 

**Teagasc Walsh Scholarship Ph.D. Opportunity**

CELEBS Research Project

Ref: 2025016

**Integrating Designer Cell Factories and Innovative Bioprocesses**

**for Side-Stream Biotransformation**

**Background:** The CELEBS project aims to use precision fermentation to transform waste side-streams from the dairy processing sector to high-value bio-based products. Precision fermentation is widely anticipated to transform food production from a fossil-fuel based system to a bio-based system, thus dramatically reducing emissions. Precision fermentation uses directly-modified microorganisms such as yeast and bacteria as ‘cell factories’ to produce specific functional ingredients. Our objective will be to leverage the waste streams generated during the production of fermented dairy products as low-cost fermentation feedstocks for these cell factories. We will design innovative microbial cell factories to produce high yields of valuable food-grade products, i.e. amino acids, lipids and pigments, through the engineering of naturally occurring microorganisms from the dairy processing environment. Using the infrastructure of the Bioprocess Innovation Suite at Teagasc, we will move from lab-scale to pilot-scale production of these high-value compounds, optimising the microbial production systems themselves and the bioprocess parameters to deliver products with less cost and development time compared with current state-of-the-art techniques. Our research will look to develop scientific and technical knowledge in the context of an emerging precision fermentation sector in Ireland, while supporting the Irish food industry to become more climate-smart and environmentally sustainable.

**Scholarship details**: This is a 4-year full-time research PhD scholarship, with the project expected to commence in September 2025. The scholarship comprises of a stipend of €25,000 per annum, plus a contribution to fees up to a maximum of €6,000 per annum. The stipend is subject to satisfactory output of scientific results and publications. The successful applicant for this post will be registered for the purposes of PhD award at Dublin City University, and based mostly at Teagasc Food Research Centre, Moorepark, Fermoy, Cork with periods spent at Dublin City University, when required.

**Academic supervisors**: Prof Olivia McAuliffe (Teagasc) and Assoc Prof Dr Vijai K. Gupta (DCU).

**Requirements:** Applicants are expected to have, or expecting to receive, a First Class Honours (1H) or Second Class Honours Grade One (2H1) degree in Food Science, Microbiology, Biotechnology, Biochemistry, or a related discipline. Applicants with a relevant Masters degree are also eligible to apply. The successful candidate should be highly self-motivated and work well as part of a wider research team. Laboratory experience and experience of microbiology, microbial genetics and fermentation are desirable, but not essential. For applicants whose first language is not English, the English language requirements for DCU are available at

<https://www.dcu.ie/registry/english-language-requirements-non-native-speakers-english-registry>

**Applications procedure:** Email CV and cover letter with the subject line ‘**CELEBS Walsh Scholarship’** to Prof. Olivia McAuliffe olivia.mcauliffe@teagasc.ie, by **5pm Friday 9th May.**