# Postdoctoral Fellowship – CSOF4

Role summary for potential applicants

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| Advertised Job Title**:** | Postdoctoral Fellowship in Intelligent Processing of Grains and Legumes |
| Reference Number**:** | 58181 |
| Classification**:** | CSOF4 |
| Salary Range: | AU $82k to AU $93k plus up to 15.4% superannuation |
| Location**:** | Werribee, Victoria |
| 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/New Zealand Citizens and Australian Permanent Residents Only   * All Candidates |
| Functional Area**:** | Research Scientist / Engineer - Postdoc |
| % Client Focus - Internal: | 80% |
| % Client Focus - External: | 20% |
| Reports to the: | Dr Sofia Oiseth, Team Leader of Chemical & Physical Characterisation |
| Number of Direct Reports: | 0 |

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| **Role Overview:** |
| **Postdoctoral Fellowships** at CSIRO provide opportunities to scientists and engineers, who have completed their doctorate and will have less than six years relevant postdoctoral work experience, at the end of their term. 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 leading Research Scientists in their respective field. The postdoc will carry out innovative, impactful research of strategic importance to CSIRO with the possibility of novel and important scientific outcomes. Findings will be presented in appropriate publications and at conferences.  Grain and legume-based foods with elevated levels of total dietary fibre and protein are increasingly recognised as a means to address rapidly emerging diet related diseases such as diabetes, bowel and cardio vascular disorders. New breeding approaches have been successful to significantly enhance functional components such as high dietary fibre and protein in wheat and barley, which could play an important role in regulating intestinal microbiome and inflammation, resulting in better health and wellbeing. However, the delivery of health benefits to humans through these modified cereal grains will largely depend on how these grains are converted into food products of consumer preference.  The variety of processed cereal- and legume-based food products such as pasta, snacks, breakfast cereals and meat-alternatives with functional health benefits is still very limited. This is due to the negative impact on sensorial properties as well as the degradation of functional components during the conventional food processing techniques involving severe thermal and mechanical transformation of raw materials.  In particular, this project will focus on development of differentiated food products with enhanced health attributes and high consumer acceptance through gentle processing of mixed elite Australian grain and legume functional materials. One of the proposed strategies is to use sprouting and fermentation techniques which are known to improve amino acid profile, reduce anti-nutritional compounds and trigger the generation of antioxidants such polyphenols in grains and legumes. The derived material can then be further modified and transformed into foods and beverages using gentle processing technics (such as extrusion, ultrasound, or thermal processing) that do not harm any health promoting components. Intelligent proteomics techniques will be employed to understand the impact of different processing steps on the molecular and network structure of the functional constituents of the material. This will provide opportunities to maximise the delivery of nutritional benefits, while maintaining the sensorial qualities of the products. |

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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 innovative cereal and legume processing. * Undertake regular reviews of relevant literature and patents. * Produce high quality scientific and/or engineering 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 future 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 or engineer. 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 Food Technology, Food Engineering or Chemical Engineering*.*   ***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. **Publications: A record of publications in quality, peer reviewed journals.** 3. **Behaviours:** A history of professional and respectful behaviours and attitudes in a collaborative environment.   ***Essential Criteria:***   1. Sound knowledge of research design and methodology, including a demonstrated ability to design experimental plans in a mixed laboratory environment (e.g. physical tests and chemical analyses) and food processing pilot plant. 2. Demonstrated research and laboratory skills such as texture analysis, cereal and protein analyses and basic knowledge of structure characterisation. 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. A record of science innovation and creativity, plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations.   **Desirable Criteria:**   1. Expertise in food extrusion processing. 2. Knowledge in grain and legume-based food formulation and manufacture. 3. Experience with food rheology and 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 **58181**. 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 Roman Buckow via email: roman.buckow@csiro.au  Please do not email your application directly to Dr Buckow. Applications received via this method may not be considered by the selection panel.  **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**  The CSIRO supervisory team includes young to senior career scientists specialising in wide range of complementary areas including food processing, food technology, material science and rheology. The postdoctoral fellow will also benefit from collaboration with plant and sensory experts located in Canberra and Sydney, as well as at RMIT University.  The multidisciplinary team of supervisors will expose the postdoctoral fellow to the latest technologies and knowledge in food manufacturing research, as well as giving important insights into intellectual property and impact in the private sector. |