

Job Description

Job Title:	Research Associate in Protein Chemistry
Department/Division/Faculty:	Department of Chemistry, Faculty of Natural Sciences
Campus/Location:	White City Campus
Job Family/Level:	Research Job Family, Research Associate* (Research salary scale)
Responsible to:	Dr Francesco A. Aprile, Prof. Marina Kuimova, Prof. Ramon Vilar
Key Working Relationships (Internal):	Dr Francesco A. Aprile, Prof. Marina Kuimova, Prof. Ramon Vilar
Contract type:	Full time, fixed term for 2 years

Purpose of the Post

We are seeking an outstanding research associate in protein chemistry to contribute to a Leverhulme Trust funded project across the Aprile, Kuimova and Vilar groups in the Department of Chemistry. The project is based on the study of solid and liquid self-assembly of alpha-synuclein, a key protein in Parkinson's disease. The post is funded for a period of two years, with a potential extension up to one year depending on funding availability. The start date is from 1st January 2024 with some flexibility. Your project will focus on investigating the effect of genetic mutations, post-translational modifications, and therapeutic molecules on the aggregation and liquid-liquid phase separation (LLPS) of alpha-synuclein. The successful candidate will be expected to take the lead in designing approaches to investigate the self-assembly of the protein *in vitro* and *in cellulo*. To do so, you will use a combination of biophysical techniques, including fluorescence spectroscopy and confocal and electron microscopy.

You will have a PhD in chemistry or a related STEM discipline (such as chemical biology or biochemistry), or an equivalent level of professional qualifications and experience, with a strong desire to progress in your career at a world leading research institution. Essential criteria include a strong track record in protein biochemistry and biophysics. You must have a strong background in protein purification, modification, and biophysical characterisation. You will have demonstrable creativity and the ability to work effectively in an efficient and independent manner and achieve clear objectives within a multidisciplinary team. Additional training and support can be provided on key techniques where necessary. Prior experience in any of the following would be highly advantageous: cell culture, click conjugation chemistry, fluorescence microscopy. You will be responsible for managing the day-to-day progress of the project, including the design and implementation of appropriate experiments and techniques utilising effective problem-solving skills where necessary. You will be responsible for managing the day-to-day progress of the project, including the design and implementation of appropriate experiments and techniques utilising effective problem-solving skills where necessary.

You will work within the teams of Dr Aprile, Prof. Kuimova, and Prof. Vilar. Effective report writing and accurate recording of high-quality data in a publishable format will be an essential aspect of the role and you will be required to present your results regularly both at group meetings and at relevant internal and external conferences and seminars. In all research groups we frequently support the undergraduate degree programme by providing research projects within our lab and you may be expected to play an active role in the supervision of these students alongside responsibilities in lab management and support of more junior members of the group. You will also be expected to assist in ensuring safe working practice is adhered to by members of the lab and to support other research associates within the lab with the management of health and safety, equipment maintenance and laboratory rotas. Imperial College runs a

unique post-doctoral development centre, and you will be expected to attend appropriate courses provided by this facility as part of your professional development in addition to those available to help you establish new technical skills and expertise.

Key Responsibilities

Research Duties:

- To produce and modify relevant alpha-synuclein variants using biochemistry and chemical biology approaches
- To investigate the self-assembly of the aforementioned proteins *in vitro* and *in cellulo*
- To take initiative in the planning of research
- To identify and develop suitable techniques, and apparatus, for the collection and analysis of data
- To conduct data analysis
- To ensure the validity and reliability of data at all times
- To maintain accurate and complete records of all findings
- To write reports for submission to research sponsors
- To present findings to colleagues and at conferences
- To submit publications to refereed journals
- To provide guidance to staff and students
- To attend relevant workshops and conferences as necessary
- To develop contacts and research collaborations within the College and the wider community
- To promote the reputation of the Group, the Department and the College
- To provide guidance to PhD Students
- Contribute to bids for research grants
- To conduct and plan own scientific work with appropriate supervision.
- To maintain highly organised and accurate record of experimental work
- To actively participate in the research programme of the Group
- To publish in high quality journals and to present data at national and international meetings
- To participate in Group research meetings and internal seminars
- To collaborate with other allied scientists within Imperial College and elsewhere in London and abroad, as appropriate
- To contribute to the smooth running of the Group's laboratories and, facilities with other scientists, clinicians, technicians and students within the laboratories
- Assist in the supervision of undergraduate and postgraduate research students and research assistants as required
- To comply with the College, Division, and Unit safety practices and to attend courses on safety when appropriate
- Any other duties as may be deemed reasonable by Head of group as well as Head of Division/Department/Section

Other Duties:

- Undertake appropriate administrative tasks
- Comply with relevant College policies, including Financial Regulations, Equal Opportunities Policy, Promoting Race Equality Policy, Health and Safety Policy, Information Systems Security Policy and Intellectual Property Rights and Register of Interests Policies
- Undertake any necessary training and/or development
- Maintain safe workplace practice and procedures in accordance with the requirements of Health and Safety legislation

- Maintain an up-to-date knowledge of relevant statutory Health and Safety legislation and recommendations and attend safety training as required
- Any other duties commensurate with the grade of the post as directed by line manager / supervisor

Where Imperial or funder conditions necessitate, you will be required to complete timesheets for your work on projects in a timely manner.

Person Specification

Requirements	Essential (E)/ Desirable (D)
Candidates/post holders will be expected to demonstrate the following:	
Education	
Hold a PhD in Chemistry or a closely related STEM discipline, or equivalent research, industrial or commercial experience <i>*Candidates who have not yet been officially awarded their PhD will be appointed as Research Assistant.</i>	E
Experience	
Practical experience within a research environment and / or publication in relevant and refereed journals in the fields of protein chemistry, protein modifications, protein self-assembly (amyloid aggregation and liquid-liquid phase separation)	E
Practical experience is required in at least two of the following areas: purification of aggregation-prone proteins, chemical biology approaches to instal post-translational modifications, spectroscopic approaches to investigate protein self-assembly.	E
Proven experience of designing and executing biophysical protein aggregation assays.	E
Experience in assisting junior colleagues and supervision of undergraduate and postgraduate students.	D
Knowledge	
Knowledge of protein chemistry, biochemistry, biology, biophysics applied to investigate protein-protein interactions and self-assembly	E
Knowledge of research methods and statistical procedures particularly applied to the analysis of protein self-assembly, protein toxicity, protein multimeric conformations	D
Skills & Abilities	
Ability to conduct a detailed review of recent literature	E
Ability to develop and apply new concepts	E
Creative approach to problem-solving	E
Excellent verbal communication skills and the ability to deal with a wide range of people	E
Excellent written communication skills and the ability to write clearly and succinctly for publication	E
Ability to organise own work with minimal supervision	E
Ability to prioritise own work in response to deadlines	E
Advanced computer skills, including word-processing, spreadsheets and the Internet	E
Ability to direct the work of a small research team and motivate others to produce a high standard of work	E
Other	
Willingness to work as part of a team and to be open-minded and cooperative	E
Flexible attitude towards work	E

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Discipline and regard for confidentiality and security at all times	E
Willingness to undertake any necessary training for the role	E
Willingness to travel both within the United Kingdom and abroad to conduct research and attend conferences	E
Willingness to work out of normal working hours (including weekends) if the requirements of the project demand	E

Further Information

Please note that job descriptions cannot be exhaustive, and the post-holder may be required to undertake other duties, which are broadly in line with the above key responsibilities.

Imperial College is committed to equality of opportunity and to eliminating discrimination. All employees are expected to follow the [Imperial Values & Behaviours framework](#). Our values are:

- Respect
- Collaboration
- Excellence
- Integrity
- Innovation

Employees are also required to comply with all College policies and regulations paying special attention to: Confidentiality, Conflict of Interest, Data Protection, Equal Opportunities, Financial Regulations, Health and Safety, Information Technology, Smoking, Private Engagements and Register of Interests. They must also undertake specific training and assume responsibility for safety relevant to specific roles, as set out on the [College Website Health and Safety Structure and Responsibilities](#) page.

The College is a proud signatory to the San-Francisco Declaration on Research Assessment (DORA), which means that in hiring and promotion decisions, we evaluate applicants on the quality of their work, not the journal impact factor where it is published. For more information, see <https://www.imperial.ac.uk/research-and-innovation/about-imperial-research/research-evaluation/>

The College believes that the use of animals in research is vital to improve human and animal health and welfare. Animals may only be used in research programmes which are ultimately aimed towards finding new treatments and making scientific and medical advances, and where there are no satisfactory or reasonably practical alternatives to their use. Imperial is committed to ensuring that, in cases where this research is deemed essential, all animals in the College's care are treated with full respect, and that all staff involved with this work show due consideration at every level. [Find out more about animal research at Imperial.](#)

We are committed to equality of opportunity, to eliminating discrimination and to creating an inclusive working environment for all. We therefore encourage candidates to apply irrespective of age, disability, marriage or civil partnership status, pregnancy or maternity, race, religion and belief, gender reassignment, sex, or sexual orientation. We are an [Athena SWAN Silver Award](#) winner, a [Disability Confident Leader](#) and a [Stonewall Diversity Champion](#).

July 2023