# Position Description

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

The following information is for applicants

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| Advertised job title**:** | CSIRO Postdoctoral Fellowship in Metabolic Engineering |
| Job reference: | 61692 |
| Relocation assistance**:** | Will be provided to the successful candidate if required. |
| Applications are open to: | Australian Citizens Only  Australian/New Zealand Citizens and Australian Permanent Residents Only   * All Candidates |
| Percentage of client focus - internal: | 100% |
| Percentage of client focus - external: | 0% |
| Reports to the: | Senior Research Scientist |
| Number of direct reports: | 0 |
| How to apply: | Please apply online at [jobs.csiro.au](https://jobs.csiro.au/) and enter the requisition number**.** Internal applicants please apply via ‘Jobs Central’ through the ‘People Hub’ icon |
| Contact details to discuss this position: | Dr Ming Luo at [Ming.luo@csiro.au](mailto:Ming.luo@csiro.au) or Dr Claudia Vickers at Claudia.vickers@csiro.au |
| If you have difficulty applying please contact: | Call 1300 984 220 or email [csiro.online@csiro.au](mailto:careers.online@csiro.au) between 8.30 am and 5 pm Australian east coast time. |

## 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.**

A major contributor to global warming is anthropogenic greenhouse gas emissions, one of which is methane. Rumen enteric methane from livestock is a major contributor from agriculture and is responsible for over 13% of global greenhouse gases and is 28 times more potent than carbon dioxide. Recently CSIRO has shown that methane production can be dramatically reduced in cattle if they are fed a red seaweed that accumulates a naturally occurring antimethanogenic compound called bromoform. The Postdoctoral Fellow will work as part of a team to engineer yeast strains and algae capable of producing and accumulating bromoform and develop these strains into viable livestock feed additives.

The Postdoctoral Fellow will undertake multidisciplinary research in novel trait engineering in yeast and apply this technology to livestock industries. They will play a leading role by independently developing and implementing innovative research ideas with the support of an enthusiastic research team. This will be an exciting opportunity to make a real and positive impact in combating global warming. The Postdoctoral Fellow will receive broad scientific training ranging from basic biology to applied scientific delivery making this an ideal career advancement opportunity. The Postdoctoral Fellow will undertake research at both CSIRO Agriculture and Food (Black Mountain Laboratories, Canberra) and the CSIRO Synthetic Biology Platform (Brisbane).

## Duties and Key Result Areas:

* Under the direction of senior research scientists and engineers, the CERC Postdoctoral Fellow will:
  + Undertake extensive molecular biological and biochemical analyses in red algae to increase understanding of bromoform production in these species.
  + Isolate and transfer algal genes required for bromoform production to yeast using advanced genetic engineering approaches.
  + Undertake biochemical analyses including GC-MS for metabolite detection.
  + Investigate molecular caging opportunities for volatile compounds in yeast cells.
  + Use applied livestock analysis to determine methane emissions.
  + Carry out research investigations requiring innovation, originality, creativity and 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.
  + Work collaboratively as part of a multi-disciplinary, often regionally dispersed research team, and business unit to carry out tasks in support of CSIRO scientific objectives.
  + Undertake regular reviews of relevant literature and patents.
  + Record, manage, and analyse data/information using relevant domain data science techniques. Produce high quality scientific and/or engineering papers suitable for publication in quality journals, for client reports and granting of patents.
  + Proactively undertake development to grow effective researcher capabilities to support career goals and complete objectives as outlined in a Postdoctoral Fellowship professional development plan.
  + Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals
  + Other duties as directed.

**The CERC Postdoctoral Fellow learning and development program**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

<http://www.csiro.au/en/Careers/Student-and-graduate-programs/Postdoctoral-fellowships>

## CSIRO Competencies:

1. **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.**
2. **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.**
3. **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.**
4. **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
5. **Independence: Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).**
6. **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:

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

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

***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. Demonstrated research experience in molecular biological and biochemical experiments in yeast, algae or plants.
2. Demonstrated experience in the molecular and biochemical analysis of transgenic organisms.
3. Experience in gene cloning, producing transgenic organisms and metabolite characterisation.
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 Criteria:

1. Extensive and experience in yeast metabolic engineering.
2. Expertise in metabolite analysis and in particular analysis of volatile compounds*.*
3. Knowledge and experience in cell molecular caging of volatile compounds.
4. Understanding of ruminant livestock nutrition and rumen fermentation.
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.**

## Special Requirements:

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 (($83,687)*.* 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 security/national police/medical/character clearance requirements. Applicants who are not Australian Citizens or Permanent Residents 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 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! <https://www.csiro.au/en/careers/postdoctoral-fellowships>

## About CSIRO:

At CSIRO we solve the greatest challenges through innovative science and technology. See more [online](http://www.csiro.au/)!

Find out more about CSIRO [Agriculture and Food](https://www.csiro.au/en/Research/AF)

Find out more about CSIRO [Land and Water](https://www.csiro.au/en/Research/LWF)