UNIVERSITY OF WARWICK

Job Description

Job title	3 Positions: Research Fellow in Fungal Adaptation using Aureobasidium pullulans as a model
Department	2 Posts in Warwick Medical School and 1 post in Warwick Physics
Grade	FA6

Job purpose (a brief summary of the role)	The World Health Organization, in their report in 2023, have predicted that invasive fungal disease will dramatically increase over the next decade, actuated in large part by global warming. It is believed that climate change encourages an expanded niche of fungi. Fungal adaptation to a changing world is key to the evolution of new pathogens and geographic spread of invasive fungal disease. This project will address mechanisms by which fungi adapt to extreme conditions. The post-doctoral fellows will use *Aureobasidium pullulans* as a polyextremotolerant fungal model to investigate adaptation mechanisms. The fellows will use the methods of molecular genetics, biochemistry, advanced imaging, lipidomics, and solid-state NMR to advance the goals. The project will bring together 3 faculty members in Warwick Medical School (Professors Balasubramanian and Mayor) and Department of Physics (Dr. Chow) in the University of Warwick. One of the three posts is earmarked for cell wall investigations using solid-state NMR (in collaboration with Wing Ying Chow group). One post is earmarked for lipidomic study of the adaptation process (in collaboration with Satyajit Mayor Group). A final post will be for the investigation of the adaptation mechanisms using yeast/fungal cell biology and biochemistry approaches (Mohan Balasubramanian group). The successful candidate will have training in one of the following: 1. Post 1: Microbiology/cell biology/biochemistry/advanced imaging 2. Post 2: Expertise in membrane biology and / or lipidomics 3. Post 3: Expertise in cell wall biology and / or solid-state NMR. All candidates are required to have a PhD degree with evidence of published work. The most important criterion is enthusiasm for research and desire to learn new approaches and in collaboration with experts using complementary methods.
Duties and responsibilities	Carry out genetic, biochemical, cell biological investigations with *Aureobasidium pullulans* investigating the role of the actin cytoskeleton, cell wall, cell membranes in adaptation. Carry out large scale gene deletions to identify genes involved in adaptation. Use lipidomics and solid-state NMR to uncover cell wall and membrane alterations during stress.

	Train less experienced researchers (technicians, undergraduate, and PhD students) as and when required. Keep good notes and records. Present research work in internal and external presentations (both poster and talks). Contribute to writing manuscripts for publication. Be a good laboratory citizen by participating in communal activities required for laboratory upkeep. Actively participate in all appropriate meetings of the research team/group, as well as periodic progress meetings for the project.

Person Specification

The Person Specification focuses on the essential and desirable knowledge, skills, experience and qualifications required to undertake the role effectively. This is measured by (a) Application Form, (b) Test/Exercise, (c) Interview, (d) Presentation.

Essential Criterion No.	Essential Criterion Description	Measured by
E1	Hold, or be about to attain, a PhD degree in one of the following areas: Biological sciences, Microbiology, Biochemistry, Biophysics, Molecular Biology, Cell Biology (all positions), or Chemistry (only for lipid chemistry or NMR specializations), or Physics, Material Science (only for NMR specialization).	A
E2	At least one first authored paper or evidence of high-quality thesis work that may be published in a reputable journal.	A,C & D
E3	Advanced imaging or Molecular genetics in yeast and fungi and advanced imaging is essential for the post in the Balasubramanian group.	A,C & D
E4	Solid-state NMR or cell wall chemistry is essential for the post in Wing Ying Chow's group.	A,C & D
E5	Membrane Biology or lipidomics or lipid chemistry is essential for the post in Satyajit Mayor's group.	A,C & D
E6	Ability to discuss effectively their thesis and / or published work using slide presentation and answer questions from the panel.	A,C & D
E7	Evidence of having helped less experienced trainees (i.e. undergraduate students or master's students or laboratory technicians or research interns).	A & C

Desirable Criterion No.	Desirable Criterion Description	*Measured by*
D1	Experience of NMR, in particular solid-state NMR, including modifying and writing pulse programs in Bruker TopSpin (only for NMR specialization post).	A,C & D
D2	Image analysis software.	A,C & D
D3	Lipidomics and proteomics analysis software.	A,C & D
D4	Evidence of having contributed to writing a research article.	A,C & D
D5	Experience of multidisciplinary and interdisciplinary research collaboration.	A,C & D