Applications are invited from suitably qualified candidates for the following position:

**Research Centre**  
Biodesign Europe/Centre for Medical Engineering Research

**Post title**  
Postdoctoral Researcher: Development of an Instant Biomimetic Treatment for Brittle Bone Fracture for Patients with Osteoporosis (3 Roles)

**Level on Framework**  
Level 1

**Post duration**  
Fixed Term contract up to 36 months

---

**Dublin City University**

Dublin City University (DCU) is a young, ambitious and vibrant university, with a mission ‘to transform lives and societies through education, research, innovation and engagement’. Known as Ireland’s ‘University of Enterprise’, DCU is a values-based institution, committed to the delivery of impact for the public good. DCU was named Sunday Times Irish University of the Year 2021.

DCU is based on three academic campuses in the Glasnevin-Drumcondra region of north Dublin. More than 18,000 students are enrolled across five faculties – Science and Health, DCU Business School, Computing and Engineering, Humanities and Social Sciences and DCU Institute of Education.

DCU is committed to excellence across all its activities. This is demonstrated by its world-class research initiatives, its cutting-edge approach to teaching and learning, its focus on delivering a transformative student experience, and its positive social and economic impact. The university continues to develop innovative programmes in collaboration with industry, such as the DCU Futures suite of degrees, which are designed to equip graduates with the skills and knowledge required in a rapidly evolving economy.

DCU’s pursuit of excellence has led to its current ranking among the top 2% of universities globally. It is also one of the world’s Top Young Universities (QS Top 100 Under 50, Times Higher Top 150
Under 100). In the Times Higher Education University Impact Rankings 2021, DCU ranked 23rd in the world for its approach to widening participation in higher education and its ongoing commitment to eradicating poverty, while it ranks 38th globally for its work in reducing inequality and 89th globally for gender equality.

The university is ranked 23rd in the world and first in Ireland for its graduate employment rate, according to the 2020 QS Graduate Employability Rankings. Over the past decade, DCU has been the leading Irish university in the area of technology transfer, as reflected by licensing of intellectual property.

As part of this role the researcher will be required to participate in the DCU Research Career Framework. This framework is designed to provide significant professional development opportunities to Researchers and offer the best opportunities in terms of a wider career path.

**Background & Role**

**Biodesign Europe/Centre for Medical Engineering Research (MEDeng)** is currently offering three 36-month Enterprise Ireland-funded Postdoctoral Researcher positions, as part of a Disruptive Technologies Innovation Fund project that aims to **develop an instant biomimetic treatment for brittle bone fracture for patients with osteoporosis**. Osteoporosis or brittle bones is set to be a major health problem, with increasingly active lifestyles as we age combined with the prevalence of Osteoporosis leading to increased bone fractures in this population. Current solutions have numerous associated limitations. Thus, this project aims to develop an adhesive that could fix, stabilise and heal fractured osteoporotic bone.

**Biodesign Europe** ([https://www.dcu.ie/commsteam/biodesign-europe](https://www.dcu.ie/commsteam/biodesign-europe)) is a recently established transatlantic scientific research institute that leverages the research infrastructure capacity and expertise at the ASU Biodesign Institute ([https://biodesign.asu.edu/](https://biodesign.asu.edu/)) and DCU’s research centres. The focus of Biodesign Europe is to harness the natural design rules of life on this planet and translate nature-inspired solutions to complex grand challenges in health, sustainability and security for global positive impact and driving a sustainable international economy

**MEDeng** ([https://www.dcu.ie/medeng](https://www.dcu.ie/medeng)) is a key research centre at Dublin City University focused on translating engineering and materials research into healthcare solutions. The centre has six overarching research themes based at the interface of materials science, engineering and biology - providing the underpinning fundamental research to facilitate the stratified clinical and industrial framework for the development of medical devices and implants for tissue repair and regeneration. Projects are often conducted in close collaboration with leading Irish and international companies and research organisations.

These three postdoctoral positions will begin in **February 2023** and offer an exciting job opportunity where the successful candidates will have access to competent technical, infrastructural and administrative support and the opportunity to evolve a multi-facetted skill set.
The successful candidates will join an international team of PhD students and postdoctoral researchers and will work in close collaboration with academic, clinical and industry collaborators including PBC Biomed and Dolmen Design and Innovation. The postdoctoral researchers will be based in Biodesign Europe and MEDeng at Dublin City University and will work under the supervision of Prof. Nicholas Dunne and Dr Tanya Levingstone.

**Principal Duties and Responsibilities**

Reporting to Prof. Dunne and Dr Levingstone, the duties and responsibilities attached to the post include, but are not restricted to, the following:

- Conduct a specified programme of research under the supervision and direction of Prof. Dunne and Dr Levingstone.
- Identification, experimental characterisation, optimisation, *in vitro* assessment, preclinical *in vivo* assessment and benchmarking of biomaterials and medical device technology for bone tissue engineering.
- Conduct, with a high degree of technical competence, a specified programme of research and scholarship under the supervision of Prof. Dunne and Dr Levingstone.
- Disseminate research outcomes in which they are engaged including funder reporting, industrial demonstrations and publishing in high-quality peer-reviewed journals of international standing.
- Support Prof. Dunne, Dr Levingstone and Biodesign Europe/MEDeng in the development and implementation of the broader research programme.
- Develop research proposals for specific national and international funding calls.
- Demonstrate leadership within the research group and aid in the management of day-to-day activities within the research group.
- Support graduate and postgraduate research students associated with the research group.
- Take responsibility for report generation, and administration associated with site visit preparation and other administrative work associated with the programme of research and the research group.

**Minimum Criteria**

Applicants should have a PhD in Biomedical Engineering, Materials Science, Pharmacy, Biological Science or a cognitive discipline. In addition, it is desirable that the candidate has a minimum of 2 years postdoctoral/industrial research experience. Additionally, a strong research track record, experience in the development, characterisation, experimental testing, *in vitro* assessment and preclinical *in vivo* analysis of biomaterials and evidence of a strong knowledge of the field of bone
tissue engineering are required. The successful candidates should have excellent analytical and problem-solving skills, excellent collaborative skills, communicative skills, presentation skills and academic article writing skills, as well as a knowledge of the relevant academic literature. In addition, candidates should have a high level of interpersonal skills, team working skills, report writing, time management skills and an ability to work to deadlines. Desirable attributes include experience in industry-led research and independent research/project management experience. It is desirable that the candidate has relevant experience in the following areas:

- Biomaterials synthesis and characterisation
- Mechanical testing and analysis
- *In vitro* and preclinical *in vivo* assessment of biomaterials

**Candidates will be assessed on the following competencies:**

**Discipline knowledge and Research skills** – Demonstrates knowledge of a research discipline and the ability to conduct a specific programme of research within that discipline

**Understanding the Research Environment** – Demonstrates an awareness of the research environment (for example funding bodies) and the ability to contribute to grant applications

**Communicating Research** – Demonstrates the ability to communicate their research with their peers and the wider research community (for example presenting at conferences and publishing research in relevant journals) and the potential to teach and tutor students

**Managing & Leadership skills** - Demonstrates the potential to manage a research project including the supervision of undergraduate students

**Essential Training**

The postholders will be required to undertake the following essential compliance training:

- Orientation, Health & Safety and Data Protection (GDPR)
- Research Integrity Training for Experienced Researchers

Other training may need to be undertaken when required.

---

_Dublin City University is an equal opportunities employer. In line with the Employment Equality Acts 1998 – 2015, the University is committed to equality of treatment for all those who engage with its recruitment, selection and appointment processes. The University’s Athena SWAN Bronze Award signifies the University’s commitment to promoting gender equality and addressing any gender pay gaps. Information on a range of university policies aimed at creating a supportive and flexible work environment are available in the DCU Policy Starter Packs_