.no , Phone: +47 75 51 78 34

Application process

Applicants will be evaluated by an internal expert committee. Relevant applicants will be invited for an interview, trial lecture or other presentations.

The Faculty reserve the right not to hire applicants who may be scientifically qualified but who do not meet other criteria such as language, educational background or personal characteristics

Application

Applications must be submitted electronically by July 13th 2025.

The application must include:

- Cover letter outlining the candidate's motivation and suitability for the position (maximum 1 page)
- **Description of the PhD project idea from the perspective of the candidate**, including the theoretical basis and intended methodology (maximum 2 pages).
- A complete CV (education, work experience and publications, maximum 2 pages).
- Certified copies of transcripts for academic degrees (both bachelor and master degree) and other relevant qualifications
- Other activity that is considered relevant, such as list of publications and academic work
- Contact details for at least two referees (name, relation to candidate, e-mail and telephone number)

All documents must be uploaded as attachments to the electronic application form.

It is the applicant's responsibility to submit the complete documentation within the deadline.

After the application period has expired a list of applicants will be published. Note that, in special cases, the identity of particular applicants to a position may be made public even when that applicant has requested that their application be processed confidentially. Applicants requesting an exemption from publication of their identity must explain their reasons for doing so in their application. In this case, advance notice will be given in the event of a decision to make any information about the applicant public.

Refnr. 30237312

Nord University

Through research, education and social engagement, Nord University contributes to the creation of a sustainable future.

In cooperation with society, business and industry in Northern and Central Norway, our 11,500 students and 1,350 staff promote innovative solutions and knowledge-based practice, both locally and internationally.

Nord University has four strategic focus areas: blue and green growth, sustainable innovation and entrepreneurship, societal security, and health, welfare and education.

Faculty of Biosciences and Aquaculture (FBA) educates people with the aim of promoting sustainable and innovative development to meet global challenges in food production, climate and environment. The faculty is an international arena for education, research and knowledge dissemination, with employees and students from 39 different countries. The faculty offers a PhD in Biosciences. FBA has 900 students and 165 employees in Bodø and Steinkjer. The professional community is organised into the following divisions: Aquaculture, Ecology, Genomics and Animal Science, Production and Welfare and Algae and microbial biotechnology.

Read more: www.nord.no/en/fba

Additional information

Contact person:

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Place of service:

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