# Position Details

## CSIRO Early Research Career (CERC) Postdoctoral Fellowship– CSOF4

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| The following information is for applicants | |
| Advertised Job Title | CSIRO Postdoctoral Fellowship in Viral Genomics and Nanotechnology |
| Job Reference | 75483 |
| Tenure | Specified Term of 3 years Full-time |
| Salary Range | AU$88,163 to AU$96,573 pa (pro-rata for part-time) + up to 15.4% superannuation |
| Location(s) | Australian Centre for Disease Preparedness, Geelong, Victoria |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | Australian/New Zealand Citizens, Australian Permanent Residents and Australian temporary residents currently residing in Australia (visa sponsorship may be provided to eligible onshore candidates) |
| Position reports to the | Project Leader (Research Scientist, Transboundary Animal Diseases) |
| Client Focus – Internal | 95% |
| Client Focus – External | 5% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Dr. Petrus Jansen van Vuren via email at [petrus.jansenvanvuren@csiro.au](mailto:petrus.jansenvanvuren@csiro.au) |
| How to apply | Apply online at <https://jobs.csiro.au/>  Internal applicants please apply via **Jobs Central**  If you experience difficulties when applying, please email [careers.online@csiro.au](mailto:careers.online@csiro.au) or call 1300 984 220. |

### Role Overview

**CSIRO Early Research Career (CERC) Postdoctoral Fellowships** provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant postdoctoral work experience. These fellowships aim to develop the next generation of future leaders of the innovation system through:

* A differentiated career development program to deliver capability excellence and breadth across all facets of the national innovation system.
* Research training via strategic research and development projects with a clear focus that will deliver real impact through science and engineering excellence;
* An innovative culture supporting the development and demonstration of original thinking and expertise leading to peer-recognition; and
* Opportunities to develop skills and experience in collaborative research teams to effectively work within national and global multi/transdisciplinary and multi-stakeholder environments.

CERC Postdoctoral Fellows **are appointed for three years or part time equivalent.**

Endemic animal diseases put a major strain on Australian livestock industries, and wellbeing at farmer level. Incursion of exotic animal diseases further pose a major threat to livestock health and socioeconomic wellbeing. Early identification of introductions of highly contagious or vector borne transboundary animal diseases, such as foot-and-mouth disease (FMD), African swine fever (ASF), African horse sickness (AHS) and lumpy skin disease (LSD), is a key component in preparedness and efforts to control outbreaks. Incursion and widespread outbreaks of emergency animal diseases in Australia would lead to losses of billions of dollars and, consequently, jobs. Continued diagnosis and surveillance of endemic diseases, or exotic diseases after incursion, is therefore important to direct control efforts and reduce outbreak impacts.

Traditional diagnostic approaches for viral human and animal diseases aim to detect the presence of the viral pathogen in acute cases, and antibodies to the agent as evidence of recent or past infection in recovering cases, or for surveillance. Detection of antibodies to demonstrate recent or past infection based on traditional approaches are often difficult to adapt to high throughput multiplex formats, particularly when multiple subtypes of a virus are known or anticipated. Distinguishing antibody responses to different serotypes, for example FMD (with seven immunologically distinct serotypes and many strains within each serotype) requires multiple tests run in parallel, and the development of high-quality antigens and mono- or polyclonal antisera for each circulating serotype. When other diseases need to be excluded as part of a differential diagnosis, the number of tests and characterised reagents required are expanded even further. Having a single test that can detect antibodies to a range of viruses, and distinguish those down to serotype level, while running tens or hundreds of samples in parallel, would revolutionise laboratory diagnostic and surveillance programs.

Likewise, the ability to detect DNA or RNA from viral pathogens in a multiplex manner while maintaining high levels of sensitivity and specificity, would greatly strengthen diagnostic and surveillance programs. CRISPR/Cas technology has revolutionised genome engineering and has recently also been shown to have application in diagnostic assay development, allowing highly sensitive and specific detection of target nucleic acid with the potential for field use.

The Postdoctoral Fellow will be leading the exploration of innovative genomics approaches for the development of pathogen and antibody detection technologies, such as Phage-immunoprecipitation-sequencing (PhiP-Seq) and CRISPR diagnostics and translating these to field ready devices through utilisation of nanotechnology. The project involves three CSIRO business units; Health and Biosecurity, Australian Animal Health Laboratory and CSIRO-Manufacturing. The Postdoctoral Fellow will therefore be exposed to experts with a diverse range of knowledge and expertise including virology, molecular biology, bioinformatics, infectious disease diagnosis and nanotechnology.

### Duties and Key Result Areas:

Under the direction of senior research scientists and engineers, this CERC Postdoctoral Fellow will:

* + Develop innovative high-throughput diagnostic platforms for endemic and exotic animal diseases of national priority by utilising cutting edge biotechnology, including Phage-immunoprecipitation sequencing (PhiP-Seq).
  + Develop innovative CRISPR/Cas based diagnostic platforms for detection of endemic and exotic animal diseases of national priority.
  + Adapt these innovative platforms to field-deployable nanotechnology, microfluidics, and biosensor devices to improve rapid detection.
  + Explore other emerging diagnostic and detection technologies that could further strengthen Australia’s preparedness for incursion of biosecurity threats.
  + Carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
  + Recognise and exploit opportunities for innovation and the generation of new theoretical perspectives, and progress opportunities for the further development or creation of new lines of research.
  + Utilise design thinking methodology to plan and prepare research proposals and apply non-academic impact methodology to research projects.
  + Carry out research investigations requiring originality, creativity and innovation.
  + Record, manage, and analyse data/information using relevant domain data science techniques.
  + Proactively undertake development to grow effective researcher capabilities to support career goals.
  + Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Making Safety Personal goals.
  + Other duties as directed.

[**The CERC Postdoctoral Fellow learning and development program**](http://www.csiro.au/en/Careers/Student-and-graduate-programs/Postdoctoral-fellowships)is developed between the CERC Postdoctoral Fellow and their CSIRO supervisor. The program will focus on enhancing the Fellows’ capabilities to the level expected of an independent researcher and will include on-the-job and course-based development encompassing:

* Discipline-specific techniques and protocols
* Professional growth
* Project management
* Communication and influencing skills
* Working and collaborating with others

## **Required Competencies:**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others reactions.
* **Resource Management/Leadership:** Allocates activities, directs tasks and manages resources to meet objectives. Provides coaching and on the job training, recognises and supports staff achievements and fosters open communication in the team.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
* **Independence:** Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of changes.

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. A doctorate (or will shortly satisfy the requirements of a PhD) in a relevant discipline area, such as microbiology, virology, biochemistry, molecular biology or a related field.

Please note: To be eligible for this role you must have **no more than 3 years** (or part time equivalent) of postdoctoral research experience.

1. Evidence of technical and experimental experience in microbiology, virology or molecular biology, including recombinant bacterial plasmid cloning.
2. Highly ambitious and motivated about exploring novel platforms for virus and antibody detection.
3. Willingness to travel within Australia and internationally (depending on State, Federal and CSIRO travel restrictions), to perform laboratory work at collaborating institutions.
4. High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including the presentation of research outcomes at national and international conferences.
5. A sound history of publication in peer reviewed journals and/or authorship of scientific papers, reports, grant applications or patents.
6. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable:**

1. Knowledge of phage-display technology.
2. Knowledge of CRISPR/Cas technology for genome engineering and diagnostics.
3. Knowledge of regulations related to working with genetically modified organisms (GMOs).
4. Experience in serological (antibody detection) techniques such as ELISA.
5. Experience in PCR and real-time PCR assay design.
6. Experience in next-generation sequencing and NGS data analysis.
7. Experience in use of microfluidics devices and biosensors.
8. Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.
9. **The ability to work effectively as part of a multi-disciplinary, potentially regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.**

To be appointed to this CERC Postdoctoral Fellowship role within CSIRO, candidates will be expected to commence employment by December 2021/January 2022. To be appointed as a CERC Postdoctoral Fellow within CSIRO, candidates are required to have submitted their PhD at the time of commencement, as a minimum requirement, if PhD conferment has not been obtained. If a candidate has submitted, but their PhD has not yet been formally attained, the starting salary will be CSOF4-1 ($85,361). Upon CSIRO receiving written confirmation that the PhD has been awarded (within a six month period from commencement date), the salary will be increased to the negotiated level and the difference will be back-paid to the Officer’s start date.

Special Requirements

Appointment to this role may be subject to conditions including provision of a national police check as well as other security/medical/character clearance requirements.

* The successful candidate may be asked to obtain and provide evidence of a National Police Check or equivalent. Please note that people with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* The successful candidate will be required to obtain and maintain a National Health Security Clearance.
* If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- https://ielts.com.au/
* ACDP - Security Assessment and Microbiological Security Requirements for Personnel Working on the Australian Centre for Disease Preparedness (ACDP) Site.
* A willingness to work under BSL3 conditions.
* A willingness to be vaccinated against rabies, hepatitis B, Japanese encephalitis, seasonal influenza, or other agents as specified.

**Security Assessment and Microbiological Security Requirements for Personnel Working on the ACDP Site**

* The nature of our work requires that each person working on site must comply with the conditions described below.
* The appointee is required to pass a security clearance at a level appropriate to duties of the position.  Confirmation of the appointment is subject to obtaining that clearance.
* It is essential that all work on exotic or emerging diseases carried out at ACDP is conducted in a safe manner to prevent the escape of the disease agents used, and to this end, all activities and personnel will be subject to appropriate microbiological security measures. Consequently, while working at ACDP, you may not reside on a property on which are kept any of the following animals: sheep, cattle, pigs, goats, horses, asses and mules, any other cloven-hoofed animal, fowls, turkeys, geese, domestic ducks, caged birds, emus or ostriches. Personnel working with diseases of aquatic animals additionally may not keep aquarium fish at their place of residence and personnel working with cane toad material must also avoid contact with amphibians.
* In addition, for a period of seven days after working in the microbiologically secure area of ACDP, personnel may not have close contact with any of the above animals, amphibians or birds or the actual places where these animals are held or visit any aquatic animal farm or aquatic animal hatchery.
* Working in the barrier maintained Small Animal Facility requires avoidance of contact with additional animals such as mice, rats, guinea pigs, rabbits and poultry 3 days prior to arrival.

Personnel must abide by Occupational Health, Safety and Environment regulations. Safety signs and directives issued by CSIRO personnel must always be complied with.

**Our value proposition**

We want CERC Postdoc Fellows to join our world class science, engineering and digital teams to solve big, complex problems that make a real difference to the future of Australia and the world.

You'll get to work with some of the most talented minds in their fields, not just in Australia, but in the world. At CSIRO, we spark off each other, learn from each other, trust each other and collaborate closely to achieve more than we could individually.

CSIRO Early Research Career (CERC) Postdoctoral Fellow Experience Employee Value Proposition (EVP). Find out more [here](https://www.csiro.au/en/careers/postdoctoral-fellowships)!

## **About CSIRO:**

We solve the greatest challenges through innovative science and technology. To find out more visit us [online](http://www.csiro.au/)!

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* 1. People First
  2. Further Together
  3. Making it Real
  4. Trusted

Find out more about the CSIRO [Australian Centre for Disease Preparedness](https://www.csiro.au/en/Research/Facilities/AAHL)

Find out more about CSIRO [Health and Biosecurity](https://www.csiro.au/en/Research/BF)

Find out more about CSIRO [Manufacturing](https://www.csiro.au/en/Research/MF)