UNIVERSITY OF PLYMOUTH

Role: Research Assistant

Grade: 5

Reports to: Dr Nathaniel Clark

Direct responsibility for: preparation, processing and analysis of biological tissue samples (under Project TRACE)

Role Summary:

The Research Assistant will support a project at the Centre of Environmental Hepatology that aims to improve the reliability of methods used to measure microplastics and nanoplastics in biological samples. The postholder will prepare, process and analyse tissue samples, maintain accurate laboratory records and assist with data analysis and reporting. Analytical techniques that the post-holder will be involved in include inductively coupled plasma mass spectrometry, pyrolysis gas chromatography-mass spectrometry and transmission electron microscopy.

Key Accountabilities:

- Develop and optimise methods for incorporating nanoplastics into human liver tissue to produce a matrix-matched reference material.
- Adapt and validate existing particle extraction methodologies.
- Undertake analytical characterisation, e.g., using ICP-MS, Py-GC-MS and electron microscopy, integrating complementary measurements to assess particle concentration, identity and distribution.
- Plan, conduct and document laboratory experiments, troubleshoot analytical methods and maintain accurate experimental records.
- Analyse, interpret and report experimental findings, contributing to project outputs, research publications and presentations.
- Collaborate with project investigators and analytical specialists to support project delivery.
- Maintain accurate laboratory records as required.
- Ensure that Health & Safety regulations and risk assessments are compiled and adhered to.
- Responsible for the ordering of laboratory reagent and equipment.
- Contribute to the organisation of weekly meetings and activities of the Centre of Environmental Hepatology.
- Training will be provided for the role.

All activities undertaken within this role will be compliant with the University's policies, including Health & Safety, Equality and Diversity, Ethics, Data Protection etc.

This job description provides a general reflection of the key accountabilities associated with the post, it is expected that the role holder will undertake any other reasonable activities to assist in efficient service delivery

Measures of Success:

- Laboratory experiments are planned and completed to agreed timelines, contributing to the delivery of project milestones.
- Existing protocols are successfully adapted and optimised for the preparation and analysis of human liver tissue.
- Generates reliable and reproducible analytical data.
- Maintains accurate and comprehensive laboratory records, with research data appropriately organised, documented and stored.
- Work effectively with project investigators, technical specialists and external collaborators to support project delivery.
- Maintains a safe, organised and compliant laboratory working environment, following relevant health and safety procedures.

Knowledge, Education & Training:

Essential:

- First degree or equivalent in Biomedical Sciences, Biology, Toxicology, Chemistry, or a closely related discipline.
- Evidence of working in a research environment.
- Hands on experience of cell culture, tissue culture or biological tissue processing, including appropriate analysis of samples.
- Knowledge of contamination control and good laboratory practice.
- Experience working with microplastics, nanoplastics or other particles.

Desirable:

- Knowledge of particle detection, characterisation and quantification in complex biological matrices.
- Experience with ICP-MS, pyrolysis GC-MS and TEM.
- Understanding of analytical chemistry principles and their application to biological sample analysis.
- Experience in the preparation, digestion and extraction of biological tissue samples for analytical measurement.

Experience:

Essential:

- Experience of research methods and techniques.
- Knowledge of and experience undertaking cell culture and/or tissue culture research.
- Knowledge of and experience working with particles (plastics, nanomaterials).
- Working both independently and as part of a team.

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- Experience of research in a related field.
- Knowledge of research methods and research design.
- Experience of undertaking quantitative research projects.
- Demonstrable experience of working to deadlines.

Desirable:

- Conducting relevant research.
- Experience of academic research environment.
- Experience of disseminating results.
- Health & safety awareness and understanding of compliance of legislation.

Skills:

Essential:

- Ability to prioritise and self-manage.
- Ability to work as part of a team.
- Excellent verbal and written communication skills.
- Ability to develop, adapt and troubleshoot experimental protocols and laboratory procedures.
- Ability to analyse and interpret the results of own research and to generate original ideas.
- Ability to maintain accurate, detailed and reproducible laboratory records.
- Understanding of good laboratory practice and quality assurance/quality control principles.

Desirable:

- Practical experience with analytical instrumentation, particularly ICP-MS, Py-GC-MS, electron microscopy or other microscopy.
- Ability to evaluate analytical performance, including recovery, precision, reproducibility and measurement uncertainty.
- Awareness of potential sources of background contamination when analysing microplastics and nanoplastics.

University of Plymouth Behaviours:

- Demonstrates self-leadership
- Develops self and others to deliver
- Leads and operates in times of change and ambiguity
- Builds and secures value from relationships
- Drives innovation and action
- Creates and contributes to a shared vision
- Uses sound business judgement

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