Research Assistant

PCR Diagnostics Assay Development

The Molecular Diagnostics Research Group, School of Biological and Chemical Sciences

School of Biological and Chemical Sciences / College of Science and Engineering

Ref. No. University of Galway 265-22

Applications are invited from suitably qualified candidates for a full-time, fixed term Research Assistant position with the Molecular Diagnostics Research Group (MDRG), in the School of Biological and Chemical Sciences (SBCS) at the University of Galway.

The position, funded by a Molecular Diagnostics company (Barcelona-based), is available from January 1st 2023 to December 31st 2023.

The Molecular Diagnostics Research Group (MDRG) at the University of Galway, directed by Professor Terry Smith, has over 30 years’ experience, and an international record of accomplishment in research and the commercialisation of its research. The MDRG’s core competence and experience is in the design, development and application of molecular diagnostics tests for the diagnosis of major diseases, in particular infectious disease. The MDRG has developed a suite of platform molecular diagnostics technologies, based on proprietary nucleic acid sequence targets, for the detection and identification of pathogenic bacteria and fungi, and has worked successfully with a number of national and international commercial partners to co-develop and commercialise molecular diagnostic test products based on these platform technologies.

Research Assistant in Molecular Diagnostics Assay Development

The Position

The Molecular Diagnostics Research Group is seeking to recruit a Research Assistant with appropriate qualifications and practical research experience in molecular biology, including experience of nucleic acid diagnostics assay design, development and optimisation. The post-holder will contribute to a research programme focused on the design and development of a suite of PCR-based molecular diagnostics tests for a large range of infectious disease pathogens (bacteria, fungi and parasites) associated with sepsis. The position is available from January 1st 2023, for an initial period of 12 months.

Job Description:

The post holder shall carry out laboratory-based and computational research focused on the design, development and validation of PCR assays for selected microbial pathogens associated with sepsis. PCR primers and probes will be designed and tested experimentally for selected individual microbial species, as well as groups of organisms within a Genus or Family of organisms. Assays will be designed using DNA sequences and organism sequence alignments available from an in-house nucleic acid sequence database generated by MDRG researchers, or generated by the researcher, if required.
Assay specificity will be investigated computationally using other phylogenetically closely related species and strains used in computational exclusivity studies, and tested experimentally.

In conjunction with determining the specificity of assays for the designated organism or group of organisms, PCR assays will be further investigated and performance optimised through laboratory studies, including the determination of the reproducible assay limit of detection. Initial clinical validation of assays will be undertaken using clinical samples if available, and using DNA extracted from a range of geographically distinct strains of the organisms within the assay group. Other work will also be conducted as required, which may include clinical sample preparation / DNA isolation, analysis and optimisation.

The post is available in the first instance for 12 months, from January 1st to December 31st 2023.

Duties:

The post-holder will undertake duties related to the specified project to include:

- Practical experience in the design, development and validation of PCR-based molecular diagnostic tests for microbial pathogens.
- Ability to undertake informatics-based sequence alignments on extracted gene sequences, to identify regions of homology and sequence divergence for PCR assay design
- Ability to utilise software-based methodologies for rapid and effective PCR assay design.
- Development and / or application of appropriate sample preparation methods for nucleic acid extraction
- Collection, processing, and analysis of clinical samples using PCR-based molecular diagnostics assays.
- Ensuring that research programme timelines are adhered to, and project milestones and deliverables are successfully achieved.
- Maintaining laboratory notebooks, research records and generating technical reports and experimental data as required by the project management team and Industry partner.
- Preparation and delivery of periodic reports when required for the project management team and Industry partner.
- Ensuring that project work is performed in line with Health and Safety and other relevant NUI Galway policies.
- Maintaining confidentiality of all background IP, foreground IP, and research results emerging from the project.
- Strong collaborative skills are required to work as part of a highly interdisciplinary team.
- Fluency in written and spoken English is essential.

Other duties may be assigned by the Principal Investigator, and/or Senior Scientist and Project Manager from time to time. The post holder shall carry out the duties of the post under the direction of the Principal Investigator.

Qualifications/Skills required:

The successful candidate will have a BSc. degree in a relevant Science and Technology subject, in one of a Biological and Biomedical Sciences, Biotechnology, Chemistry, or equivalent discipline. Practical experience in the design, development and validation of target-specific PCR-based molecular diagnostic tests is essential for applicants, as is experience in nucleic acid extraction, and execution of Real-time PCR from DNA purified from cultured microorganisms and / or clinical samples. Practical
experience of the design and development of multiplex Real-time PCR assays would be a distinct advantage. Strong inter-personal skills and an ability to work in a busy multidisciplinary research team are also essential. An MSc. degree in a relevant area of Biological and Biomedical Sciences, Biotechnology, or Chemical Sciences would be a distinct advantage.

Essential Requirements:

- A BSc. degree in a Science or Technology in a relevant Science and Technology subject, in one of a Biological and Biomedical Sciences, Biotechnology, Chemistry, or equivalent discipline.
- A clear understanding of fundamental PCR concepts, and experience within PCR technologies and analysis techniques.
- Experience in nucleic acid extraction, and execution of Real-time PCR from DNA purified from cultured microorganisms and/or clinical samples (e.g. blood).
- Practical laboratory experience of the design, development and validation of PCR-based molecular diagnostic tests.
- Knowledge of the use of Bioinformatics analysis software, for Biological data analysis, including BLAST and other commonly used nucleic acid sequence analysis software.
- Strong IT and problem-solving skills.
- Excellent listening and communications skills, together with the ability to build strong and lasting relationships with research team members.

Desirable Requirements:

- An MSc. degree in a relevant area of Biological and Biomedical Sciences, Biotechnology, or Chemical Sciences would be a distinct advantage.
- Knowledge of the process of and key requirements for the design of nucleic acid primers and probes for PCR-based nucleic acid diagnostic assay development.
- Practical experience of the design and development of multiplex Real-time PCR assays would be a distinct advantage.
- Practical experience of searching public access Genome Databases (e.g. Genbank) and extracting/downloading whole genomes and/or specific nucleic acid (DNA) gene sequences from those databases.
- Ability to work within a multidisciplinary research team, involved in molecular biology research, ideally evidenced with prior experience working in such a team.

Salary: €27,380.00 to €31,049.00 per annum, pro rata for shorter and/or part-time contracts (public sector pay policy rules pertaining to new entrants will apply).

Start date: The position is available from January 1st 2023.

Continuing Professional Development/Training:
The 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 for further information.'
Further information on research and working at University of Galway is available on Research at University of Galway

For information on moving to Ireland please see www.euraxess.ie

Further information about the School of Biological and Chemical Sciences is available at https://www.universityofgalway.ie/science-engineering/schoolofbiologicalandchemicalsciences/

Informal enquiries concerning the post may be made to Professor Terry Smith (terry.smith@universityofgalway.ie)

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 Terry Smith: terry.smith@universityofgalway.ie

Please put reference number University of Galway 265-22 in subject line of e-mail application.

Closing date for receipt of applications is 5.00 pm November 3rd 2022

Interviews are expected to take place on the 23rd of November 2022

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

The University of Galway is an equal opportunities employer.

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