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| Last updated: | February 2023 |

**JOB DESCRIPTION**

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| Post title: | **LifeArc PCD Research Fellow** | | |
| Standard Occupation Code: (UKVI SOC CODE) | 2119 - Natural and social science professionals | | |
| School/Department: | Clinical and Experimental Sciences, Primary Ciliary Dyskinesia Group | | |
| Faculty: | Medicine | | |
| Career Pathway: | Education, Research and Enterprise (ERE) | Level: | 4 |
| \*ERE category: | Research pathway | | |
| Posts responsible to: | Directly report to academic lead for Primary Ciliary Dyskinesia (PCD) Group who is also Southampton lead for LifeArc Translational Research Centre for Rare Respiratory Disease (local project director) | | |
| Posts responsible for: | Supervision of junior staff and students. | | |
| Post base: | Office-based and laboratory-based (see job hazard analysis) | | |

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| Job purpose |
| Development of scalable advanced cell models for primary ciliary dyskinesia (PCD) including CRISPR-Cas 9 editing of an airway cell line. Characterisation of the models to confirm genetic, molecular and cellular defects relating to cilia motility. The work is within the national LifeArc Translational Centre for Rare Disease and the post is based at the University of Southampton. |

| Key accountabilities/primary responsibilities | | % Time |
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|  | Development and characterisation of PCD airway models grown at 3D air liquid interface. Developing and adapting existing protocols and methods as needed.  Develop protocols and approvals for sharing the models with LifeArc stake holders for high throughput screening of novel therapies to treat PCD.  Methods are likely to include: CRISPR-Cas9 editing of an immortalized human bronchial epithelial cell line; culturing of primary human cells and cell lines at an air liquid interface; genomic, transcriptomic and proteomic analysis; biomedical imaging (high-speed video analysis of cilia, transmission and scanning electron microscopy, immunofluorescence staining of ciliary protein); comparisons with primary PCD patient cells. | 60 % |
|  | Regularly disseminate findings by taking the lead in preparing publication materials for referred journals, presenting results at conferences, sharing data with LifeArc partners, and exhibiting work at other appropriate events. | 10 % |
|  | Collaborate and work with colleagues in partner LifeArc institutions, industrial partners and NHS PCD Centres. This includes collaboration on the defined project, and also participation in activities that promote the culture of the LifeArc Centre e.g. patient and public involvement and engagement, developing new projects, participation in early career researcher events. | 10 % |
|  | Carry out administrative tasks associated with the PCD research, for example risk assessment of laboratory methods, organisation of meetings and documentation. Implementation of procedures required to ensure accurate and timely formal reporting and financial control e.g. contributing to 6-monthly progress reports to LifeArc. | 5 % |
|  | Contribute to the writing of bids for further associated research funding. | 5 % |
|  | Supervise the work of junior research staff and students. There will be opportunities for teaching. | 5% |
|  | Any other duties as allocated by the line manager following consultation with the post holder. | 5 % |

| Internal and external relationships |
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| Direct management from Southampton co-lead of the LifeArc Translational Centre for Rare Disease who also leads the PCD Research Group at University of Southampton.  Supervisory support and advice will be available from the Southampton PCD Group who have previously developed and validated a PCD model using similar techniques; from the Biomedical Imaging Unit and NHS PCD diagnostic groups for all imaging methods required; from LifeArc collaborators at other UK institutions who have expertise developing murine and organoid models of genetically inherited respiratory disease.  The post holder will be a member of the multidisciplinary PCD Group. The team includes laboratory scientists, bioinformaticians, biostatisticians, doctors, nurses, and administrative staff. Some team members are employed by University of Southampton, others by University Hospital Southampton NHS Foundation Trust (UHS).  May be asked to serve on a relevant School/Department committee, for example research, sustainability, EDI. Will be encouraged to be an active member of the Postdoctoral Association. |

| Special Requirements |
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| The post holder will be expected to travel to UK LifeArc Centre meetings for networking, collaboration and disseminating research results. To travel to national PCD centres on an occasional basis for meetings with the PCD Centre Multidisciplinary Teams.  To attend national and international conferences to disseminate research results.  *Applications for Research Fellow positions will be considered from candidates who are working towards or nearing completion of a relevant PhD qualification. The title of Research Fellow will be applied upon successful completion of the PhD. Prior to the qualification being awarded the title of* ***Senior Research Assistant*** *will be given.* |

**PERSON SPECIFICATION**

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| Criteria | Essential | Desirable | How to be assessed |
| Qualifications, knowledge and experience | PhD or equivalent professional qualifications and experience in a relevant subject area for example but not restricted to, epithelial cell biology, molecular science, models, imaging.  Recent laboratory experience with ability to handle biological samples  Ability to rapidly acquire detailed understanding and knowledge relevant to gene editing and to PCD diagnostics.  Experience of mammalian cell culture and microscopy  Ability to develop and optimise protocols, trouble-shooting as needed. | Experience with CRISR-Cas9 editing  Strong background in airway biology and primary airway cellular models, integrating molecular, imaging and cell biology methods. | Documents, CV, interview |
| Planning and organising | Able to organise own research activities to deadline and quality standards |  | CV, interview |
| Problem solving and initiative | Able to develop understanding of complex problems and apply in-depth knowledge to address them  Able to develop original techniques/methods |  | Interview |
| Management and teamwork | Able to supervise work of junior research staff and students, delegating effectively  Able to contribute to School management and administrative processes  Work effectively in a team, understanding the strengths and weaknesses of others to help teamwork development | Experience of informal supervision/mentoring (e.g. PhD students/Junior Staff/Visiting Workers)  Experience of collaborative studies with other research groups | CV and Interview |
| Communicating and influencing | Communicate new and complex information effectively, both verbally and in writing, engaging the interest and enthusiasm of the target audience  Able to present research results at group meetings and conferences  Able to write up research results for publication in leading peer-viewed journals  Work proactively with colleagues in other work areas/institutions, contributing specialist knowledge to achieve outcomes | Communication experience with patient groups.  Outreach experience e.g. STEM advocacy | CV and interview |
| Other skills and behaviours | Understanding of relevant Health & Safety issues  Positive attitude to colleagues and students |  | CV and interview |
| Special requirements | Able to attend national and international conferences to present diagnostic and research results. |  | Interview |

**JOB HAZARD ANALYSIS**

**Is this an office-based post?**

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| Yes | If this post is an office-based job with routine office hazards (eg: use of VDU), no further information needs to be supplied. Do not complete the section below. |
| No | If this post is not office-based or has some hazards other than routine office (eg: more than use of VDU) please complete the analysis below.  Hiring managers are asked to complete this section as accurately as possible to ensure the safety of the post-holder. |

## - HR will send a full PEHQ to all applicants for this position. Please note, if full health clearance is required for a role, this will apply to all individuals, including existing members of staff.

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| **ENVIRONMENTAL EXPOSURES** | **Occasionally**  (<30% of time) | **Frequently**  (30-60% of time) | **Constantly**  (> 60% of time) |
| Outside work | X |  |  |
| Extremes of temperature (eg: fridge/ furnace) | X |  |  |
| ## Potential for exposure to body fluids |  | X |  |
| ## Noise (greater than 80 dba - 8 hrs twa) NO |  |  |  |
| ## Exposure to hazardous substances (eg: solvents, liquids, dust, fumes, biohazards). Specify below: |  | X |  |
| Frequent hand washing |  | X |  |
| Ionising radiation No |  |  |  |
| **EQUIPMENT/TOOLS/MACHINES USED** | | | |
| ## Food handling No |  |  |  |
| ## Driving university vehicles(eg: car/van/LGV/PCV) No |  |  |  |
| ## Use of latex gloves (prohibited unless specific clinical necessity) NO |  |  |  |
| ## Vibrating tools (eg: strimmers, hammer drill, lawnmowers) | X (vortex mixer) |  |  |
| **PHYSICAL ABILITIES** | | | |
| Load manual handling | X (deliveries) |  |  |
| Repetitive crouching/kneeling/stooping No |  |  |  |
| Repetitive pulling/pushing No |  |  |  |
| Repetitive lifting No |  |  |  |
| Standing for prolonged periods | X |  |  |
| Repetitive climbing (ie: steps, stools, ladders, stairs) | X |  |  |
| Fine motor grips (eg: pipetting) |  | X |  |
| Gross motor grips |  | X |  |
| Repetitive reaching below shoulder height No |  |  |  |
| Repetitive reaching at shoulder height No |  |  |  |
| Repetitive reaching above shoulder height No |  |  |  |
| **PSYCHOSOCIAL ISSUES** | | | |
| Face to face contact with public | X |  |  |
| Lone working | X |  |  |
| ## Shift work/night work/on call duties No |  |  |  |