



### Project Title

Sustainable Photocatalytic and Light-Mediated Reactions for Organic Synthesis

A PhD studentship is available in the group of [Professor Ai-Lan Lee](#), University of Edinburgh; School of Chemistry.

The studentship is fully funded for 42 months by the University of Edinburgh and covers tuition fees and an annual stipend at the UKRI rate, for 2024-25 this is £19,237 per annum, for a candidate satisfying EPSRC residency criteria, see:

<https://www.ukri.org/councils/esrc/career-and-skills-development/funding-for-postgraduate-training/eligibility-for-studentship-funding/#contents-list>

### Project Summary

The Lee Group is recruiting a motivated PhD student to develop sustainable methodologies for photocatalytic and light-mediated reactions. In this project, we will develop photocatalytic and/or light-mediated strategies to develop various decarboxylative-functionalisation reactions from inexpensive, widely available and bench stable carboxylic acids as versatile radical precursors. In particular, we aim to develop practical reactions that will be suitable for pharmaceutical applications such as radiolabelling, late-stage functionalisations of drug molecules and natural products, and efficient synthesis of annulated heterocyclic scaffolds.

The project is ideal for a student who is passionate about improving sustainability in the field of synthetic organic chemistry. Training will be provided in modern synthetic organic chemistry techniques, including use of commercial photoreactors. There will also be opportunities to apply continuous flow chemistry in later stages of the project.

### References

- 1) "Direct C-H Amidation of 1,3-Azoles: Light-Mediated, Photosensitiser-Free vs. Thermal" D. T. Mooney, H. McKee, T. S. Batch, S. Drane, P. R. Moore and A.-L. Lee *Chem. Commun.* **2024**, *60*, 10752.
- 2) "Direct Decarboxylative Giese Amidations: Photocatalytic vs. Metal- and Light-Free" D. M. Kitcatt, K. A. Scott., E. Rongione, S. Nicolle and A.-L. Lee *Chem. Sci.*, **2023**, *14*, 9806.
- 3) "Direct Hydrodecarboxylation of Aliphatic Carboxylic Acids: Metal- and Light-Free" E. B. McLean, D. T. Mooney, D. J. Burns and A.-L. Lee *Org. Lett.*, **2022**, *24*, 686.
- 4) "Direct Decarboxylative Giese Reactions" D. M. Kitcatt, S. Nicolle and A.-L. Lee *Chem. Soc. Rev.*, **2022**, *51*, 1415.

### How to Apply

Applicants should hold, or be on track to attain, a 1<sup>st</sup> or 2:1 MChem/MSci qualification in chemistry.

In the first instance, the initial application of cover letter and CV should be directed to:  
Prof. Ai-Lan Lee, School of Chemistry, University of Edinburgh, David Brewster Road, Edinburgh EH9 3FJ, UK. Email: [alee8@ed.ac.uk](mailto:alee8@ed.ac.uk)

The position will remain open until filled; prompt applications are encouraged. A closing date may be added at a later date.

**IMPORTANT**

Before Submitting your cover letter and CV, please complete the online [School of Chemistry Equality, Diversity and Inclusion Form, entry 2025-26](#).

The form will automatically generate a unique 'Response ID number' that you must include in your cover letter.

**Equality and Diversity**

The School of Chemistry holds a Silver Athena SWAN award in recognition of our commitment to advance gender equality in higher education. The University is a member of the Race Equality Charter and is a Stonewall Scotland Diversity Champion, actively promoting LGBT equality.

The University has a range of initiatives to support a family friendly working environment. For further information, please see our University Initiatives website: <https://equality-diversity.ed.ac.uk/inclusion/family-and-carer>