**Department of Chemistry** 

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## **Job Description**

## **Doctoral Candidate**

**Department:** Chemistry

Location: UCL Bloomsbury Campus

#### Reports to:

Professor Alethea Tabor

#### Context

Applications are invited for a Doctoral Candidate with a background in chemical biology, organic chemistry, medicinal chemistry or related areas to work in the group of <u>Professor Alethea Tabor</u> at the Department of Chemistry, UCL. This studentship forms part of the <u>MC4DD</u> Marie Skłodowska-Curie Doctoral Network exploring macrocycles as next-generation drug modalities and will be co-supervised by <u>Dr Will Unsworth</u> (University of York).

#### Introduction to the Doctoral Network

Better drugs are one of the most efficient and sustainable ways to improve healthcare, a key strategic orientation in HORIZON Europe. New drug modalities such as macrocycles (MCs) are expected to be a key enabling technology for this strategic perspective. The goal of the HORIZON-MSCA "Macrocycles for Drug Design" (MC4DD) Doctoral Training Network is to train the next generation of European medicinal chemists in a multidisciplinary environment to promote European drug discovery competitiveness by advancing knowhow on MCs and long-term via the skills carried on by the researchers trained in the doctoral network. **MC4DD** brings together leading experts in macrocyclic drug discovery from academia and industry from the fields of organic synthesis, medicinal, high-throughput and computational chemistry, pharmacological and structural analytics, and modelling. Eight academic research groups and five industrial partners, coordinated by Technische Universität Darmstadt in Germany, join forces in **MC4DD** to create a mobility and training platform for young scientists by means of cross-site, interdisciplinary research projects. Each Doctoral Candidate will work on an individual research project to expand the opportunities of macrocycles as next-generation drug modalities.

#### Project: Low-peptide MC libraries displayed on privileged scaffolds for cell permeability

In this project, we will use synthetic organic chemistry and solid-phase peptide synthesis techniques to develop methodology for the generation, screening and analysis of low-peptide macrocycles targeted to cyclophilin. The synthesis of orthogonally protected building blocks incorporating privileged scaffolds for cyclophilin and the development of new solid-phase methodology for incorporating these into libraries of macrocycles are the key objectives of this project. During the three years, the doctoral candidate will also undertake three fully-funded research placements at partners within the **MC4DD** network: Uppsala University, Sweden (NMR analysis in the

laboratory of <u>Professor Máté Erdélyi</u>); <u>Sanofi</u>, Frankfurt, Germany (molecular modelling); and Leiden University, Netherlands (high-throughput library screening techniques in the laboratory of <u>Professor Sebastian Pomplun</u>). This will broaden their academic experience and also provide benefit from working in an industrial setting. There will also be regular international network meetings giving the doctoral candidate the opportunity to learn from other network members, sharing expertise and developing collaborative projects. Training workshops provided by senior researchers in the network will develop skills in a range of areas from medicinal chemistry and cheminformatics to science communication and commercialisation.

To be eligible for this role you must, on 1 November 2024 be in the first four years (full-time equivalent research experience) of your research career and have not been awarded a doctoral degree. On 1 November 2024 you must not have resided or carried out your main activity (work, studies, etc.) in the UK for more than 12 months in the preceding 3 years. Compulsory national service and/or short stays, such as holidays, are not taken into account.

#### The Chemistry Department

The Chemistry Department at University College London is the oldest in England, with 100% of its outputs ranked as being world-leading (4\*) or internationally excellent (3\*) in the recent REF2021. We are located in Bloomsbury, at the heart of London, and offer an exciting and vibrant environment in which to study in one of the UK's top universities. The Department of Chemistry at UCL is committed to supporting excellence in both research and teaching. The department offers undergraduate BSc and MSci programmes in Chemistry and currently teaches ~650 undergraduates registered in Chemistry as well as students who select Chemistry on the Natural Sciences programme and first year Chemistry for life scientists.

The Chemistry Department has over 60 members of academic staff carrying out world-leading research. We specialise in the areas of organic synthesis, chemical biology, computational chemistry, nanotechnology, inorganic and materials chemistry, physical chemistry and chemical physics. The department has an annual research income of around £15 million, derived from many sources including the Research Councils (EPSRC, BBSRC, MRC, and NERC), European Commission and a wide range of charities and industrial partners in the UK, Europe and the USA.

Details about our research can be found on the departmental website http://www.ucl.ac.uk/chemistry.

#### Main purpose of the job

To carry out a project using synthetic organic chemistry and solid-phase peptide synthesis techniques to develop methodology for the generation, screening and analysis of low-peptide macrocycles targeted to cyclophilin. The synthesis of orthogonally protected building blocks and the development of new solid-phase methodology for incorporating these into libraries of macrocycles are the key objectives of this project.

#### Duties and responsibilities:

• To undertake work, which may be as part of a research team, investigating low-peptide macrocycles to promote further understanding.

- To develop methodology for the generation, screening and analysis of low-peptide macrocycles targeted to cyclophilin, using synthetic organic chemistry and solid-phase peptide synthesis techniques, and other knowledge, techniques and instrumentation as required.
- With the guidance of the project supervisor, to undertake a combination of literature searches/scholarly reading, desk and/or lab-based research or other research activity, using specialist knowledge, techniques and/or instrumentation as required.
- To contribute to the intellectual development of the project and plan own activities within the overall research effort.
- To participate in the structured interdisciplinary local and network-wide transferable skills training activities provided by the MC4DD network.
- To document work appropriately and in accordance with research best practice.
- To work closely with the project supervisor to prepare work for dissemination, presenting preliminary findings at meetings within the research group as appropriate.
- Under the guidance of the project supervisor, to assist in writing articles, papers, reports or books as appropriate.
- To liaise and collaborate with students and researchers and relevant external contacts and organisations.
- To participate in the dissemination of research findings internally and externally at seminars, workshops and conferences.
- To consider the public engagement and impact of the project and take appropriate steps to maximise these with the support of the research leader.
- To undertake appropriate organisational and administrative activities as delegated by the Research Supervisor. Examples may include: organising meetings, conferences and workshops; monitoring budgets and stock control; developing promotional or educational material, including website maintenance and development.
- To prioritise tasks within an agreed work schedule to ensure that the project(s) are delivered on time.
- To undertake a limited amount of teaching in relation to subject area.
- To contribute to the induction and direction of other research staff and students as requested.
- Responsible for ensuring that equipment is safe and maintained in working order.
- The job description reflects the present requirements of the post, and as duties and responsibilities change/develop, the job description will be reviewed and be subject to amendment in consultation with the post-holder.
- The postholder will carry out any other duties as are within the scope, spirit and purpose of the job as requested by the line manager.

- The postholder will actively follow UCL policies including Equal Opportunities and be expected to give consideration within their role as to how they can actively advance equality of opportunity and good relations between people who share a relevant protected characteristic and people who do not share it.
- The postholder will maintain an awareness and observation of Fire and Health & Safety Regulations.
- To be aware of and act upon:

Disciplinary procedure and disciplinary rules Grievance procedure Section 7 and 8 of the Health and Safety at Work Act

# **Person Specification**

Criteria	Essential or Desirable	Assessment method (Application/Interview)
Qualifications, experience and knowledge		
Masters degree in Chemistry, Chemical Biology, Medicinal Chemistry, Natural Sciences or equivalent	Essential	Application
Knowledge of synthetic organic chemistry	Essential	Application/Interview
Experience of organic synthesis, compound purification and characterisation	Essential	Application/Interview
Experience of solid phase peptide synthesis	Desirable	Application/Interview
GCSE English Grade C or above (or equivalent, e.g. IELTS)	Essential	Application
Experience of working in a research environment	Essential	Application
Experience of multi-disciplinary working	Desirable	Application
Skills and abilities		
Proven research skills in organic chemistry synthesis and characterisation	Essential	Application
Ability to undertake academic research	Essential	Application
Ability to organise own research activities to agreed deadlines and quality standards	Essential	Application
Ability to analyse and write up data	Essential	Application
Ability to present complex information effectively to a range of audiences	Essential	Application
Effective written and verbal communication skills in English	Essential	Application
Excellent organisational skills	Essential	Application/Interview
Ability to develop internal and external contacts in order to enhance knowledge and understanding and form relationships for future collaboration	Essential	Application/Interview
Ability to work as part of a team and also to work independently using own initiative	Essential	Application/Interview
Personal attributes		
A passion for conducting high quality research with impact	Essential	Interview
Ability to work collaboratively and proactively with colleagues in other work areas/institutions	Essential	Application/Interview
Self-motivated and able to act on own initiative	Essential	Application/Interview

Criteria	Essential or	Assessment method
	Desirable	(Application/Interview)
Interest in and enthusiasm for the project	Essential	Application/Interview
Ability to plan and prioritise own work in order to meet deadlines	Essential	Application/Interview
Commitment to personal development and updating of knowledge and skills	Essential	Application/Interview

### To apply:

Please upload the following with your application:

- A cover letter explaining your motivation for applying for the post, understanding of the research project, and previous research experience.
- A curriculum vitae setting out your educational qualifications as well as any additional scientific achievements and publications.
- Evidence of English proficiency for more details please see: <u>https://www.ucl.ac.uk/prospective-students/graduate/english-language-requirements</u>
- Copy of Bachelor's and Master's certificates (if available at the time of application).
- Copy of Bachelor's and Master's transcripts.
- Two letters of recommendation from researchers familiar with your academic activities, e.g. the advisor of your Master's thesis

#### **General Information**

#### Salary

Salary is between £35,159 and £46,759 gross per annum at the current rate of exchange. These figures are before employer and employee deductions, including tax, national insurance and pension contributions, subject to the pension choices of the appointee. The level of salary is also subject to the family status of the appointee as to whether they qualify for a family allowance, as well as whether the employee will make pension contributions. Due to potential future changes in the Euro/Pound Sterling exchange rate over the period of the appointment, where amendments are required, corrective payments will be made. Salaries are not subject to either cost-of-living adjustments or increment progression and are inclusive of £5,000 annual London Allowance.

#### **Equal Opportunities**

#### www.ucl.ac.uk/hr/docs/equal\_opportunity.pdf

The Department has been awarded a Silver Athena Swan Award and we support the Athena beliefs that:

- The advancement of science, engineering and technology (SET) is fundamental to quality of life across the globe.
- It is vitally important that women are adequately represented in what has traditionally been, and is still, a male-dominated area.
- Science cannot reach its full potential unless it can benefit from the talents of the whole population, and until women and men can benefit equally from the opportunities it affords.

Further information on Athena Swan is at http://www.athenaswan.org.uk/

## Apply

To apply for this position visit:

ucl.ac.uk/jobs

Search under Ref no: B04-05247