



## JOB DESCRIPTION

**Research Centre:** School of Chemical Sciences / NCSR  
**Post Title:** Postdoctoral Researcher  
Electrochemical Biosensors  
**Level on Framework:** Level 1  
**Post Duration:** Fixed term contract 11 months

### **Dublin City University**

Dublin City University (DCU) is a leading innovative European University. It is proud to be one of the world's leading Young Universities and is among the world's top 2% globally. DCU is known as Ireland's University of Impact, with a mission to 'transform lives and societies' and focuses on addressing global challenges in collaboration with key national and international partners and stakeholders.

DCU has over 20,000 students in five faculties spread across three academic campuses in the Glasnevin-Drumcondra area of North Dublin. Thanks to its innovative approach to teaching and learning, the University offers a 'transformative student experience' that helps to develop highly sought-after graduates. DCU is currently No. 1 in Ireland for Graduate Employment Rate, and for graduate income (CSO).

DCU is a research-intensive University and is home to a number of SFI-funded Research Centres. The University participates in a range of European and international research partnerships. DCU is also the leading Irish university in the area of technology transfer as reflected by licensing of intellectual property.

As a 'People First' institution, DCU is committed to Equality, Diversity and Inclusion - a University that helps staff and students to thrive. The University is a leader in terms of its work to increase access to education, and is placed in the world's Top 10 for reducing inequalities in the Times Higher Education Impact Rankings.

### **Background & Role**

The School of Chemical Sciences is one of Ireland's most progressive and highest achieving Schools with outstanding facilities, housed within a modern and dynamic city campus. Our goal is to develop graduates with the ability to critically evaluate, and then to solve, chemical and pharmaceutical problems, preparing the highest quality graduates capable of meeting the challenges of modern

industry and research. The School is highly successful at attracting large scale research funding, with our researchers having significant roles within nationally significant university/industry collaborative initiatives and European funded Integrated Training Networks. The School is one of the leading academic schools within DCU and is ranked in the top 300 chemistry schools/departments in the world (QS Rankings), a reflection of the School's ambitious research activities and its undergraduate/postgraduate degree programmes.

This is a postdoctoral fellowship available for an initial period of 1 year in electroanalytical chemistry with an emphasis on the detection of anti-epileptic drugs and their metabolites first in blood and then in minimally invasive samples such as saliva and urine. The PD will join a multidisciplinary research team working to create, optimise and test sensors for point-of-care applications. Experience in electrochemistry, sensor development and practical application of sensors is essential. Experience in sensor assay development, screen-printed electrodes, and portable sensors are particularly sought. Experience in the design and fabrication of sample-to-answer devices, microfluidics, or electrochemiluminescence is an advantage. The position is fully funded, and you will work under the guidance of Professor Robert Forster and Assistant Professor Loanda Cumba in the School of Chemical Sciences

#### **Principal Duties and Responsibilities:**

Reporting to the Principal Investigator the Postdoctoral Researcher will:

- Conduct a programme of research to develop, characterise, and assess the analytical performance of electrochemical and electrochemiluminescence sensors for anti-epileptic drugs under the supervision and direction of the Principal Investigator.
- Support the PIs on project planning to ensure all milestones and deliverables are met particularly regarding the practical demonstration of the sensor technology and enhancing its clinical value and relevance.
- Provide weekly updates and a monthly written report on progress.
- Compile, analyse and interpret data generated in the project on an ongoing basis.
- Produce a full report and presentation at the end of the contract.
- Support the team's ongoing communication and dissemination efforts including social media and project website.
- Engage with internal and external stakeholders especially clinicians.
- Carry out a landscaping exercise on patents on the topic and support the team's protection of intellectual property efforts.
- Transfer knowledge in electrochemistry, materials characterisation, and analytical chemistry to PhD and other researchers in the group.
- Assist in identifying and developing future research and funding initiatives, specifically through SFI, the Irish Research Council, and the European Union.

- Engage in the dissemination of the results of the research in which he/she is engaged with the support of and under the supervision of the Principal Investigator. This includes drafting and preparing manuscripts, publishing high-quality research papers in top-tier journals, and preparing high-quality posters and presentations for use in local and international conferences.
- Supervise and assist final year undergraduate students and ERASMUS students working in this area within their research projects.
- Take advantage of training and development opportunities available within the School, Research Centre, or the University.
- Engage in teaching and teaching of undergraduates in the areas of physical, analytical and materials chemistry as assigned by the Head of School under the direction of the Principal Investigator.
- Carry out administrative work associated with the programme of research as necessary. This includes data preparation, figure preparation, and report writing to specific funding agencies.

### **Qualifications and Experience:**

#### **Essential Criteria**

- A PhD in electrochemistry/electrochemical sensor development or very closely related area.
- Laboratory experience in assay development, electroanalysis, electrochemical sensing of drugs or biomarkers or related closely related area.
- A demonstrated strong work ethic, as well as an independent and creative mind set and a deep commitment to problem-solving.
- Excellent interpersonal skills as well as verbal and written communication skills.
- Very good organisational skills with an ability to prioritise workloads and to work successfully on their own initiative.

**Desirable Criteria.** The successful individual will ideally possess the following:

- Postdoctoral experience in electrochemistry/electroanalysis/sensors.
- Demonstrated ability to work as part of a collaborative team and to innovate in an organisational environment with multiple academic and clinical stakeholders.
- An interest in innovation, and real-world deployment of sensors within clinical settings.

**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 post holder will be required to successfully complete essential health and safety training and specific technical and other training as required for the delivery of the programme.