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**Faculty of Science and Health**

**School of Biological Sciences – Centre for Enzyme Innovation (CEI)**

**Senior Research Associate**

**ZZ005307**

**Information for Candidates**

**THE POST**

Please see the attached job description and person specification.

**TERMS OF APPOINTMENT**

Full-time

Fixed term

Salary is in the range from £30,942 to £34,804 per annum and progress to the top of the scale is by annual increments payable on 1 September each year. Salary is paid into a bank or building society monthly in arrears.

Working hours are normally from 8.30 a.m. to 5.15 p.m. Monday to Thursday and 8.30 a.m. to 4.15 p.m. Friday with one hour and ten minutes for lunch. As this post is research based, working hours will vary depending on the needs of the project so a flexible approach is required. Specific working hours will be agreed once an appointment has been made. Overtime is not normally payable but time off in lieu may be given.

Annual leave entitlement is 35 working days in a full leave year. The leave year commences on 1 October and staff starting and leaving during that period accrue leave on a pro-rata basis. In addition, the University is normally closed from Christmas Eve until New Year’s Day inclusive and on bank holidays.

The Appointee will be entitled to join the Local Government Pension Scheme. The scheme's provisions include a final salary based, index-linked pension with an option to exchange some pension for a lump sum on retirement together with dependants’ benefits. Contributions by the employee are subject to tax relief.

There is a probationary period of six months during which new staff are expected to demonstrate their suitability for the post.

There is a comprehensive sickness and maternity benefits scheme.

**All interview applicants will be required to bring their passport or full birth certificate and any other 'Right to Work' information to interview where it will be copied and verified.** The successful applicant will not be able to start work until their right to work documentation has been verified.

Please note if you are the successful candidate once the verbal offer of employment has been made and accepted, references will be immediately requested. It is the University’s policy that all employment covering the past three years is referenced. A minimum of two references is required to cover this three-year period of employment or study (where there has been no employment). One of your referees must be your current or most recent employer.

The successful candidate will need to bring documentary evidence of their qualifications to Human Resources on taking up their appointment.

To comply with UKVI legislation, non-EEA candidates are only eligible to apply for this post if it has been advertised for a total of 28 days.

If the position has a requirement for Disclosure and Barring Service check (DBS) or Non-Police Personnel Vetting (NPPV), this will be stated in the advert. Further information will be provided once the selection process has been completed.

All applications must be submitted by 23:59 (UK time) on the closing date published.

**UNIVERSITY OF PORTSMOUTH – RECRUITMENT PAPERWORK**

1. **JOB DESCRIPTION**

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| **Job Title:** | Senior Research Associate |
| **Grade:** | 6 |
| **Faculty/Centre:** | Science and Health |
| **Department/Service:**  **Location:** | School of Biological Sciences - Centre for Enzyme Innovation (CEI) – King Henry Building |
| **Position Reference No:** | ZZ005307 |
| **Responsible to:** | Principal Investigator/CEI Director/Head of School |
| **Responsible for:** | Research assistants and postgraduate students within the CEI research group |
| **Effective date of job description:** | December 2019 |

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| **Purpose of Job**: |
| **Overview**  To work autonomously and with guidance from the bioinformatics research leader, to manage large next generation sequencing data sets, explore and analyse data to identify targets of interest, to develop novel bioprospecting tools to enhance the pipelines of the CEI and to use these to develop interesting novel targets for industrial-scale deployment of solutions to plastic pollution in the environment. The Senior Research Associate will be responsible for management of large-scale data sets and for communicating results to an inter-disciplinary research team. The individual will be expected to make contributions to research outputs and to contribute to the growing research culture in the School of Biological Sciences, and specifically the newly established Centre for Enzyme Innovation (CEI), where the post will be based.  **The Local Environment and Team**  The recently-established CEI creates a flagship research hub focused on delivering transformative enzyme-enabled solutions for circular recycling of plastics. The unique approach of the CEI pipeline is to Discover new enzymes from the environment that break down plastics; Engineer these enzymes and their production mechanisms to optimise their activity, stability and yield; and Deploy these enzymes through industrial-scale production and processing. The CEI website address is: <https://www.port.ac.uk/research/research-centres-and-groups/centre-for-enzyme-innovation>  The Senior Research Associate will work within the research group of Dr Sam Robson, who joined the University of Portsmouth in 2017 as Faculty Bioinformatics Lead. Having worked at the Gurdon Institute and Wellcome Sanger Institute in Cambridge, Dr Robson has been a lead bioinformatician on a large number of high-impact studies, including analysis of the impact of genome variation on disease risk, identification and profiling of novel histone modifications, and identification of novel functional targets in the treatment of myeloid leukaemia. His expertise in the analysis of next generation sequencing datasets have since been utilised in a wide range of research activities throughout the University, including microbiology, marine biology, clinical research and paleogenetics.  **Project and Role**  The role holder will work within the Discovery Team of the CEI on bioprospecting to search for novel enzymatic targets from environmental samples to be fed into our plastic enzyme production pathway to generate novel plastic-degrading enzymes suitable for upscaling for industrial-scale deployment. This will involve the use of Nanopore sequencing on environmental samples using 16s rRNA amplicon sequencing and metagenomics to profile microbial diversity, and metatranscriptomics to identify novel enzymatic genes amongst plastic-degrading bacteria. In addition, the individual will explore additional bacterial samples and existing genome databases for bacteria with properties of interest (e.g. extremophiles) to identify potential enhancements to novel enzymes through genetic engineering.  The Senior Research Associate will primarily work with data generated using the GridION X5 Nanopore sequencer, which will be used to generate targeted genome and transcriptome data such that the molecular profile of organisms of potential importance can be obtained. They will also have access to the University of Portsmouth Bioinformatics Cluster, a dedicated multi-node server providing compute and storage for intense bioinformatics analysis of the sequencing data.  **References**   * Austin H.P., Allen M.D., Donohoe B.S., Rorrer N.A., Kearns F.L., Silveira R.L., Pollard B.C., Dominick G., Duman R., El Omari K., Mykhaylyk V., Wagner A., Michener W.E., Amore A., Skaf M.S., Crowley M.F., Thorne A.W., Johnson C.W., Woodcock H.L., McGeehan J.E., Beckham G.T. (2018) Characterization and engineering of a plastic-degrading aromatic polyesterase. PNAS 115(19):E4350-E4357. * Millàn-Zambrano G., Santos-Rosa H., Puddu F., Robson S.C., Jackson S.P., Kouzarides T. (2018) Phosphorylation of histone H4T80 triggers DNA damage checkpoint recovery Molecular Cell 72(4):625-635 * Barbieri I., Tzelepis K., Pandolfini L., Shi J., Millàn-Zambrano G., Robson S.C., Aspris D., Migliori V., Bannister A.J., Han N., De Braekeleer E., Ponstingl H., Hendrick A., Vakoc C.R., Vassiliou G.S., Kouzarides T. (2017) Promoter-bound METTL3 maintains myeloid leukaemia by m6A-dependent translation control. Nature 552:126-131 * Dawson M.A., Gudgin E.J., Horton S.J., Robson S., Cannizzaro E., Osaki H., Wiese M., Putwain S., Fong C.Y., Grove C., Craig J., Dittmann A., Lugo D., Jeffrey P., Drewes G., Lee K., Bullinger L., Prinjha R.K., Kouzarides T., Vassiliou G.S., Huntly B.J.P. (2014) Recurrent mutations, including NPM1c, activate a BRD4-dependent core transcriptional program in Acute Myeloid Leukemia. Leukemia 28(2):311-320 * Xhemalce B., Robson S., Kouzarides T. (2012) Human RNA Methyltransferase BCDIN3D Regulates MicroRNA Processing. Cell 151(2):278-288 * Conrad D.F., Pinto D., Redon R., Feuk L., Gokcumen O., Zhang Y., Aerts J., Andrews T.D., Barnes C., Campbell P., Fitzgerald T., Hu M., Ihm C.H., Kristiansson K., Macarthur D.G., Macdonald J.R., Onyiah I., Pang A.W., Robson S., Stirrups K., Valsesia A., Walter K., Wei J., The Wellcome Trust Case Control Consortium, Tyler-Smith C., Carter N.P., Lee C., Scherer S.W., Hurles M.E. (2010) Origins and functional impact of copy number variation in the human genome. Nature 464(7289):704-712 * Craddock N., Hurles M.E., Cardin N., Pearson R., Plagnol V., Robson S., and The Wellcome Trust Case Control Consortium (2010) Genome-wide association study of copy number variation in 16,000 cases of eight common diseases and 3,000 shared controls. Nature 464(7289):713-720 |

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| **Key Responsibilities:** |
| 1. To explore next generation sequencing data generated by the CEI and interrogate existing databases to identify novel targets for enzyme production. 2. To manage and maintain large quantities of next generation sequencing data. 3. To liaise with staff in the CEI in the design and planning of bioinformatics research. 4. To present research project findings to a variety of stakeholders and to write reports for research papers submitted for publication.   **Additional expectations of the role holder**   1. In line with the research project aims and objectives, the role holder is required to plan, prioritise and organise their own workload, regularly managing the progress of elements of the research project. 2. To attend team meetings when required, providing relevant and timely information in order to aid decision making. 3. To analyse research data and develop new evaluation methods. On occasions, may select existing methodologies, determining when they should be applied. 4. To assist with supervising and training research students within the CEI in aspects of bioinformatics. 5. To deliver introductory workshops to students on topics such as bioinformatics. 6. To participate in and contribute to a performance & development review (PDR), ensuring that work produced is in line with the CEI/School/Faculty/University aims. 7. To communicate with team members and liaise and network with relevant others, to ensure effective working relations. 8. To solve problems that occur, applying knowledge of subject area. 9. To provide information, appropriate to the role, to relevant stakeholders. 10. To comply with the University’s Health and Safety Policy and pay due care to own safety and the safety of others. Report all accidents, near misses and unsafe circumstances to line management. 11. To support the University’s commitment to equality, diversity, respect and dignity, creating an environment in which individuals will be treated on the basis of their merits, abilities and potential, regardless of gender, racial or national origin, disability, religion or belief, sexual orientation, age or family circumstances. 12. Any other duties as required by the Principal Investigator, CEI Director and/or Head of School. |

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| **Working Relationships:** |
| * Supervised by the Principal Investigator. * Working with other researchers in the Research Group, within the CEI and the Faculty of Science. * Working with research collaborators locally, nationally and internationally. * Liaising with Head of School, Associate Head (Research), research/academic colleagues and support/technical staff on day-to-day issues. * Assisting with supervision of junior research colleagues and students operating in the same laboratory. |

**2. PERSON SPECIFICATION**

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| **No** | **Attributes** | **Rating** | **Source** |
| **1.** | **Specific Knowledge & Experience** |  |  |
|  | Recent or ongoing research experience in bioinformatics or related field | E | AF, S |
|  | Research experience of collecting and analysing quantitative data | E | AF, S |
|  | Experience working with high-throughput biological data (e.g. next generation sequencing data) | E | AF, S |
|  | Sound knowledge of systems-level biological data (e.g. gene annotations, pathways, and interactomes) | E | AF, S |
|  | Experience of interrogating genomic/proteomic data resources (e.g. NCBI, Ensembl, and UniProt) | E | AF, S |
|  | Knowledge of relevant Health and Safety in the workplace | E | AF, S |
|  | Experience of managing and maintaining large data sets | D | AF, S |
|  | Experience working with Oxford Nanopore sequencing data | D | AF, S |
|  | Previous experience of working in a team | D | AF, S |
|  | Previous experience of contributing to publications | D | AF, S |
| **2.** | **Skills & Abilities** |  |  |
|  | Proficiency in bioinformatics and statistical computing and programming/scripting languages (e.g. Python/Biopython, Perl/Bioperl, Java/BioJava/BioJS, Ruby/Bioruby, R/Bioconductor, C/C++, Groovy) | E | AF, S |
|  | Expertise using common bioinformatics tools | E | AF, S |
|  | Proficiency working in a Unix/Linux environment | E | AF, S |
|  | Ability to predict and solve problems when they occur | E | AF, S |
|  | Ability to plan, organise and prioritise workloads | E | AF, S |
|  | Good Communication and Interpersonal skills | E | AF, S |
|  | Good report writing skills | E | AF, S |
|  | Quantitative statistical data analysis skills | E | AF, S |
|  | Presentation skills | E | AF, S |
|  | Extensive computer skills | E | AF, S |
|  | High-content data visualization (e.g. network analysis) and statistical analysis skills | D | AF, S |
|  | Database management skills (e.g. MySQL) | D | AF, S |
|  | Project Management skills | D | AF, S |
| **3.** | **Qualifications, Education & Training** |  |  |
|  | Postgraduate qualification in bioinformatics or relevant experience | E | AF, S |
|  | PhD in relevant subject or relevant professional experience (mathematics, physics, engineering, or a related quantitative discipline, genetics, bioinformatics, computational biology or biostatistics) | E | AF, S |
| **4.** | **Other Requirements** |  |  |
|  | Ability to work with minimum supervision | E | AF, S |
|  | Ability to work on own initiative and as part of a team | E | AF, S |
|  | Creative, highly motivated and committed to undertaking research | E | AF, S |
|  | Ability to work to tight deadlines | E | AF, S |

**Legend**

Rating of attribute: E = essential; D = desirable

Source of evidence: AF = Application Form; S = Selection Programme (including Test, Presentation)

**JOB HAZARD IDENTIFICATION FORM**

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| **Please tick box(s) if any of the below are likely to be encountered in this role. This is in order to identify potential job related hazards and minimise associated health effects as far as possible. Please use the** [**Job Hazard Information**](http://www.port.ac.uk/departments/services/humanresources/occupationalhealthservice/jobhazardinformation/filetodownload,164407,en.doc) **document in order to do this and give details in the free text space provided.** | | | |
| 1. International travel/Fieldwork | X | 13. Substances to which COSHH regulations apply (including microorganisms, animal allergens, wood dust, chemicals, skin sensitizers and irritants, welding fume) | X |
| 1. Manual Handling (of loads/people) |  | 14. Working at height |  |
| 1. Human tissue/body fluids (e.g. Healthcare settings, First Aiders, Nursery workers, Laboratory workers) |  | 15. Working with sewage, drains, river or canal water |  |
| 1. Genetically Modified Organisms | X | 16. Confined spaces |  |
| 1. Noise > 80 DbA |  | 17. Vibrating tools |  |
| 1. Night Working   (between 2200 hrs and 0600 hrs) |  | 18. Diving |  |
| 1. Display screen equipment | X | 19. Compressed gases | X |
| 1. Repetitive tasks (e.g. pipette use etc) | X | 20. Small print/colour coding |  |
| 1. Ionising radiation/non-ionising radiation/lasers/UV radiation   X | | 21. Soil/bio-aerosols |  |
| 10. Asbestos and or lead | | 22. Nanomaterials | |
| 11. Driving on University business: mini- bus (over 9 seats), van, bus, forklift truck, drones only) | | 23. Workplace stressors (e.g. workload, relationships, job role etc)  X | |
| 12. Food handling | | 24. Other (please specify) | |

**Completed by Line Manager/Supervisor:**

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| **Name (block capitals)** | PROF JOHN MCGEEHAN |
| **Date** | 05/12/2019 |
| **Extension number** | 2042 |

Managers should use this form and the information contained in it during induction of new staff to identify any training needs or requirement for referral to Occupational Health (OH).

Should any of this associated information be unavailable please contact OH (Tel: 023 9284 3187) so that appropriate advice can be given.