



Research Impact Story

Restoring Balance: Associate Professor Mary Canavan's Vision for Autoimmune Therapy

Career Trajectory and Independence

Associate Professor Mary Canavan, a leading researcher in the School of Biochemistry and Immunology, has significantly advanced her academic career following her Dean's Award success in 2023. Her project, *"Restoration of Immunological Tolerance in Rheumatoid Arthritis via Metabolic Reprogramming,"* served as a vital starting point that established her research independence. This foundational support directly contributed to her successful promotion to Associate Professor in January 2025.

Building her own research team

The Dean's Award acted as a crucial catalyst, providing the preliminary data necessary for Professor Canavan to secure a prestigious Health Research Board (HRB) Investigator-Led Programme (ILP) grant in 2024. This competitive funding has allowed her to expand her research capacity by building a dynamic team of seven research members. Her excellence was further recognised as a Commendation Awardee for Research Ireland Early Career Researcher of the Year. Additionally, she secured SFI funding (2024–2028) to investigate how tissue-specific immune memory mediates disease progression in Rheumatoid Arthritis.

Therapeutic Innovation

A core focus of Professor Canavan's work is the development of innovative therapeutic approaches for autoimmune diseases. By utilising physiologically relevant ex-vivo models, her research aims to identify new biomarkers for disease onset and therapeutic response. Her breakthrough work in metabolic reprogramming seeks to restore immunological tolerance, offering a transformative pathway toward precise and targeted therapies that address the root causes of chronic inflammatory

conditions like Rheumatoid Arthritis and Inflammatory Bowel Disease.

Enhanced Clinical and Industry Collaborations

The credibility established through the Dean's Award has significantly enhanced Professor Canavan's professional network, opening doors to vital clinical collaborations at St James's Hospital and St Vincent's University Hospital. These partnerships are essential for bridging the gap between fundamental laboratory research and clinical practice. Furthermore, she collaborates with pharmaceutical companies and translational scientists to ensure scientific discoveries are successfully transitioned from "bench to bedside".

Enhanced Service to Discipline and Leadership

Professor Canavan holds significant leadership roles, serving as the Director of the Centre for Arthritis and Rheumatic Diseases and the Chair of the Research Advisory Committee for the Irish Cancer Society, where she oversees strategic research investments. She further contributes to her field as an Associate Editor for BMC Rheumatology and organizes the monthly Immunology Research Forum at the Trinity Biomedical Sciences Institute.

Mentoring Next generation of Researchers

The foundation laid by the Dean's Award has positioned Professor Canavan to realize her long-term ambition of creating a vibrant, translational research environment. Her goal is to lead an interdisciplinary team where scientists and clinicians work side-by-side to translate discovery science into clinical impact. She remains deeply committed to mentoring the next generation of researchers, fostering an inclusive environment where curiosity and resilience thrive.

Impact on Human Health

Professor Canavan's research holds profound implications for human health by advancing the understanding of immunological mechanisms to directly benefit patients. By identifying novel immune pathways, her work supports a future of personalised medicine for those suffering from debilitating autoimmune diseases. Her efforts to integrate clinical insights with fundamental immunology aim to provide long-term health benefits and an improved quality of life for individuals navigating chronic inflammatory conditions.
