# Position Details

## Research Scientist/Engineer- CSOF5

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| The following information is for applicants | |
| Advertised Job Title | Molecular Modeller |
| Job Reference | 80283 |
| Tenure | Indefinite Full-time |
| Salary Range | AU$102,724 to AU$111,165 pa + up to 15.4% superannuation |
| Location(s) | Clayton |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | Australian/New Zealand Citizens and Australian Permanent Residents Only |
| Position reports to the | Biomolecular Interactions Team Leader |
| Client Focus – Internal | 20% |
| Client Focus – External | 80% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Alex Caputo via email at alex.caputo@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. |

### Role Overview

CSIRO’s Biomedical Manufacturing Program brings together multi-disciplinary scientific and engineering capabilities using world-class infrastructure to partner with industry in order to develop and innovative products in the area of chemical and biological landscape and works with biomedical companies to deliver new medical treatments and technologies that benefit people of Australia and overseas, helping them live longer, healthier, and more productive lives.

The role of Research Scientist Staff in CSIRO is to conduct innovative research leading to scientific achievements that are aligned with CSIRO’s strategies. 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 Molecular Modeller will support Biomedical Manufacturing projects involving structure-based protein engineering and small molecule drug design, whilst adhering to health and safety guidelines and safe working practices.

### Duties and Key Result Areas:

* Design and develop novel enzymes for real-world biotechnological applications using a structure-based protein engineering approach.
* Apply new bio-informatic tools (i.e. ancestral sequence reconstruction, alphafold 2) to create enzymes with enhanced catalytic activity, substrate specificity and thermal stability.
* Provide in silico binding studies (i.e. molecular docking/ molecular dynamics simulations) to model the interaction between a small molecule and protein target at the atomic level to assist structural biologists and medicinal chemists in structure-based drug design.
* Interact productively with a diverse multidisciplinary, multi-institutional team to test novel enzyme and/or drug designs.
* Under limited direction, assist in the planning and preparation of research proposals and carry out research investigations, requiring originality, creativity and innovation.
* Present results in a meaningful format, prepare reports for clients and/or write scientific papers for publication.
* Address problems promptly and in a constructive manner, selecting the most profitable lines of attack upon a problem, preparing detailed design proposals and experimental protocols.
* Undertake in experimental and/or observational research activities, often requiring the supervision and/or training of others to ensure experiments are established in accordance with research design, or as required.
* Draw on professional expertise, knowledge of other disciplines and research experience, recognise opportunities for innovation and generate new theoretical perspectives by pursuing new ideas/approaches and networking with scientific colleagues across a range of disciplines.
* Communicate openly, effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
* Maintain confidentiality when dealing with commercially sensitive information.
* Work with the CSIRO business development team to develop new opportunities and liaise with commercial clients to determine their needs and take personal responsibility for client satisfaction.
* Work collaboratively as part of a multi-disciplinary, often regionally dispersed research team, and business unit to carry out tasks in support of CSIRO’s scientific objectives.
* Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Making Safety Personal goals.
* Other duties as directed.

## **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:** Plans, sets and works to meet challenging standards and goals for self and/or others. Recognises where endeavours will make the most impact or difference, decides on desired outcome and sets realistic goals to reach this target.
* **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**

#### Essential:

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

1. A PhD (or an equivalent combination of qualifications and research experience) in a relevant field such as Structural Biology, Bioinformatics or Biophysics/Biochemistry.
2. Demonstrated experience and expertise in molecular modelling applied to structure-based protein engineering and computer-assisted drug design.
3. Expertise in machine-learning algorithms that predicts a protein's 3D structure from its amino acid sequence and ancestral sequence reconstruction for the design of proteins with enhanced and novel features.
4. Proven experience in molecular docking and dynamics simulations of ligand-protein interactions.
5. Excellent communication skills and a track record of publication in peer reviewed journals and/or authorship of scientific papers, reports, grant applications or patents.
6. Demonstrated ability to undertake original, creative and innovative research by generating and pursuing novel ideas and solutions to scientific research problems.
7. A history of working effectively as part of a multi-disciplinary, culturally diverse project team, plus the motivation and discipline to carry out autonomous research.

## **Desirable:**

1. Experience in structure-based protein/ enzyme engineering for structural or biotechnological applications and/or computer-assisted drug design in anticancer, antiviral or antimicrobial fields.
2. Demonstrated experience in the effective use and management of high-performance supercomputer and cloud-based digital infrastructure.

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 Check or equivalent. Please note that people with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* This role has child safety obligations. Accordingly, the successful candidate will be required to obtain or provide evidence that they hold a working with children check prior to confirmation of appointment.

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* 1. People First
  2. Further Together
  3. Making it Real
  4. Trusted

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