# Postdoctoral Fellowship – CSOF4

Role summary for potential applicants

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| Advertised Job Title**:** | Postdoctoral Fellowship in Nutrient Dense Rice |
| Reference Number**:** | 58384 |
| Classification**:** | CSOF4 |
| Salary Range: | AU $82K to AU $93K plus up to 15.4% superannuation |
| Location**:** | Black Mountain Science and Innovation Park, ACT |
| Tenure: | Specified Term of 2 years |
| Relocation assistance**:** | Will be provided to the successful candidate if required |
| Applications are open to: | Australian Citizens Only  Australian Citizens and Permanent Residents Only   * All Candidates |
| Functional Area**:** | Research Scientist / Engineer - Postdoc |
| % Client Focus - Internal: | 50% |
| % Client Focus - External: | 50% |
| Reports to the: | Dr Philip Larkin, Chief Research Scientist |
| Number of Direct Reports: | 2 |

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| **Role Overview:** |
| **Postdoctoral Fellowships** at CSIRO provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant postdoctoral work experience. These fellowships will help launch their careers, provide experience that will enhance their career prospects, and facilitate the recruitment and development of potential leaders for CSIRO.  This position is **for up to 24 months** and will work closely with a leading Research Scientist in their respective field. They carry out innovative, impactful research of strategic importance to CSIRO with the possibility of novel and important scientific outcomes. They present the findings in appropriate publications and at conferences.  The benefits of consumption of wholegrains are well documented, however, the level of consumption in some sectors of the community remain low. This is particularly evident with the rice grain which is predominantly consumed in polished form with the majority of vitamins, minerals, fibre, protein and lipid removed. While a parallel project aims to improve the taste stability and shelf-life of unpolished (brown) rice, this project aims to enhance further the nutritional benefits of brown rice. The project begins with a line developed in collaboration with the Institute of Botany (CAS) in which the thickness of the aleurone layer is up to 10 fold larger. The aleurone is the outer layer of the endosperm where most of the vitamins, fibre and minerals accumulate. While there is 10 fold more aleurone, the levels of micronutrients increases only from 30-90%. This represents an underutilised sink in the grain and provides an opportunity to enhance further the nutrient density of brown rice by further upregulating nutrient loading. This will require understanding the relationship between sink and source and manipulating complementary technologies to utilise the larger sink more fully.  In particular this project will focus on super-loading Fe and Zn into the thick aleurone to test the hypothesis that genetic manipulation of both source and sink can achieve higher nutritional benefits. To this end we will collaborate with Dr Alex Johnson, University of Melbourne, who has demonstrated 2x increase in rice grain endosperm Fe and Zn with the overexpression of OsNAS2. This gene encodes nicotianamine synthase, an enzyme whose products are used in the uptake and transport of Fe and Zn ions. The approach will be to transform the thick aleurone rice, already in a highly transformable background, with the *OsNAS2* gene, obtain homozygotes for the transgene and examine the accumulation of Fe and Zn under controlled conditions. In addition to the quantities, the location of the cations in the grain will be determined using Synchrotron X-ray fluorescence spectroscopy.    **We work flexibly at CSIRO, offering a range of options for how, when and where you work.**  **Find out more here!:** <https://www.csiro.au/en/Careers/A-great-place-to-work/Work-life-balance> |

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| **Duties and Key Result Areas:** |
| * Under the direction of senior research scientists, carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes. * Producing quality research in the area of rice grain quality. * Develop plants with enhanced bioavailable iron and zinc content. * Investigate the location of accumulating iron and zinc in a rice mutant with thick aleurone. * Undertake regular reviews of relevant literature and patents. * Produce high quality scientific and papers suitable for publication in quality journals, for client reports and granting of patents. * Prepare appropriate conference papers and present those at conferences as agreed with your supervisor. * Contribute to the development of innovative concepts and ideas for further research. * Make a contribution to the effective functioning of the research team and help deliver CSIRO’s organisational objectives and plans. * Work collaboratively with colleagues within your team, the business unit and across CSIRO. * Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation. * Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals. * Undertake an appropriate training and development program developed by CSIRO. * Other duties as directed.   ***CSIRO’s postdoctoral training program***is developed between the Postdoctoral Fellow and a CSIRO scientist. 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> |

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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 doctorate (or will shortly satisfy the requirements of a PhD) in a relevant discipline area, such as plant physiology, molecular biology and/or biochemistry.   ***Please note:*** *To be eligible for this role you must have* ***no more than 3 years (or part time equivalent)*** *of relevant postdoctoral experience.*   1. **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.** 2. **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment.   ***Essential Criteria:***   1. **Strong background in molecular plant biology or equivalent. Strong background in plant metabolism and biochemistry or equivalent.** 2. **Experience with molecular techniques and/or working with transgenic plants.** 3. **The ability to work effectively as part of a multi-disciplinary team plus the motivation and discipline to carry out autonomous research.** 4. **Proven ability to write with clarity suitable for peer-reviewed journal papers.** 5. **A record of science innovation and creativity, plus the ability and willingness to incorporate novel ideas and approaches into scientific investigations.**   **Desirable Criteria:**   1. Expertise in microelement uptake and transport. 2. Knowledge in grain development. 3. Experience with X-ray fluorescence microscopy   **As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to**:   * Excellent science * Inclusion, trust & respect * Health, safety & environment * Delivery on commitments.   **In your application and at interview you will need to demonstrate alignment with these behaviours.**  To be appointed as a 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 ($82,450).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/medical/character clearance requirements. Applicants who are not Australian Citizens or Permanent Residents may be required to undergo additional security clearance processes; which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- <http://www.ielts.org/default.aspx> |

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| **Other Information:** |
| **How to Apply**  Please apply for this position online at <https://jobs.csiro.au/> and enter requisition number **58384**. Internal applicants please apply via ‘Jobs Central’ in SAP (click ‘Recruitment’)  Please load your CV (Maximum 2MB). You may also be required to respond to some screening questions.  If you experience difficulties applying online call 1300 984 220 for assistance. Outside Australian business hours please email: [csiro-careers@csiro.au](mailto:csiro-careers@csiro.au).  **Referees**: Please provide contact details of two previous supervisor or academic/professional referees in your resume/CV. We will ask your permission before making contact.  **Contact:** If after reading the position details above you require more information please contact:  Dr Phil Larkin via email: Phil.Larkin@csiro.au  Please do not email your application directly to Dr Larkin. Applications received via this method will not be considered.  **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).  We work flexibly at CSIRO, offering a range of options for how, when and where you work. Talk to us about how this role could be flexible for you.  Find out more! [CSIRO Balance](https://www.csiro.au/en/Careers/The-CSIRO-Experience/Balance)  **CSIRO Agriculture and Food** is helping Australian farmers and industry improve productivity and sustainability across the agriculture sector. We work directly with farmers and related industries to help us understand the challenges agricultural businesses face, develop a shared vision of how science can make the greatest difference and ultimately deliver practicable solutions.  For more information on CSIRO Agriculture and Food, visit <http://www.csiro.au/en/Research/AF>  **What CSIRO offers you**  This project presents the opportunity to combine basic scientific research in plant molecular biology using a unique set of germplasms to address basic but broad-reaching questions that could result in a tangible applied outcome: nutrient dense, bio-fortified rice.  The CSIRO supervisory team includes young to senior career scientists specialising in wide range of complementary areas including analyses of the wheat grain development, composition and quality. The postdoctoral fellow will also benefit from collaboration with experts in the University of Melbourne and Institute of Botany, Chinese Academy of Sciences, Beijing.  The multidisciplinary team of supervisors will expose the postdoctoral fellow to the latest technologies and knowledge in cereal quality research, as well as giving important insights into intellectual property and impact in the private sector.  The successful candidate will be located in the new state of the art research “Synergy” building at the Black Mountain Science and Innovation Park, which will also host scientists from different research programs, giving plenty of opportunities for productive scientific interactions.  CSIRO is Australia prime research organisation, with more than 5000 staff, multiple locations around the country and with research spanning biological, atmospheric, chemical and medical fields. Canberra was chosen “the best place to live in the world” by a survey of the organisation for Economic Co-operation and Development in 2014. Quality of life is high, there is large multicultural diversity and plenty of amazing outdoors opportunities close by. Childcare facilities are available at CSIRO and flexible work arrangements can be requested. |