



Plastic in the Arteries: Unmasking a New Cardiovascular Risk Factor

UCD PhD Scholarship Opportunity

POSITION	Fully funded PhD Scholarship (4 years, full-time)
SUPERVISOR	Dr Eoin Brennan (UCD School of Medicine)
FUNDING	€25,000 annual tax-free stipend + PhD tuition fees (€5,500/year); project support for research, training and conference travel



Project description

Could plastic pollution be a hidden risk factor for cardiovascular disease? Micro- and nanoplastics (MNPs) are increasingly being detected in the human body, including within atherosclerotic plaques, but whether they actively contribute to vascular disease remains unclear. This PhD project will combine analysis of human carotid plaques with advanced cell and 3D tissue models to determine how MNPs affect vascular and immune cells and promote inflammation and atherosclerosis. The student will gain interdisciplinary training in microplastic characterisation, advanced imaging, molecular and cellular biology, organoid models, transcriptomics and bioinformatics, helping to establish whether environmental plastic exposure represents a novel and potentially modifiable cardiovascular risk factor.

1 Human plaques

Quantify and characterise MNPs in carotid plaques using advanced spectroscopy, imaging and histology.

2 Vascular mechanisms

Define MNP-induced responses in endothelial cells, smooth muscle cells and macrophages.

3 3D human models

Test mechanisms in iPSC-derived blood-vessel organoids and precision-cut plaque slices, including transcriptomic profiling.

Eligibility and entry requirements

- At least a 2:1 honours degree (or expected) in a relevant biomedical, biological, bioengineering or environmental science discipline.
- A Master's degree or relevant research experience is desirable, but not essential.
- Experience in cell culture, molecular biology, imaging, omics/bioinformatics or environmental analytical methods is advantageous.
- Strong motivation for interdisciplinary research, with good organisational, communication and collaborative skills.
- Applicants must meet UCD English-language requirements where applicable.

HOW TO APPLY

Email: Dr Eoin Brennan at eoin.brennan@ucd.ie

Deadline: 20th Sep 2026

Include: CV, academic transcripts and a cover letter / statement of purpose (max. 2 pages), contact details for two academic referees.