

Job Description

Research Associate

Salary:	Grade 7
Contract:	Full time, fixed term
School/Department:	School of Biosciences
Location:	Canterbury Campus
Responsible to:	Dr. Wei-Feng Xue

Job purpose

The main purpose of this position is to undertake research detailed on a BBSRC grant awarded to the School of Biosciences. The candidate will be responsible for specific duties involved in the project entitled “Creating *in vitro* assembled protein nano-fibrils that mimic polymorphous disease-relevant amyloid structures formed *in vivo*”.

In this exciting project, a transformative technology will be developed to allow three-dimensional (3D) structural reconstruction of individual amyloid fibrils imaged by atomic force microscopy (AFM) aided by cutting-edge biophysics and structural bioinformatics approaches. This technology will be applied to create and validate *in vitro* systems that generate human disease relevant amyloid structures capable of mimicking those found *in vivo* in patients.

The candidate will work under the supervision of Dr Wei-Feng Xue in the AFM imaging, Kent Fungal Group, and Cellular Architecture and Dynamics group laboratories.

Key accountabilities

The position will be research based within the School of Biosciences in the laboratory of Dr Wei-Feng Xue. The primary responsibility will be to undertake the research programme as outlined by Dr Xue (Principal Applicant on the grant award). The post-holder will also:

- Devise and undertake appropriate experiments to achieve the goals and milestones as described in the research programme, submitted to the sponsor. This would include a significant element of independent work, e.g. in the planning and execution of experiments, and the write up of work for high-quality peer-reviewed publication.
- Interact with the supervisor at University of Kent, and any other members of the collaboration to deliver the project.
- Write regular reports to the supervisor, compile data acquired in a form to allow rapid transformation of documented research results into high quality research papers and/or patent applications, communicate the results during regular meetings.
- Maintain an up to date/detailed log of the research activity undertaken and of the data/results obtained.

Key duties

The Research Associate appointee will be expected to perform the following main duties for the post. Other duties, commensurate with the grading of the job, may also be assigned from time to time.

- Carry out the research programme described in the BBSRC project application, with the main duty including (but not limited to) the controlled *in vitro* assembly of high-quality amyloid samples, biophysical characterisation of these samples using a wide-range of methods, including in-depth structural analysis by atomic force microscopy, and the informatics, computational and data science driven analyses of the experimental AFM image data.

- Develop an independent approach to the research project in both the design and execution of the necessary experiments. Identify new scientific approaches and techniques that are appropriate for the project.
- Organise, store, and write up results in a timely manner in regular detailed reports to be used for publication in high-quality peer reviewed scientific journals and dissemination to collaborators, partners and other stakeholders in project meetings and international conferences.
- Use creativity to analyse and interpret research data and draw conclusions on the outcome and contribute to collaborative decision making with colleagues in areas of research.
- Interact with other staff members employed on the same grant at Kent and at collaborating laboratories based at Kent and University of Sussex, as well as other members of the PI's laboratory.
- Provide training support and advice to graduate and postdoctoral scientists and technicians as outlined by the grant holder.
- Attend national/international conferences relevant to the research and present the research findings orally or as a poster.
- Report on progress regularly to the grant holder and the rest of the research group at the scheduled monitoring meetings.
- Write up their research findings for publication in leading peer-reviewed international journals in a timely manner.

Internal & external relationships

Internal: The main internal relations will be with Dr Xue and his laboratory, undergraduate and postgraduate students and other members of the School of Biosciences.

External: The main external relations will be with project collaborator Prof. Louise Serpell and members of her laboratory based at the University of Sussex, as well as other collaborators of the PI.

Health, safety & wellbeing considerations

This job involves undertaking duties which include the following health, safety and wellbeing considerations, Please be aware of these, when considering your suitability for the role.:

- Regular use of Screen Display Equipment
- Working with laboratory machinery (such as centrifuges, sonicators and plate readers)
- Working with chemicals (inc. requirement to wear latex gloves and inc. work with CO₂ or N₂ gasses)
- Biological Agents/Scientific Hazards (experiments/lasers etc, and waste/sewage)
- Pressure to meet important deadlines such as might be inherent in a high profile project
- There may be a requirement to work evenings and weekends due to experimental constraints
- Ability to occasionally travel in a timely and efficient manner
- Overseas travel to international conferences may be a requirement of the role

Person specification

The person specification details the necessary skills, qualifications, experience or other attributes needed to carry out the job. Applications will be measured against the criteria published below.

Selection panels will be looking for clear evidence and examples in an application, or cover letter (where applicable), which back-up any assertions made in relation to each criterion.

Essential Criteria:

- PhD degree or equivalent background awarded (or about to be) in a relevant subject such as Biochemistry, Biophysics, Molecular Biology, Chemistry, Chemical Biology, Computational Biology, Structural Biology or other related subjects. (A)

- Training/knowledge/experience in protein biochemistry, protein biophysics and structural biology. (A,I,T)
- Training/knowledge/experience in molecular biology, and protein expression and purification. (A,I,T)
- High proficiency in general computer skills, and training/knowledge/experience in computational data analysis and the interpretation and presentation of such results. (A,I,T)
- High standards of written and verbal communication skills. (A,I)
- High standards of technical lab skills and general organisational skills. (I)
- Able to work to deadlines. (I)
- Confident and safe worker, individually and as part of a team. (I)
- Enthusiastic, motivated, efficient, creative, punctual, and committed to own continuous professional development. (I)
- Good interpersonal skills and ability to work with collaborators and colleagues across different disciplines. (I)
- Firm commitment to achieving the University's vision and values, with a passion for a transformative student experience and multidisciplinary, impactful research (I)
- Commitment to deliver and promote equality, diversity and inclusivity in the day-to-day work of the role (I)

Desirable Criteria:

- Training/knowledge/experience of AFM and/or TEM (including cryo-EM and cryo-ET) imaging methods in structural biology. (A,I,T)
- Wide knowledge in relevant research areas in protein science, e.g. folding/mis-folding, assembly, amyloid and/or prions. (A,I,T)
- Training/knowledge/experience of biophysical techniques such as NMR, MALS, DLS, SPR, ITC, MST, Single molecule super resolution microscopy etc. (A,I,T)
- A publication record in relevant review and research journals (A)
- Experience of supervising postgraduate and undergraduate students. (A,I)
- Experience of collaborative interactions with researchers from different disciplines. (A,I)
- Experience of designing and executing experiments on an independent basis. (A,I)
- Membership of appropriate learned societies and a record of research conference attendance and presentations. (A)

Assessment stage: A - Application; I - Interview; T - Test/presentation at interview stage