**JOB DESCRIPTION**

This form summarises the purpose of the job and lists its key tasks.

It may be varied from time to time at the discretion of the College in consultation with the postholder.

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| **Job Title:** Post-doctoral Research Associate (PDRA) | **Job ref no:** PPS-0092-25 |
| **Grade:** 6 | **Department:** PPS |
| **Accountable to:** Dr Ellen Knuepfer | **Responsible for:** Research project |

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| **Job summary:**  The post-doctoral research associate will carry out their role within the research group of **Dr Ellen Knuepfer** (Molecular and Cellular Parasitology Lab) at the **Royal Veterinary College (Hawkshead campus).** This **3-year MRC-funded** research project focuses ***on identifying the function of the RIPR protein complex in the malaria parasites Plasmodium knowlesi and Plasmodium vivax***in close collaboration with the group of **Prof Draper, University of Oxford**.  This PDRA position is funded **for 3 years starting in July 2025** and will be remunerated according to experience (RVC pay grade 6, salary depending on experience). We are seeking an independent, initiative-taking, highly organised person with up to 4 years of **postdoctoral experience in molecular parasitology,** ideally with *Plasmodium* tissue culture and transgenics experience.  The postholder will work on a highly innovative and interactive molecular parasitology project centring around an essential protein complex involved in red blood cell (RBC) invasion. In collaboration with Prof Draper’s group at Oxford and our collaborator Prof Wright at the University of York, this protein biochemistry, vaccinology, and cell biology project will use CRISPR-Cas9 approaches to generate transgenic *P. knowlesi* parasites expressing *P. vivax* orthologous genes. The element at the RVC will avail itself of co-immunoprecipitation and mass spectrometry, gene editing tools in culture-adapted *P. knowlesi* parasites and phenotyping of protective antibodies by real-time microscopy.  The aim is to identify **new invasion ligands in two malaria-causing parasite species*, P. knowlesi* and *P. vivax***; to **characterise cross-protective neutralising epitopes** in an invasion-critical protein, RIPR; and to **define how neutralising antibodies function in protecting the host**.  The molecular knowledge gained from this work will be fundamental in designing novel **blood-stage malaria vaccines**. |

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| **Competency: Research and Data Analysis**  **Key tasks:**   * Design, conduct, lead and guide less experienced staff and students in day-to-day aspects of this research project. In detail: * Identify key parasite and red blood cell ligands/receptors involved in host cell invasion using protein biochemistry tools. * Generate transgenic *P.knowlesi* parasites in *in vitro* tissue culture. * Quantitate parasite viability and binding strength of mutant parasites. * Visualise protein localization and invasion dynamics by microscopy techniques. * Determine functional mechanism(s) of protective monoclonal antibodies.   For this, the postholder will use *in vitro* cell culture; molecular parasitology tools including CRISPR/Cas9 and conditional gene deletions; protein biochemistry techniques; mass spectrometry; and imaging, including real-time imaging approaches and expansion microscopy, amongst others. |
| **Competency: Communication**  **Key tasks:**   * Communicate effectively with the whole team at the RVC, as well as with Prof Draper’s and Prof Wright’s groups in Oxford and York, respectively. * Participate and contribute frequently to the groups’ scientific meetings and to the intellectual environment within the consortium and within the RVC. * Contribute to regular data sharing between the investigator labs. * Present research results at national and international conferences and local seminars. * Publish results in international quality peer-reviewed journals. It is therefore critical that the candidate can demonstrate at least three peer-reviewed publications within the field of molecular parasitology. * Supervise and train undergraduate students. * Participate in public engagement activities outside normal working hours. |
| **Competency: Knowledge and Experience**  **Key tasks:**   * Share knowledge and experience previously gained with other group members at the RVC, the wider RVC research groups, and with the collaborators’ teams. * Undertake personal continuing professional development to keep up with current best practices in molecular parasitology and learn new techniques. * Engage with training courses provided to support the generation of a positive research environment, inclusion, leadership, lab sustainability or others as appropriate. |
| **Competency: Planning and Organising**  **Key tasks:**   * Lead the day-to-day elements of the collaborative research project at the RVC. * Design and plan experiments around a flexible timetable. * Design, plan, and oversee undergraduate student projects, if required. * Manage research records, resources, and data archives meticulously. * Maintain appropriate levels of laboratory consumables: order, collect and record consumables as part of the research group. * Organise and actively participate in collaborator project meetings. * Work to meet deadlines for results reporting/abstract submissions/publication writing. |
| **Competency: Liaison and Networking**  **Key tasks:**   * Participate in RVC activities such as seminar series, training workshops, journal clubs, and research days. * Attend conferences in the field of parasitology and other fields directly relevant to your project and present your data. * Liaise with platform managers such as mass spectrometry, imaging, and protein-protein interaction facilities at different universities. |
| **Competency: Work Environment**  **Key tasks:**   * Participate and engage with actively generating a positive and inclusive research environment. * Maintain a safe working environment by attending basic and specialist health and safety training as required. Note: *Plasmodium knowlesi* is an ACDP level 3\* pathogen requiring CL 3 laboratory training. * Follow local procedures for safe working practices and the college’s health and safety policy. * Participate and potentially organise social group events for team bonding outside of mainstream work. |
| **Flexibility:** To deliver services effectively, flexibility will be needed, and the post holder may be required to perform work not specifically referred to above and outside of normal working hours. |