ARISE

«Amplifying TU Dublin's capacity for Research & Innovation Supporting Enterprise»

ARISE Summer Research Internship (Ref 512/2025)

The extraction and quantification of mycosporine-like amino acids (MAAs) from Irish seaweeds

School of Food Science and Environmental Health/Sustainability & Health Research Hub

Technological University Dublin.

ARISE «Amplifying TU Dublin's capacity for Research & Innovation Supporting Enterprise» is designed to unlock this potential within TU Dublin, amplifying the University's capacity to directly support enterprises in the Eastern & Midlands Region (EMR) to develop new products and processes, whilst further embedding an ethos of enterprise support across the general R&I community. Over the project lifetime (2024 to 2027), ARISE will support over 200 EMR-based enterprises, by funding and training enterprise support teams who will harness TU Dublin's specialist knowledge and research expertise. Overall funding for this initiative is being provided by the Government of Ireland (via the Higher Education Authority) and European Regional Development Funding (ERDF).

The ARISE Summer Research Internship offers a valuable opportunity to gain hands-on experience in research and professional development. Designed for those with an interest in research, the programme provides meaningful, practical work aligned with the intern's academic background or career aspirations. The internship also focuses on enhancing employability through the development of transferable skills. Interns will strengthen their ability to work independently and collaboratively, while sharpening their critical thinking and problem-solving capabilities. The ARISE Internship should be of particular interest to students who are strongly considering applying for a PhD position or PhD funding in the future.

Job Description

Project Summary:

The extraction and quantification of mycosporine-like amino acids (MAAs) from Irish seaweeds presents an urgent and commercially relevant opportunity for the skincare, cosmetics, and biomaterials sectors. MAAs are potent natural UV-absorbing and antioxidant molecules, yet industrial uptake is limited by the scarcity of sustainable production methods and the absence of commercially available analytical standards. Current research highlights the diversity and UV-protective potential of MAAs in marine organisms, as well as the need for precise analytical workflows to identify known and novel compounds.

This project aims to develop green, solvent-efficient extraction methods tailored to specific seaweeds and optimised to maximise MAA yield while reducing environmental impact. Purification, quantification, and structural confirmation will be performed using UPLC, NMR, and possibly FT-NIR spectroscopy, which can resolve complex MAA mixtures and detect novel

derivatives. The project will also isolate and purify key MAAs to generate reliable in-house standards, addressing a major bottleneck for industry and enabling accurate quality control in future applications.

Principal Accountabilities

- Report to Principal Investigator (PI) and research team supervisors.
- Contribute to the research design and studies in relation to the project.
- Record, analyse and write up the results of the studies.
- Ensure quality of data through the use of validated methods and external standards.
- Prepare and present findings of research activity to colleagues for review purposes.
- Work under supervision on an assigned research task.
- Carry out any other duties within the scope, spirit and purpose of the job as requested by the PI.
- Manage time effectively to meet the deliverables of the project.
- Actively comply with all TU Dublin policies and regulations, including those in relation to Research Ethics and Health and Safety.

Person Specification

The ideal candidate will demonstrate the appropriate mix of knowledge, experience, skills, talent and abilities as outlined below:

Knowledge & Experience

- Green extraction techniques
- Applied knowledge of analytical techniques such as NMR & HPLC
- Experience in working with different seaweeds
- Bioactivity assays
- Basic knowledge of skincare formulations

Skills, talents & abilities

- The successful candidates will be highly skilled and motivated with the ability to work independently and as part of a team.
- Excellent interpersonal and communication skills.
- Excellent organisational skills, time management and ability to undertake duties assigned and meet required deadlines.

Payment & Benefits

- Interns will be issued with an employment contract
- Interns are subject to legislation for minimum wage (€14.15 per hour + PRSI).
- Internships are not available to current or former employees of the University,
- Interns may not work in excess of 35 hours per week.
- Duration 1st June – 28th August 2026 (13 weeks)
- No overtime pay will be made.
- Internship posts are not pensionable and will not receive sick pay.

Application Process:

Interested parties should send a current CV plus Cover Letter to Azzasilotry.naik@TUDublin.ie by 22nd May 2026 with interviews taking place shortly thereafter.

Rialtas na hÉireann
Government of Ireland
Arna chomhchistiú ag an Aontas Eorpach
Co-funded by the European Union
Tionól Réigiúnach an Deiscirt
Southern Regional Assembly
HEA
An tÚdarás um Ard-Oideachas
The Higher Education Authority

Tá ARISE arna chomhchistiú ag Rialtas na hÉireann agus ag an Aontas Eorpach trí Chlár Réigiúnach an Deiscirt, an Oirthir agus Lár na Tíre 2021-27 de chuid
TU Dublin ARISE is co-funded by the Government of Ireland and the European Union through the ERDF Southern, Eastern & Midland Regional Programme 2021-27