

Summer Undergraduate Research Programme 2025

The Summer Undergraduate Research Programme (SURP) is part of the CREATE-DKIT project, which is co-funded by the Government of Ireland and the European Union through the ERDF Southern, Eastern & Midland Regional Programme 2021-27.

Project ID	SURP2503
Project Name	L-type calcium channels as a treatment target for COPD
Applicant	Any Higher Education Institution in the Republic of Ireland

Research Project's Aim and Objectives

Contraction of the airway smooth muscle depends (ASM) on the elevated intracellular calcium concentration, so targeting the pathways whereby calcium enters the cells would be an attractive option to treat diseases such as asthma or Chronic Obstructive Airways Disease (COPD). One possible candidate are pores in the plasma membrane called 'L-type calcium channels'. ASM cells have abundant L-type calcium channels, but many people think that they play little role in causing contraction because L-type channel blockers have been reported to have no effect. However, this may be because many studies use extreme, unphysiological stimuli, such as very high doses of agonist, or high frequency nerve stimulation. We have recently published a paper that shows that L-type calcium channel blockers are very effective at reducing ASM contractions induced by more physiological stimuli. The overall aim of this project is to identify the mechanisms involved in opening the L-type calcium channels.

1. Train an undergraduate student in dissection of mouse airways, mounting airway rings in organ baths, making isometric tension recordings.
2. Providing the opportunity of an undergraduate student to participate in a research project with SMRC.
3. Acquire preliminary data to form the basis of a future grant application to Research Ireland for a PhD fellowship.
4. Investigate a novel role for L-type calcium channels in airway smooth muscle.

Profile of Student Needed

Priority will be given to a student who has completed 3 years of a physiology, biomedical science, pharmaceutical science, pharmacology degree, or similar and will be continuing onto a 4th-year honours degree. Only students who have high marks in their 2nd year (and 3rd year if available) will be considered, preferably with a GPA of 70% or above and on track to achieve a first-class honours or high 2:1 degree.

Location

Smooth Muscle Research Centre laboratory, Dundalk Institute of Technology

Informal Project Contact

If you have any questions about the project itself, please contact Keith Thornbury:
keith.thornbury@dkit.ie



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Conditions

Conditions of the programme:

- To be eligible, students must be starting their 3rd or 4th year of an undergraduate programme in Semester 1 of 2025/2026
- This project is open to students registered at any Higher Education Institution in the Republic of Ireland
- Successful students will receive a weekly scholarship of €200
- Awarded students must attend virtual and in-person training held over the 8-week period, including an in-person induction on July 1st
- Awarded students must present a poster at a research dissemination event in October 2025

How to Apply

Using the Project ID in the subject line, please email your current CV, along with a cover letter, to Elaine O'Neill, Research Support Officer at elaine.oneill@dkit.ie by **12pm, Monday May 12th 2025**.

Interviews will take place in the week of May 19th.



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