College | Management Unit:	UCD College of Engineering & Architecture
School | Unit:	UCD School Mechanical and Materials Engineering
Post Title & Subject Area *(if relevant)*	**UCD Post-doctoral Research Fellow Level 1**
Project:	Optimizing T-Cell Therapies: Personalized Medicine Using Mera, a High-Throughput Microfluidic 3D Culture System
Post Duration:	Temporary 1 year
Line Manager	Dr Fiona Freeman
Competition Ref. N^{o}	017334
HR Administrator	Jagoda Wychowaniak

Position Summary:

Applications are invited from suitably qualified candidates for the position of a full-time fixed-term Postdoctoral Researcher with Dr. Fiona Freeman's team in Biomedical Engineering at UCD (https://www.ucd.ie/freemanlab/) and the industry sponsor Hooke Bio (https://hookebio.com/).

This 1-year postdoctoral fellowship will examine the efficacy of Hooke Bio's Mera platform compared to existing 3D culture systems for optimizing T-cell therapies. The project will focus on investigating two types of cancers: liver cancer (HEPG2) and osteosarcoma (SaOS2). The primary objective is to demonstrate, in real-time, the cellular interactions and therapeutic effects of T-cell therapies in treating both of these tumours. Traditionally, such dynamic assessments were challenging with other 2D and 3D culture systems. However, Hooke Bio's Mera system offers the capability to culture, drug, and stain 3D microtissues at higher throughput than existing technologies while analysing physiological metrics relevant to drug functionality and toxicity in real-time through a fully automated integrated fluorescent microscope. This project is jointly funded by the Science Foundation Ireland (SFI) Centre I-Form and Hooke Bio, and the position is available from August 2024 with flexibility on the start date.

Job Description:

The successful candidate will have the opportunity to join a dynamic and motivated team investigating the use of innovative engineering techniques to better understand and develop novel therapeutics for treating osteosarcoma, a paediatric bone cancer. Furthermore, the applicant will have the opportunity to work closely with R&D engineers at Hooke Bio. They will have the unique opportunity to gain vital links within research and industry. This project seeks to provide a comprehensive understanding of how T-cell therapies function within the tumour microenvironment.
The candidate will be responsible for developing and refining protocols for the isolation, culture, and activation of T-cells tailored specifically for use with the Mera system. They will also compare the cytotoxic effects of T-cells on tumour spheroids using standard 2D culture methods, conventional 3D spheroid culture techniques, and the Mera system, to assess the superiority of Mera in simulating real-time cellular interactions and therapeutic efficacy.

This is a research focused role, where you will conduct a specified programme of research supported by research training and development under the supervision and direction of a Principal Investigator.

The primary purpose of the role is to further develop your research skills and competences, including the processes of publication in peer-reviewed academic publications, the development of funding proposals, the mentorship of graduate students along with the opportunity to develop your skills in research led teaching.

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Principal Duties and Responsibilities:

- Conduct a specified programme of research and scholarship under the supervision and direction of your Principal Investigator.
- Engage in appropriate training and professional development opportunities as required by your Principal Investigator, your School or Institute, or the University.
- Engage in the dissemination of the results of the research in which you are engaged as directed by and with the support of and under the supervision of your Principal Investigator.
- Engage in the wider research and scholarly activities of your research group, School and Institute.
- Mentor and assist, as appropriate and as directed, the research graduate students in your group, School and Institute.
- Carry out administrative work associated with your programme of research.

Fixed Salary: €43,908 Per Annum

Details on eligibility to compete and pension information is available at
https://www.ucd.ie/hr/resourcing/eligibilitytocompete/

UCD welcomes applications from everyone. We are committed to creating an environment where diversity is celebrated and everyone is afforded equality of opportunity. Learn more about Diversity at
https://www.ucd.ie/workatucd/diversity/

Selection Criteria

Selection criteria outline the qualifications, skills, knowledge and/or experience that the successful candidate would need to demonstrate for successful discharge of the responsibilities of the post. Applications will be assessed on the basis of how well candidates satisfy these criteria.

Mandatory:

- PhD in Immunology, Biomedical Science, Biomedical Engineering, Biochemistry, Regenerative Medicine, Pharmacy, Medicine.
- A demonstrated commitment to research and publications
- An understanding of the operational requirements for a successful research project
- Evidence of research activity (publications, conference presentations, awards) and future scholarly output (working papers, research proposals, and ability to outline a research project.
- Excellent Communication Skills (Oral, Written, Presentation etc).
- Excellent Organisational and Administrative skills including a proven ability to work to deadlines.
- Candidates must demonstrate an awareness of equality, diversity and inclusion agenda.

The PD1 position is intended for early-stage researchers, either just after completion of a PhD or for someone entering a new area for the first time. If you have already completed your PD1 stage in UCD or will soon complete a PD1, or you are an external applicant whose total Postdoctoral experience, inclusive of the duration of the advertised post, would exceed 4 years, you should not apply and should refer to PD2 posts instead.

Desirable:

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Previous Experience in:

- Cell line and Primary Cell Culture
- Immune cell culture
- Primary Cell Isolation
- Flow cytometry
- RT-qPCR
- Organoid Culture
- Western Blotting
- Confocal imaging
- Setting own research agenda
- Mentoring students
- Outreach Activities

Supplementary information:

The University:	https://www.ucd.ie/
UCD Strategy 2020-2024: Rising to the Future	https://strategy.ucd.ie/
The College/Management Unit:	https://www.ucd.ie/eacollege/
The School/Programme Office/Unit:	https://www.ucd.ie/mecheng/
Equality Diversity and Inclusion at UCD	https://www.ucd.ie/workatucd/diversity/
Other (Please specify):	https://www.ucd.ie/freemanlab/

UCD offers a comprehensive **Research Careers Framework** in line with the Advisory Science Council Report '*Towards a Framework for Researcher Careers'*. This model provides a structured and supportive **Career and Skills Development** system designed to ensure that Post-docs in UCD are able to plan their careers and prepare for future opportunities in academia, industry or the public sector. For more information, please click here