# 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 Effector Protein Structural Biology |
| Job Reference | 79443 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$89,926 to AU$98,504 pa + up to 15.4% superannuation |
| Location(s) | Black Mountain, Canberra, ACT |
| 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 | Team leader |
| Client Focus – Internal | 100% |
| Client Focus – External | 0% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Peter Dodds via email at peter.dodds@csiro.au or phone +61 2 6246 5039 |
| 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. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the area that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

### Role Overview

**CSIRO Early Research Career (CERC) Fellowships** provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant research 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 Fellows **are appointed for three years full-time equivalent.**

The CERC Postdoctoral Fellow will work in the Crop Immunity Group at CSIRO Agriculture and Food and will be supervised by Dr Peter Dodds. The group has a strong focus on rust disease resistance research with the overall goal to prevent losses in wheat production due to the impact of rust diseases through improved resistance breeding and engineered resistance approaches. Understanding and utilising the function of plant immune receptors and the pathogen effectors they recognise is a key component of the research program. The group has identified immune receptors encoded by several stem rust resistance genes from wheat as well as the corresponding effectors from the wheat stem rust pathogen that these receptors recognise.

The Fellow’s research will focus on comparative structural analyses of rust effector proteins to identify common structural features or patterns among immune-recognised effectors. This will include applying deep learning-based effector and structure prediction tools in a computational structural biology approach to examine the evolution of novel effector variants that escape recognition and diversification of effector families in rust fungi. This provides opportunities to extend our understanding of plant-pathogen interactions in general and influence wheat breeding efforts for enhanced disease protection outcomes.

The Postdoctoral Fellow will be part of a large multidisciplinary team at CSIRO Agriculture & Food and Data61 and external collaborators collectively conducting leading edge research and with a strong record of high impact publications in the field of plant immunity. The Postdoctoral Fellow will benefit from working in a world leading team and through exposure to a broad scientific context spanning the spectrum from basic biology to applied delivery of science research to achieve industry outcomes.

### Duties and Key Result Areas:

Under the direction of senior research scientists and engineers, CERC Fellows:

* + Carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes.
  + Carry out research investigations requiring originality, creativity and innovation to investigate structural features of rust effector proteins to shed light on the evolution of virulence and effector diversification. This will include computational structure prediction, benchmarking against known structures, comparative structural analyses, and investigation of functional consequences.
  + Undertake regular reviews of relevant literature and patents
  + Communicate results internally through regular team meetings and group level presentations.
  + Communicate results externally through preparation and presentation of appropriate conference papers as agreed with your supervisor and through preparation of scientific manuscripts suitable for publication in quality journals and granting of patents.
  + 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
  + 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 Fellow learning, development and training programis developed between the CERC Fellow and their CSIRO supervisor. The program will focus on enhancing the Fellow’s 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). The doctorate must be in a relevant discipline area, such as protein structural analysis, bioinformatics or molecular plant pathogen interactions.

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

1. Detailed knowledge and research experience in molecular plant-pathogen interactions.
2. Experience in applying structural and molecular biology approaches to investigate protein function in the context of their contribution to overall biological processes.
3. 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.
4. A sound history of publication in peer reviewed journals and/or authorship of scientific papers, reports, grant applications or patents.
5. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable:**

1. Ability to conduct computational analysis of genome scale biological data.
2. Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.
3. **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 Fellowship role within CSIRO, candidates will be expected to commence employment by 30 June 2022. To be appointed as a CERC Fellow within CSIRO, candidates are required to have **submitted** their doctoral thesis 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 (AU$87,068). 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 will 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.
* 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/

**Our value proposition**

We want CERC 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.

Find out more about our CSIRO Early Research Career (CERC) Fellow Experience Employee Value Proposition (EVP) [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 CSIRO [Agriculture and Food](https://www.csiro.au/en/Research/AF)