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| Job Description |  |
| Postdoctoral Research Associates in Organic Chemistry x2  | Grade: **UCL Grade 6B, salary £34,502 - £36,348\***\*(including London Allowance) 1.0 FTEOr UCL Grade 7, salary £38,308 - £46,155 \*\*(including London Allowance) 1.0 FTE*\* Where applicants have not been awarded a PhD appointment will be made at Research Assistant UCL Grade 6B. Where applicants are PhD candidates, appointment will be made at Research Assistant UCL Grade 6B and payment at UCL Grade 7 salary will be backdated to the date of submission of the PhD thesis (including corrections).**\*\*Appointment at Grade 7 (£38,308 - £46,155 including London Allowance £4,000) is dependent upon having been awarded a PhD.***Duration: These posts are available to begin before 01/04/2023 for a 3 year period in the first instance**  |
| Department: Chemistry  | Location: University College London, Christopher Ingold Building, 20 Gordon Street, London WC1H 0AJ  |

#### Reports to:

**LONDON’S GLOBAL UNIVERSITY**

ucl FACULTY OF MATHEMATICAL & PHYSICAL SCIENCES

DEPARTMENT OF CHEMISTRY

Professor Matthew Powner and Professor Tom Sheppard

#### Context

Applications are invited for two Post-Doctoral Research Associates (PDRAs) to work in the groups of Professors Matthew Powner and Tom Sheppard in the Department of Chemistry at University College London (UCL). The candidate will join a team of researchers addressing one of the most adventurous, yet important, questions being addressed by science (i.e. the origins of life), whilst simultaneously developing applications from the knowledge gained about chemical synthesis of biomolecules in water to the fields of synthetic and systems chemistry. The overall project goal is to explore the relationship between the chemical origins of life and robust catalytic procedures that are effective and synthetically valuable. Robust chemical reactions will be developed to explore the relationship between predisposed chemistry and the origins of life. The work will involve developing novel catalytic reactivity and exploiting nitrile reactivity, extending recently reported work from our groups including: *Nature Chem*. **14**, 766–774 (2022); *J. Am. Chem. Soc.* **144**, 10151–10155 (2022); *Science* **370**, 865-869 (2022); *Nature* **571**, 546–549 (2019); *Nature Chem.* **9**, 584–589 (2017)).

The successful applicants will join a highly motivated group working at the interface of organic and biological chemistry. The postholders will be required to carry out chemical research into the synthesis and function of biological and biomimetic molecules. The postholders will contribute to the design and implementation of research strategy, and provide full records, analyses and internal reports of all research outcomes.

The positions are funded by EPSRC for up to 36 months. The candidates will join a research collaboration led by Prof Powner’s research team in the Department of Chemistry at the Bloomsbury Campus of University College London. Information about the groups can be found at:

<https://pownerlab.com/>

<https://www.ucl.ac.uk/chemistry/people/matthew-powner>.

<http://www.tomsheppard.info/>

**The Chemistry Department**

The Chemistry Department at University College London is the oldest in England, and today is one of the best in the UK, being ranked 3rd in the UK for its world-leading research in 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 ~750 undergraduates registered in Chemistry as well as students who select Chemistry on the Natural Sciences programme and first year Chemistry for life scientists. The department also offers a number of Postgraduate Taught Masters courses with about 80 students per year and has an overall PGR student school of about 200 students.

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

The postholders will be required to develop new chemical reactions. The candidates must possess a strong background in organic synthesis and be able to work effectively and sociably within a team and have an interest in and knowledge of organic chemistry. Experience in synthesis and characterization are vital. The project will require chemical methods to be developed to exploit or design intrinsically controlled chemical and protecting-group-free synthesis. Practically applicable synthetic methods for synthesis of amides, peptides, nucleotides and nucleic acids synthesis and chemo-selective biomolecule derivatization. Identification of prebiotically plausible synthesis routes and the design, implantation and evaluation of Watson-Crick templated catalytic peptide ligation, and the development of novel (semi-)synthetic methods for preparing amides, peptides, and proteins. The goals of the project require a range of different chemistries; including catalyst synthesis and kinetic analysis, SP-nucleotide synthesis and ribozyme analysis, SP-peptide synthesis and aqueous peptide modification, and development of novel aqueous prebiotic reactions. The candidate will have a strong background in synthesis and reaction kinetics or nucleic acid chemistry or peptide chemistry. Characterisation of a wide range of organic compounds will be required. Experimental work will be carried out independently but also as part of a team of researchers based in the Chemistry Department. The postholder will be expected to supervise PhD and Masters students, assisting experimentally with their research projects, where necessary, and reading drafts of reports and papers, as well as managing lab safety.

**Key Requirements**

The successful candidates will have a PhD degree (or be about to be awarded a PhD) in an area of organic chemistry or a discipline related to organic chemistry. Experience with NMR techniques and organic synthesis are essential. Experience of peptide synthesis, nucleotide synthesis or organo-catalysis is desirable. The successful candidates will have a good publication track record and a demonstrated commitment to excellence. Excellent laboratory skills are required. The successful candidates will be required to work in a collaborative team and have effective written and verbal communication skills in English.

#### Duties and responsibilities:

* To contribute to the design of experiments, experimental set-ups and research themes.
* To design, synthesise, isolate and characterize novel organic compounds.
* To record, analyse and write up the results of the research in an accurate and timely manor.
* To manage, oversee and assist (both experimentally in the lab and in reading reports and paper drafts) PhD and Masters research students, including monitoring lab safety as required.
* To contribute to the drafting and submitting of papers to peer reviewed journals.
* To prepare progress reports on research as required.
* To prepare presentations or material for presentations to communicate research as required.
* To contribute to the preparation and drafting of research bids and proposals.
* To contribute to the overall activities of the research team and department as required.
* 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.
* To be responsible for ensuring that equipment is safe and maintained in working order.
* To be responsible for overseeing laboratory equipment and its maintenance.
* 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

#### General Information

**Terms & Conditions of Employment**

The post is either a UCL grade 6b (**£34,502 - £36,348)** **OR** grade 7 **(£38,308 to £ 46,155**) post, per annum (including London Allowance of £4,000 p.a.).

All posts that are based outside of London, for example at Harwell, will **not** have London Allowance included in the salary.

Please note, appointment at Grade 7 is dependent upon having been awarded a PhD; if this is not the case, initial appointment will be at Research Assistant Grade 6B (salary £34,502 to £36,348 per annum, including London Allowance of £4,000) with payment at Grade 7 being backdated to the date of final submission of the PhD thesis.

Progression through the salary scale is incremental. Cost of living pay awards are negotiated nationally and are normally effective from 1st August each year. UCL’s non-clinical pay and grading structure is at <http://www.ucl.ac.uk/hr/salary_scales/final_grades.php>.

UCL’s terms & conditions for research, teaching and professional services staff are at:

<https://www.ucl.ac.uk/human-resources/conditions-service-research-teaching-and-professional-services-staff>

The full range of benefits is at <http://www.ucl.ac.uk/hr/benefits/employee_benefits.php>

**General information for Overseas Applicants**

<https://www.ucl.ac.uk/human-resources/working-ucl/employment-contract-administration-team/immigration>

<https://www.ucl.ac.uk/human-resources/working-ucl/relocating-uk-guide>

**Equal Opportunities**

[www.ucl.ac.uk/hr/docs/equal\_opportunity.pdf](http://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/>

# Person specification – Research Fellow

| **Criteria** | **Essential or Desirable** | **Assessment Method (Application/ Interview)** |
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| **Qualifications, Experience and Knowledge**  |  |  |
| PhD (or about to be awarded a PhD) in Chemistry, Organic Chemistry, or a discipline related to organic synthesis | Essential | Application |
| Experience with organo-catalysis | Desirable | Application |
| Experience in peptide chemistry | Desirable | Application |
| Experience in nucleotide chemistry | Desirable | Application |
| Experience in kinetic analysis of organic reactions | Desirable | Application |
| Experience in 1H, 13C, multinuclear (e.g. 31P, 19F, 11B) NMR analysis of reactions | Essential | Application |
| Experience in characterisation techniques, including, for example IR, UV-vis. | Essential | Application |
| Experience in data analysis, using Origin, or similar software | Desirable | Application |
| Experience in organic chemistry and reaction development | Essential | Application/Interview |
| GCSE English Grade C or above (or equivalent, e.g. IELTS) | Essential | Application |
| Experience of working in a research environment | Essential | Application/Interview |
| Experience of multi-disciplinary working | Essential | Application/Interview |
| **Skills and Abilities**  |  |  |
| Proven research skills in organic chemistry synthesis and characterisation | Essential | Application |
| Proven skills in maintaining research/analytical equipment | Essential | Application |
| Ability to analyse and write up data | Essential | Application |
| Ability to present complex information effectively to a range of audiences | Essential | Interview |
| Effective written and verbal communication skills in English | Essential | Application and Interview  |
| Management of lab instrumentation | Desirable  | Application and Interview |
| **Personal Attributes**  |  |  |
| Commitment to high quality research | Essential | Interview |
| Interest in chemical origins of life | Essential | Interview  |
| Ability to work collaboratively and as part of a team | Essential | Application/Interview |
| Good publication record | Essential | Application |
| Excellent organisational skills | Essential | Application/Interview  |

**NOTE:** This job description reflects the present requirements of the post, and as duties and responsibilities change/develop, the job description will be reviewed and amended in consultation with the post-holder.

# Apply

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| To apply for this position visit:ucl.ac.uk/jobs |

**APPLICATIONS PROCEDURE**

Interview date to be confirmed.

**Enquiries / Visits**

Informal enquiries should be made to: Professor Matthew Powner (matthew.powner@ucl.ac.uk).

**Applications should be completed online** [**http://www.ucl.ac.uk/hr/jobs/**](http://www.ucl.ac.uk/hr/jobs/),

Any questions about the application process should be directed to: hr.chem@ucl.ac.uk