# 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 Engineering Insects to Detoxify Waste |
| Job Reference | 86647 |
| 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) | Canberra, ACT or Brisbane QLD |
| 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 of Environmental Systems Biology |
| Client Focus – Internal | 90% |
| Client Focus – External | 10% |
| Number of Direct Reports | 0 |
| Enquire about this job | Dr Tom Walsh, tom.walsh@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. |

**Acknowledgement of Country**

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the areas 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 or equivalent.**

Invertebrates and insects in general have an amazing capacity to survive and even thrive on substances that are otherwise difficult to deal with. This project will investigate the capability and capacity of insects to deal with challenging food sources using the Black Soldier Fly (BSF) as a model system. BSF is developing as a tool for organic waste processing in Australia and internationally, taking food waste and processing it into protein and fertilizer, removing tonnes of waste from going to landfill. This project will explore the basic biology of BSF with the aim of understanding its capability and capacity to deal with more challenging waste streams and look into the potential for breeding or engineering novel functions into exiting BSF populations.

Within the team there is expertise in insect biology, genomics, transcriptomics, proteomics, metabolomics and biochemistry so candidates with skills across the spectrum of omics tools will be considered. Of particular interest are candidates with experience in genetic modification and integration of multi-omic data.

The project on offer is transdisciplinary in nature and requires the application of knowledge and skills from several specialist scientific areas (microbiology, metabolic flux, multi-omics, bioinformatics, biochemistry). The Postdoctoral Fellow will have the opportunity to work across multiple CSIRO laboratories, in addition to working at collaborator institutions (national and international). This will ensure the Fellow has access to state-of-the-art high throughput technologies and bioinformatics techniques in the field of systems biology and environmental omics. This will help broaden the Fellow’s experiences and develop deeper professional networks. The collaborative nature of the project provides a unique opportunity for the Fellow to become engaged with various scientific, cultural and organizational structures, enabling them to become a truly cross-disciplinary leader.

### Duties and Key Result Areas

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

* Design and carry out experiments on black soldier fly to gauge their response to different diets
* A multi-omic and phenotypic analysis of the performance of the black soldier fly on different waste streams
* Laboratory based analysis of the biochemical response to specific diet and/or contaminants
* Genetic and biochemical investigation of the potential for modification of the black soldier fly to access difficult and novel waste streams.
  + Work in close collaboration with emerging Australian black soldier fly industries as and when required.
  + 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 Zero Harm 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

## **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, but not limited to, insect biology, biochemistry and/or physiology, Bioinformatics (genomics, transcriptomics, metabolomics and/or proteomics), or Systems Biology.

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

1. Demonstrated bioinformatics experience in either genomics, metabolomics- and/or proteomics-based research. Experience in transcriptomics and system biology, will be advantageous. Professional (contracted consultancy work) and non-professional (academic) experience at a university will be considered.
2. Excellent communication skills and an ability to interact socially and scientifically with other postdoctoral scientists and researchers in the laboratory and with collaborators in various networks are essential.
3. The ability to work effectively as part of a multi-disciplinary, regionally dispersed research team, plus the motivation and discipline to carry out autonomous research.
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, scientific 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. Experience with a variety of biological samples would be useful as well as a background in areas such as analytical chemistry and synthetic biology, will also be taken into consideration.
2. Insect rearing and phenotyping experience.
3. Significant and demonstrable experience in dealing with bioinformatics/biostatistics data acquisition, analysis protocols and associated software. Experience with computer programming (e.g., R or Python) and multivariate statistics would be highly advantageous but is not essential as training is available.
4. A current driver’s licence
5. Remain productive, positive and resilient in complex, ambiguous and/or uncertain environments.
6. **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.**

## **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.

To be appointed to this CERC Fellowship role within CSIRO, candidates will be expected to commence employment by 31 January 2023. Candidates are also 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 Clearance or equivalent. Please note that individuals 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. Visit [CSIRO Online](http://www.csiro.au/) and [Land and Water](https://www.csiro.au/en/Research/LWF" \o "Land & Water- CSIRO Website) for more information.

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

* People First
* Further Together
* Making it Real
* Trusted