# Research Scientist / Engineer – CSOF5

Role summary for potential applicants

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| Advertised Job Title**:** | Research Scientist – Gene Drive Modeller |
| Reference Number**:** | 38344 |
| Classification**:** | CSOF5 |
| Salary Range: | AU$92,591 – AU$100,199 plus up to 15.4% superannuation |
| Location**:** | Black Mountain, Canberra, ACT |
| Tenure: | Specified Term until June 2019 |
| Relocation assistance**:** | Will be provided to the successful candidate if required |
| Applications are open to: | [ ]  Australian Citizens Only[ ]  Australian Citizens and Permanent Residents Only* [x]  All Candidates
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| Functional Area**:** | Research Scientist |
| % Client Focus - Internal: | 100 |
| % Client Focus - External: | 0 |
| Reports to the: | Research Team Leader |
| Number of Direct Reports: | No direct reports  |

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| **Role Overview:** |
| [Future Science Platforms](http://www.csiro.au/en/About/Future-Science-Platforms) are an investment in science that underpins innovation and that has the potential to help reinvent and create new industries for Australia. FSPs will see us grow the capability of new generation of researchers and allow Australia to attract the best students and experts to work with us on future science. They are strategic investments aimed at developing capacity in areas of identified future importance for Australia. FSPs are both impact and science focused, developing innovative scientific solutions with industry, government and university partners. They support world class, coherent and creative research teams which integrate science and delivery over the long term, looking to the future science needs of CSIRO and our partners with a 5 to 10 year vision. To position Australia to build a vibrant synthetic biology research and development community to support the bio-based industries and ecoengineering activities of tomorrow, CSIRO has established the [Synthetic Biology FSP](https://research.csiro.au/synthetic-biology-fsp/) (SynBioFSP). Synthetic Biology (SynBio) is the design and construction of biological parts, devices, and organisms (usually based on DNA-encoded componentry); and their application for useful purposes. The SynBioFSP has a mission to develop capacity in synthetic biology within CSIRO and across Australia, in a collaborative and transparent manner. Science capability will be strongly aligned with CSIRO business unit capabilities and will allow CSIRO to deliver novel future outcomes for external partners. The program has a $13 million funding envelope over the first three years. We aim to:1. Build the foundational capabilities to advance SynBio research, including significant investment in social licence to operate
2. Drive national coordination by making these foundational capabilities widely available to the broad research community, governments, and industry for the development of novel industrial products, pharma, biocontrol agents, and strategies for building ecosystem resilience to environmental change, and
3. Build strong partnerships, collaborations, and connections across the innovation sector to develop these novel products and applications responsibly.

The Synthetic Biology FSP (SynBioFSP) is developing a research portfolio which will be spread across CSIRO and a wide variety of partner organisations (universities, industry, NGOs, other research organisations, etc.), both national and international. The research portfolio is dynamic and will evolve over time on the basis of strategy and performance. Research projects will sit within one or more priority [Application Domains](https://research.csiro.au/synthetic-biology-fsp/application-domains/) (Environment & Biocontrol, Chemicals & Fibres, Organelles & Endosymbionts) and one or more [Science Domains](https://research.csiro.au/synthetic-biology-fsp/science-domains/) (Integrative Biological Modelling, Engineering Novel Biological Components, Assembling Novel Biosystems, Maximising Impact). The SynBio FSP will embed a social and behavioural science agenda to address issues around social licence to operate.The role of a Research Scientist in CSIRO is to conduct innovative research leading to strategic scientific achievements. You may be engaged in scientific activity ranging from fundamental research to the investigation of specific industry or community problems. You will have the opportunity to build and maintain networks, play a lead role in securing project funds, provide scientific leadership and pursue new ideas and approaches that create new concepts. The SynBio FSP project to which the research scientist will be appointed sits within the Integrative Biological Modelling Domain. The project is focused broadly on evaluating the potential for CRISPR/Cas9 gene drives to be used to manage agricultural pests (i.e. insects, pathogens and weeds), with an initial emphasis on investigating strategies to manage pesticide resistance evolution. The aim is to develop a modelling platform for developing predictive understanding of gene drive spread, persistence and function in agricultural pest species. This platform will then be used evaluate the potential of gene drives to contribute to the development of sustainable and novel pest management approaches, and for the provision of practical information regarding the likely effectiveness and risks of gene drives for use in specific pest systems. Within the framework, the Research Scientist will be responsible for leading the development of simulation models to consider how pest biology, spatial and temporal deployment strategies and management scenarios influence the short-term spread of gene drives and longer-term durability. The successful candidate will be expected to communicate their results to the scientific community and other stakeholders, and contribute to the development of research directions and networks to drive future synthetic biology research opportunities. We would particularly welcome candidates with a research interest in mathematical modelling of population and genetic dynamics of pest organisms, and in the application of ecological and evolutionary principles to solving applied problems in agricultural landscapes. |

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| **Duties and Key Result Areas:** |
| * Incorporate novel approaches to scientific investigations by adapting and developing original concepts and ideas for new, existing and further research.
* Develop predictive models of gene drive spread and durability in agricultural systems.
* Undertake regular reviews of relevant literature, produce high quality scientific papers suitable for publication in quality journals and for client reports.
* Contribute to the development of innovative concepts and ideas for further research in managing agricultural pests.
* Communicate effectively and respectfully in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Produce high quality scientific papers suitable for publication in quality journals and for presentation at national and international conferences.
* Work effectively as part of a multi-disciplinary, regionally dispersed research team, to undertake independent scientific investigations and carry out associated tasks under the guidance of more senior Research Scientists.
* Undertake domestic and international travel.
* Under the guidance of Senior Research Scientists, work collaboratively and honestly with internal and external colleagues, clients and partners to help define and satisfy objectives for small to medium research projects.
* Assist in leading small research projects, including the negotiation of resource requirements.
* Provide coaching and on-the-job training to technical staff and students to ensure experiments are established in accordance with research design.
* Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals.
* Other duties as directed.
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| **Selection Criteria:** |
| *Under CSIRO policy only those who meet all essential criteria can be appointed****Pre-Requisites:***1. **Education/Qualifications:** A PhD and postdoctoral research experience in a relevant discipline area such as population genetics, epidemiology or evolutionary biology.
2. **Communication: High level written and oral communication skills with the ability to represent the research team effectively internally and externally, including at national and international conferences.**
3. **Publications: A record of publications in quality, peer reviewed journals.**
4. **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment.

***Essential criteria***1. Demonstrated expertise in analytical modelling of the population and evolutionary dynamics of insects, plants or fungi.
2. Demonstrated ability to develop and analyse results from spatial computer simulation models.
3. Clear understanding of current knowledge regarding the ecological and evolutionary biology of agricultural pests.
4. **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.**
5. A record of science innovation and creativity, plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

***Desirable criteria***1. Research experience in molecular biology
2. Research experience with pest organisms and pesticide resistance mechanisms.
3. Experience with delivery of applied research outcomes.

***CSIRO Values:***As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to: * Excellence in science,
* Inclusion, trust & respect,
* Health, safety & environment
* Deliver on commitments.

In your application and at interview you will need to demonstrate alignment with these behaviours. |

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| **Other Information:** |
| **How to Apply**Please apply for this position online at [www.csiro.au/careers](http://www.csiro.au/careers). You will need to upload your cover letter and resume/CV as ONE document, expressing your interest in the role and addressing each of the Selection Criteria. Please provide sufficient relevant information to enable the selection panel to assess your suitability against the Selection Criteria. Should your application proceeds to the next step, you may be asked to provide additional information.If you experience difficulties applying online call 1300 984 220 and someone will be able to assist you. Outside business hours please email: csiro-careers@csiro.au**Referees**: If you do not already have the names and contact details of two previous supervisors or academic/ professional referees included in your resume/CV please add these before uploading your CV.**Contact:** If after reading the selection documentation you require further information please contact Luke Barrett by email at luke.barrett@csiro.au. **About CSIRO**Australia is founding its future on science and innovation. Its national science agency, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) is a powerhouse of ideas, technologies and skills for building prosperity, growth, health and sustainability. It serves governments, industries, business and communities across the nation. Find out more! [www.csiro.au](http://www.csiro.au). **About the SynBio FSP Future Science Platform** For more information, see the [Synthetic Biology FSP](https://research.csiro.au/synthetic-biology-fsp/) website. |