Postdoctoral Researcher (2 Posts), Mechanobiology and Medical Device Research Group

College of Science and Engineering

Ref. No. University of Galway 307-22

Applications are invited from suitably qualified candidates for two full-time fixed term positions as a Postdoctoral Researcher with the Mechanobiology and Medical Device Research Group in Biomedical Engineering at the University of Galway.

These positions are funded by European Research Council (ERC) and are available from 1st January 2023 to contract end date of 30th August 2025.

Despite immense efforts to develop therapies for osteoporosis, conventional drugs that target bone loss only prevent osteoporotic fractures in half of sufferers, and the worldwide economic burden of treatment is escalating. Recently our research has provided evidence that the biological mechanisms by which bone cells normally respond to their mechanical environment are impaired. However, no existing therapeutic approach has been developed to account for these. Current understanding of bone mechanobiology and pathophysiology has been derived either using approaches that cannot fully capture, or account for both human biological and mechanical factors, and this project seeks to address this challenge. The global objective of the MEMETic project is to provide a paradigm change for studies of bone disease and therapeutics by consolidating, and significantly advancing, our novel approaches to develop advanced ex vivo models that recreate in vivo biomechanical cues in a living and multicellular 3D environment to replicate the mechanobiological function of bone. A unique multidisciplinary approach, combining cell and molecular biology with biomechanical and mechanobiological techniques, will enable these important advances, and consolidate a world leading mechanobiology research program.

This research will be conducted using the equipment, technical expertise, office and research space within the Alice Perry Engineering Building (School of Engineering) and the BioSciences Research Building (BRB) at University of Galway. The 14,000m² Alice Perry Engineering building houses state-of-the-art Biomedical Engineering facilities including cell culture laboratories, biomechanical testing laboratories, micro-CT scanning, microscopy, research space and computer suites. The BioSciences Research Building incorporates 8,000m² of high-end laboratory space for over 300 researchers from eminent University of Galway research groups working in the areas of cancer research, regenerative medicine and cell and molecular biology.

Job Description:
The successful candidates will work within a team to develop novel ex-vivo models to mimic the complex multicellular and mechanical in vivo environment of bone during osteoporosis. These models will be applied for studies of the role of mechanobiology in the aetiology of osteoporosis and potential therapies. This research will be conducted using the equipment, technical expertise, office and research space within the Alice Perry Engineering Building and the BioSciences Research Building (BRB) at University of Galway, which house state-of-the-art facilities including cell culture laboratories, biomechanical testing laboratories, micro-CT scanning, microscopy, research space and computer suites.
Duties:
The Postdoctoral Researchers will work within a team to develop advanced ex-vivo multicellular models that recreate in vivo conditions. The Postdoctoral Researchers will be responsible for consolidating the ex-vivo models with a postmenopausal model and validating these against the gold standard ovariectomized model. The successful applicants will be required to conduct:

• In vitro and ex-vivo cell culture studies using Bioreactors;
• Biochemical assays and RT-PCR to quantify gene and protein expression;
• Tissue dissection, histology and immunohistochemistry
• Characterise bone loss dynamics and the mineralisation using in vivo micro-CT
• Analyse data in an accurate and precise manner;
• Actively participate in international conferences and meetings;
• Publish data in high impact factor journals;

Qualifications/Skills required:

Essential Requirements:
• Hold a doctoral degree in a relevant discipline (Biomedical Engineering, Biomedical Science or a related field)
• Have a proven track record in a research environment
• Possess excellent communication and organizational skills and attention to detail
• Proven independent initiative and ability to work in a collaborative environment
• Be highly motivated and passionate about advancing biomedical engineering research

It is ESSENTIAL that applicants have experience in the below techniques:
• Experience of biomaterial-based approaches for tissue regeneration
• Experience of Epifluorescent and Confocal microscopy
• Experience of cell biology techniques (e.g. tissue histology, immunohistochemistry, immunocytochemistry)
• Experience of Tissue dissection and histology

Desirable Requirements:
• Experience of molecular biology techniques (e.g. western blotting, RT-PCR)
• Experience of using bioreactors and parallel plate flow chambers
• Biomechanical testing and micro-CT scanning

Salary: €41,209 - €53,091 per annum pro rata for shorter and/or part-time contracts (public sector pay policy rules pertaining to new entrants will apply).

Start date: Positions are available from 1st January 2023.

Continuing Professional Development/Training:
Researchers at University of Galway are encouraged to avail of a range of training and development opportunities designed to support their personal career development plans. University of Galway provides continuing professional development supports for all researchers seeking to build their own career pathways either within or beyond academia. Researchers are encouraged to engage with our
Researcher Development Centre (RDC) upon commencing employment - see [www.universityofgalway.ie/rdc](http://www.universityofgalway.ie/rdc) for further information

Further information on research and working at University of Galway is available on [Research at University of Galway](http://www.researchatuniversityofgalway.ie)

For information on moving to Ireland please see [www.euraxess.ie](http://www.euraxess.ie)

Further information about {school/centre} is available at [www.mechanobiology.ie](http://www.mechanobiology.ie)

Informal enquiries concerning the post may be made to Professor Laoise McNamara

**To Apply:**

Applications to include a covering letter, CV, and the contact details of three referees should be sent, via e-mail (in word or PDF only) to Laoise.McNamara@universityofgalway.ie

Please put reference number University of Galway 307-22 in subject line of e-mail application.

**Closing date for receipt of applications is 5.00 pm Wednesday 14th December 2022**

We reserve the right to re-advertise or extend the closing date for this post.

University of Galway is an equal opportunities employer.

All positions are recruited in line with Open, Transparent, Merit (OTM) and Competency based recruitment