



# RESEARCH FELLOW

DEPARTMENT/UNIT	Department of Infectious Diseases
FACULTY/DIVISION	Faculty of Medicine, Nursing and Health Sciences
CLASSIFICATION	Level A
WORK LOCATION	Alfred Hospital and Safer Care Victoria

## ORGANISATIONAL CONTEXT

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Everyone needs a platform to launch a satisfying career. At Monash, we give you the space and support to take your career in all kinds of exciting new directions. You'll have access to quality research, infrastructure and learning facilities, opportunities to collaborate internationally, as well as the grants you'll need to publish your work. We're a university full of energetic and enthusiastic minds, driven to challenge what's expected, expand what we know, and learn from other inspiring, empowering thinkers. Discover more at [www.monash.edu](http://www.monash.edu).

The **Faculty of Medicine, Nursing and Health Sciences**, is the largest faculty at Monash University, and offers the most comprehensive suite of professional health training in Victoria. We consistently rank in the top 40 universities worldwide for clinical, pre-clinical and health sciences.

We want to improve the human condition. That is our vision - it has no expiration date. Through academic health centres, other translational models and by educating the healthcare workforce of the future, our staff, students and alumni directly improve quality of life.

Setting the global health care agenda, the Faculty aspires to lead in all areas of research activity and influence local, national and international policy to improve health and social outcomes and health inequalities. We've made a major impact in the world of medical research and become globally recognised for our quality education of over 41,000 doctors, nurses, and allied health professionals.

We are ambitious and aim to maintain our position as a leading international medical research university. We're recognised for the breadth and depth of our research, for our commitment to translational research, for the quality and scale of our research capability, and as a thriving biotechnology hub.

To learn more about the Faculty, please visit [monash.edu/medicine](http://monash.edu/medicine).

**Central Clinical School** encompasses the Departments of Clinical Sciences, Melbourne Sexual Health Clinic, Clinical Haematology, Immunology and Pathology, Infectious Diseases, Gastroenterology, Diabetes, Allergy and Respiratory Medicine and Psychiatry. It is located at the Alfred Hospital precinct in Melbourne, known as AMREP (Alfred Medical Research and Education Precinct). The school is involved in teaching students from both the Faculty of Medicine, Nursing and Health Sciences and the Faculty of Science and its teaching and research is

conducted at Alfred Health, Cabrini, Epworth Richmond, Peninsula Health and also at Clayton. For more information about us and the work we do, please visit [www.monash.edu/medicine/ccs](http://www.monash.edu/medicine/ccs).

The **Department of Infectious Diseases** offers clinical and biomedical research and education. The Department of Infectious Diseases staff, through their joint clinical appointments at Alfred Health's Infectious Diseases Unit, have expertise in general infectious diseases, tuberculosis, respiratory infections, HIV/AIDS, sexually transmissible infections, and travel related infections. The Department integrates clinical services with clinical and basic science research. The service has a leading research program in HIV. Laboratories are based within the Burnet Institute with a presence within the Central Clinical School.

## POSITION PURPOSE

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A Level A research-only academic is expected to contribute towards the research effort of the University and to develop their research expertise through the pursuit of defined projects relevant to the particular field of research.

The appointee will use computational biology approaches to investigate the metabolic diversity of *Klebsiella pneumoniae*, a *World Health Organization* priority pathogen. *K. pneumoniae* is a ubiquitous bacterium that can inhabit a broad range of hosts and environmental niches. It is also extremely diverse with access to a gene-pool of more than 100,000 genes, at least a third of which are predicted to encode proteins with metabolic functions. This is of particular interest because metabolic capacity is considered a key driver of niche preference and the ability to cause disease in different hosts or body sites. However, little is known about metabolic variation in this species. In collaboration with researchers at the University of California San Diego (USA) and Institut Pasteur (France) we aim to address this knowledge gap and develop a first-of-a-kind population metabolism framework for *K. pneumoniae*. The appointee will contribute directly to this project by combining the power of large-scale comparative genomics analyses with state-of-the-art genome-scale metabolic modelling.

This genomics-focused position is suitable for an individual with strong undergraduate and graduate training in a relevant area of biology (molecular biology, genetics, microbiology, biochemistry, evolutionary biology) as well as demonstrated skills and/or training in a quantitative discipline (statistics, computing, mathematics). The ideal candidate will have experience working with high-throughput genomic data from bacteria, with experience in using command-line programs, as well as writing and troubleshooting code in Python and/or similar programming languages. Previous experience in genome-scale metabolic modelling is helpful but not required.

The appointee will be supervised by Dr Kelly Wyres and Professor Kathryn Holt, and based within the laboratory of Professor Holt ([www.holtlab.net](http://www.holtlab.net)) in the Department of Infectious Diseases, located at the Alfred Medical Research and Education Precinct. The appointee will interact with research scientists, students and administrative staff of Monash University; and collaborate closely with other members of the laboratory and international collaborators. They will also have the opportunity to attend overseas conferences.

**Reporting Line:** The position reports to Dr Kelly Wyres, Department of Infectious Diseases

**Supervisory Responsibilities:** Not applicable

**Financial Delegation:** Not applicable

**Budget Responsibilities:** Not applicable

## KEY RESPONSIBILITIES

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A Level A research only academic shall work with support, guidance and/or direction from staff classified at Level B and above and with an increasing degree of autonomy as the research academic gains in skill and experience.

1. The conduct of research under limited supervision either as a member of a team or, where appropriate, independently and the production or contribution to the production of conference and seminar papers and publications from that research
2. Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise

3. Limited administrative functions primarily connected with the area of research of the academic
4. Development of a limited amount of research-related material for teaching or other purposes with appropriate guidance from other staff
5. Occasional contributions to teaching in relation to their research project(s)
6. Attendance at meetings associated with research or the work of the organisational unit to which the research is connected and/or at departmental, school and/or faculty meetings and/or membership of a limited number of committees
7. Advice within the field of the staff member's research to postgraduate students

## **KEY SELECTION CRITERIA**

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### **Education/Qualifications**

1. The appointee will have:
  - A PhD or equivalent level of research experience with a strong bioinformatics / computational microbiology component

### **Knowledge and Skills**

2. Experience in working with high-throughput bacterial genomic data using command-line programs
3. Experience in Python programming (writing and trouble-shooting code) and the R environment for statistical analysis
4. Strong interpersonal skills and the ability to communicate science across discipline boundaries
5. A demonstrated aptitude for research with a sound record of publication, commensurate with experience and opportunities
6. Ability to solve complex problems by using discretion and innovation
7. Well-developed planning and organisational skills, with the ability to prioritise multiple tasks and set and meet deadlines
8. Excellent written communication and verbal communication skills with proven ability to effectively analyse information and produce clear, succinct reports and documents which requires interaction with others
9. A demonstrated capacity to work in a collegiate manner with other staff in the workplace
10. Experience in analysis and visualisation of complex data
11. Experience working in a multi-disciplinary research environment
12. Capacity to supervise honours and postgraduate research students

## **OTHER JOB RELATED INFORMATION**

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- Travel to other campuses of the University may be required
- There may be a requirement to work additional hours from time to time
- There may be peak periods of work during which taking of leave may be restricted

## **GOVERNANCE**

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Monash University expects staff to appropriately balance risk and reward in a manner that is sustainable to its long-term future, contribute to a culture of honesty and integrity, and provide an environment that is safe, secure and inclusive. Ensure you are aware of and adhere to university policies relevant to the duties undertaken and the values of the University. This is a standard which the University sees as the benchmark for all of its activities in Australia and internationally.