

POSTGRADUATE RESEARCH OPPORTUNITY

Project Title: Solid dispersion of mucoadhesive hyaluronic acid for the prevention and treatment of intrauterine adhesions

Short Project Description

Intrauterine adhesions (IUA) are characterized by fibrosis of the uterine cavity. This is the second leading cause of female infertility, which has a significant bearing on the physical and mental health of affected individuals. Current treatment strategies fail to provide sufficient patient outcomes, which is why there remains a significant hurdle in reproductive science. Hyaluronic acid (HA) has been proven to prevent cell infiltration, thereby preventing the formation of scar tissue in the treated area. This project serves to develop a solid dispersion device which would allow for the sustained release of HA which has been modified to coat the inner lining of the womb. In doing so, a protective barrier is formed which will prevent the formation of scar tissue and improve fertility. Due to the ability of HA to bind 1000 times its weight in water, it has a natural self-healing ability, which will lend itself to the longevity of intrauterine coatings. Additionally, this project will investigate the inclusion of antioxidants to reduce the oxidative damage of cells and improve the efficacy of the Intrauterine device (IUD). The overall aim of this project is to produce a device capable of delivery therapeutic doses of mucoadhesive hyaluronic acid over a sustained period, such that replacement of the device would only be required every 6 months in a clinic. This project has the potential to develop a product suitable for the commercial market, which will make a significant impact on the reproduction health of individuals worldwide.

Duration of Project: 48 months

Funding Agency: TUS RISE Scholarship comprises of a monthly stipend, materials budget and postgraduate fee for the duration of the award only.

Type of Degree Offered: PhD

We are seeking an enthusiastic and motivated individual with a strong academic background and a genuine passion for bioengineering. The ideal candidate will have a BSc (or equivalent) degree in a relevant field such as polymer engineering, biotechnology, or a related discipline. A strong foundation in polymer processing, materials chemistry as well as experience with advanced cell culture techniques is highly desirable.

Qualifications

Essential

- Honours Degree (minimum 2.1 honours or equivalent) in Polymer Engineering, Materials Science, Biotechnology, or closely related fields.

Desirable

- Research Masters Degree (MSc or MEng, 2.1 honours or equivalent) in Polymer Engineering, Materials Science, Biotechnology, or closely related fields.



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TUS

Technological University of the Shannon:

Midlands Midwest

Ollscoil Teicneolaíochta na Sionainne:

Lár Tíre Iarthar Láir

Knowledge and Experience

Essential

- A strong background in Polymer engineering/ Bioengineering.
- Good knowledge of material science and cell biology.
- Skilled in using Microsoft office.

Desirable

- In-depth knowledge of polymer synthesis and modification.
- Skilled in cell culture and data analysis.

- A track record of publishing in peer-reviewed journals or obtaining IP.

IELTS [International English Testing System] Applicants must have a minimum of 6.0 with no component score less than 6.0.

Research Supervisors:

Dr Ciara Buckley (TUS Midlands)

Dr Declan Colbert (TUS Midlands)

Dr Noel Gately (TUS Midlands)

Industrial Mentor:

Siobhán Kelleher (Onawave, NUIG)

For further information, please contact:

Dr Ciara Buckley (Ciara.buckley@tus.ie)

Closing date for receipt of completed application form is 5pm on Tuesday, 4th June. Interviews will take place within subsequent weeks.

Download TUS RISE application form here:

<https://tus.ie/rdi/research/office/funded-research/>



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