

## Assessing the role of abattoirs and their environment in the transmission of antimicrobial resistance in the food chain

**Walsh Scholars Reference number:** 2025221

**Research Institution:** Teagasc

**University:** University of Galway

**Location:** Teagasc Ashtown

**Funding:** Dept of Agriculture Food & the Marine **Proposed Start Date:** September 2026

### Project Summary

Antimicrobial resistance (AMR) is a growing global public health crisis: infections that were once easily treatable are becoming harder or impossible to cure, increasing risks to human health, food security and animal welfare. Livestock and food production systems are implicated in the emergence and spread of resistant bacteria and resistance genes. Understanding how AMR moves from animals into foods and into environmental pathways is therefore critical for effective interventions, regulation and industry practice.

Despite recognition of the role of food production, important knowledge gaps remain. Current surveillance provides limited information on the types and abundance of resistant bacteria present in abattoirs and how those resistance profiles relate back to animals on-farm or forward into retail foods. Similarly, while wastewater treatment is considered a hotspot for antimicrobial resistance genes (ARGs), most research has focused on municipal and industrial plants; little is known about the resistome in abattoir process waters or how effective on-site treatment is at removing ARGs and resistant organisms. These gaps leave a critical link in the farm-to-fork and farm-to-environment transmission chains poorly understood.

This PhD will close that link by characterising AMR at the slaughterhouse interface for pork and beef and by assessing the AMR content and treatment efficacy of abattoir wastewater. Key objectives will include: (1) mapping the diversity and abundance of resistant bacteria and resistance genes in the abattoir environment and on meat; (2) characterising the diversity and abundance of resistant bacteria and resistance genes in abattoir process and treatment wastewaters and evaluating treatment performance; and (3) integrating findings to identify transmission pathways and mitigation opportunities. The project will combine targeted microbiology, molecular methods, and whole genome sequencing, together with statistical and comparative analyses. This PhD will be carried out as part of the DAFM-funded *ADDRESS* project on AMR dynamics, evolution and emerging threats in the environment.

The project will deliver new data on resistance profiles at this critical environmental and food interface, provide evidence on the role abattoirs may play in AMR dissemination, and an assessment of wastewater treatment efficacy in reducing ARGs in such facilities. These outcomes will inform industry best practice, support evidence-based policy and regulation, and provide scientists and public-health stakeholders with actionable insights for risk reduction.

### Supervision

The project will be supervised by Dr Kaye Burgess (Teagasc), whose research group is focused is on understanding the behaviour and virulence of foodborne pathogens and antimicrobial resistant microorganisms in food production, using a One Health approach. Dr Burgess will be responsible for project coordination, student supervision, delivery of project goals and integration of the research within the Teagasc programme.

Co-supervision will be provided by Prof Dearbháile Morris at the School of Medicine at University of Galway. Prof Morris is Personal Professor of Antimicrobial Resistance and One Health, and Head of the Discipline of Bacteriology at the School of Medicine, University of Galway and is an internationally recognised expert in antimicrobial resistance mechanisms and epidemiology.

## Research Environment

The Walsh Scholar will be registered with University of Galway (School of Medicine) and will be based at the Teagasc Food Research Centre, Ashtown, Dublin, Ireland. This centre is a collaborative research environment involving core Teagasc research and technical staff and a large cohort of postgraduate research students.

This PhD will be undertaken as part of the Department of Agriculture, Food and the Marine funded *ADDRESS* project and as such the successful candidate will form part of a multidisciplinary project team and have the opportunity to collaborate with colleagues in Maynooth University, University of Galway and University of Dublin.

## Career and Training Opportunities

The Teagasc Walsh Scholars Programme provides a structured four-year training and development framework designed to support both academic excellence and long-term career readiness. Scholars develop advanced scientific and analytical expertise alongside transferable skills in communication, project management, and stakeholder engagement through expert-led training, workshops, and tailored professional development.

Opportunities are provided to present research at national and international conferences, supporting professional networking and active engagement with the wider research community. Dedicated final-year career supports focus on preparing scholars for impactful roles across research, industry, advisory services, and policy, in Ireland and internationally.

Through the Teagasc International Training Awards, scholars may undertake an international research placement of up to 12 weeks aligned with their PhD project. Outstanding achievement may also be recognised through the Walsh Scholars of the Year and Gold Medal Awards.

## Candidate Profile and Eligibility

Candidates should be able to demonstrate the following:

- Hold a first or second class honours degree (2.1 equivalent) in Microbiology, Food Science or a related and relevant discipline.
- Experience of handling pathogenic microorganisms and molecular biology techniques would be a strong advantage.
- A high level of motivation and enthusiasm to develop technical skills across a range of scientific disciplines.
- Willingness to undertake field-based sample collection as part of the research project.
- Hold a full, clean Irish or EU driving licence, or a foreign driving licence recognised by the National Driver Licence Service (NDLS) of Ireland.
- Meet the postgraduate entry and English language requirements of the registering university (minimum IELTS score of 6.5 or equivalent for applicants whose first language is not English).

## Funding Details

This is a four-year PhD position, funded by the Department of Agriculture, Food and the Marine, including:

- stipend of €25,000 per annum
- university fees covered up to €6,000 per annum

## How to Apply

Interested candidates should submit an electronic copy of their CV including two referees, as well as a letter of motivation outlining your interest in this project and why you would be a suitable candidate to [kaye.burgess@teagasc.ie](mailto:kaye.burgess@teagasc.ie) by **5pm on Tuesday August 25<sup>th</sup> 2026**. Subject line of email – WS REF 2025221.

**Interviews:** Online interviews will be held in mid-late August 2026.



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An Roinn Talmhaíochta,  
Bia agus Mara  
Department of Agriculture,  
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**Further Information:** Informal enquiries are welcome and may be directed to [kaye.burgess@teagasc.ie](mailto:kaye.burgess@teagasc.ie)  
Learn more about the Walsh Scholars Programme at: <https://teagasc.ie/about/research-innovation/thewalsh-scholars-programme/about-the-programme/>