



Waleed FAISAL

Institution: School of Pharmacy, UCC
Academic Mentor: Dr Abina Crean
Commercial Partner: Xeolas Pharmaceuticals Ltd
Commercial Mentor: Dr Dennis McDaid

Waleed has 12 years' experience designing and executing multidisciplinary research projects within the field of pharmaceutical formulation science and manufacturing. He has a number of research papers published in these areas.

The development and manufacture of effective, high quality, cost-effective medicinal products, is the main focus of his work.

He is actively involved in collaborative projects with pharmaceutical companies – both SMEs and multi-nationals. From 2016-2018 he was postdoctoral researcher in at the Pharmaceutical Manufacturing Technology Centre (PMTc), as well as a researcher at the Synthesis and Solid State Pharmaceutical Research Centre (SSPC).

Waleed graduated with a degree in Pharmacy from Asyut University, Egypt in 1997; and completed a PhD in Pharmaceutics in the School of Pharmacy, University College Cork.

Prior to joining UCC, he was a lecturer of Pharmaceutics, Faculty of Pharmacy, Minia University, Egypt. *See case study overleaf*

Dr Abina Crean

Dr Crean completed a PhD in Pharmaceutics from the School of Pharmacy & Pharmaceutical Sciences, Trinity College Dublin. She has worked as a formulation scientist with Elan Pharmaceuticals; and as a process development pharmacist at Servier. Collaborations with pharmaceutical companies are a key part of her research. She is a researcher at the SSPC; and a Principal Investigator at the Pharmaceutical Manufacturing Technology Centre. She has over 400 academic citations.

Dr Dennis McDaid

Dr McDaid has 23 years' experience in drug formulation quality and manufacture. Under his direction, Xeolas has developed formulation patents for the treatment of osteoporosis. He has published research related to this product. He is responsible for identifying potential products, proof of concept, product development (technical, clinical), dossier approval to ongoing GMP and compliance activities to support marketed products.

School of Pharmacy, UCC

UCC's research strategy is to establish centres of excellence for world-class research. The School of Pharmacy has a strong international reputation, with pharmacy and pharmacology has been ranked in the top 100 by QS World University Rankings since 2015.

Xeolas Pharmaceuticals Ltd

Xeolas is a specialty pharmaceutical company focused on the development of patient-friendly medicines. They develop formulation technologies for tackling complex development projects and realising solutions for patients with unmet medical needs.

Waleed's project

This project aims to develop an innovative drug formulation for effective treatment of nail fungal diseases (onychomycosis).

Onychomycosis, while not a life threatening disease is a global public health problem. Infection may be chronic and resistant to treatment, with 16 - 25% of patients not being cured through current treatments.

Oral administration of antifungals is the most effective option for the treatment of onychomycosis. The associated prolonged treatment regimen (3-4months), side-effects and drug – drug interactions, limit patient adherence to treatment. Direct application of antifungals to the nail plate is the most popular approach but success is limited despite prolonged treatment regimes.

This project is based on an identified microneedle formulation as a potential solution to the drawbacks associated with current treatment options. It is a simple, effective approach to physically disrupt the barrier of the proximal nail fold and target the antifungals to the nail matrix beneath.

As a result, drug delivery can be dramatically enhanced in a painless and minimally invasive manner. Following local delivery to the nail matrix, the drug will diffuse to local blood vessels and to infected tissues, killing or preventing further growth of fungal cells.
