

ANDREW McNALLY, Ph.D.

Address:

Department of Chemistry
Colorado State University
Fort Collins, CO 80523

Email: Andy.McNally@colostate.edu

Nationality: British

Website: <http://www.mcnallygroup.org>

EDUCATION:

BA & MSci. Degree 2003 University of Cambridge

Ph.D. Degree 2007 University of Cambridge

RESEARCH AND PROFESSIONAL EXPERIENCE:

- November 2020 to present **Colorado State University**
Albert I. Meyers Chair in Organic Chemistry
- July 2020 to present **Colorado State University**
Associate Professor, Department of Chemistry
- August 2014-June 2020 **University of Cambridge**
Assistant Professor, Department of Chemistry
- 2011 to June 2014 **University of Cambridge**
Senior Post-Doctoral Researcher
Supervisor: Dr. Matthew J. Gaunt
- 2007 to 2011 **Princeton University**
Visiting Research Associate
Marie-Curie International Outgoing Research Fellowship:
Supervisor: Professor David W. C. MacMillan
- 2003 – 2007 **University of Cambridge**
Development of New Organocatalytic Reactions.
Supervisor: Dr Matthew. J. Gaunt.
- 1999 to 2003 **University of Cambridge** B.A & M.Sci. Natural Sciences. 1st Class
Hons.
Supervisor: Dr Ian Paterson.
- 2002 July – October **Syngenta** (Jealott's Hill Research Park, Bracknell, UK). Summer internship.
Investigations into ligand-protein binding affinities using NMR spectroscopy.
-

PUBLICATION LIST

1. Halogenation of the 3-position of pyridines through Zincke imine intermediates: B. T. Boyle,* J. N. Levy,* L. D. Lescure, R. S. Paton, A. McNally. *Science*, **2022**, 378, 773.
2. Phosphorus-Mediated sp^2 - sp^3 Couplings for Selective C–H Fluoroalkylation of Complex Azines: X. Zhang*, K. G. Nottingham*, C. Patel, J. V. Alegre-Requena, J. N. Levy, R. S. Paton, A. McNally, *Nature*, **2021**, 594, 217.
3. 4-Selective Pyridine Alkylation via Wittig Olefination of Dearomatized Pyridylphosphonium Ylides: P. J. Fricke, R. D. Dolewski, A. McNally, *Angew. Chem. Int. Ed.*, **2021**, 60, 1.
4. Pyridylphosphonium Salts as Alternatives to Cyanopyridines in Radical-Radical Coupling Reactions: J. W. Greenwood, B. T. Boyle, A. McNally, *Chem. Sci.*, **2021**, 12, 10538.

5. Facile Pyridine S_NAr Reactions via *N*-Phosphonium-Pyridinium Intermediates: Boyle, B. T.; Koniarczyk, J. L.; McNally, A. *Synlett*, **2021**, 32, 215
6. Selective Halogenation of Pyridines Using Designed Phosphine Reagents: Levy, J. N.; Liu, R.; McNally, A.* *J. Am. Chem. Soc.* **2020**, 142, 11295-11305.
7. A Pyridine-Pyridine Cross-Coupling Reaction via Phosphonium Radical Ylides: Koniarczyk, J. L.; Greenwood, J. W.; Alegre-Requena, J. V.; Paton, R. S.*; McNally, A.* *Angew. Chem. Int. Ed.* **2019**, 58, 14882-14886.
8. Non-Symmetrical Bis-Azine Biaryls from Chloroazines: A Strategy Using Phosphorus Ligand-Coupling: Boyle, B. T.; Hilton, M. C.; McNally, A.* *J. Am. Chem. Soc.* **2019**, 141, 15441-15449.
9. Cobalt-Catalyzed Alkylation of Drug-Like Molecules and Pharmaceuticals Using Heterocyclic Phosphonium Salts: Zhang, X.; McNally, A. *ACS Catal.* **2019**, 9, 4862-4866.
10. Heterobiaryl Synthesis by Contractive C–C Coupling via P(V) Intermediates. Hilton, M. C.; Zhang, X.; Boyle, B. T.; Alegre-Requena, J. V.; Paton, R. S.*; McNally, A.* *Science* **2018**, 362, 799-804.
This paper was selected as one of the four biggest chemistry advances in 2018 by Jake Yeston, Science editor (see <https://twitter.com/cenmag/status/1070019522579623937>).
11. A Unified Approach to Couple Aromatic Heteronucleophiles to Azines and Pharmaceuticals: Anderson, R. G.; Jett, B. M.; McNally, A.* *Angew. Chem. Int. Ed.* **2018**, 57, 12514-12518.
12. Site-Selective Switching Strategies to Functionalize Polyazines: Dolewski, R. D.; Fricke, P. J.; McNally, A.* *J. Am. Chem. Soc.* **2018**, 140, 8020-8026.
13. A Strategy to Aminate Pyridines, Diazines and Pharmaceuticals via Heterocyclic Phosphonium Salts: Patel, C.; Mohnike, M.; Hilton, M. C.; McNally, A.* *Org. Lett.* **2018**, 20, 2607-2610.
14. A General Strategy for Site-Selective Incorporation of Deuterium and Tritium into Pyridines, Diazines and Pharmaceuticals: Koniarczyk, J. L.; Hesk, D.; Overgard, A.; Davies, I. W.; McNally, A.* *J. Am. Chem. Soc.* **2018**, 140, 1990-1993.
15. Synthesis of Biotinylated Diazinon: Lessons Learned from Biotinylation of Thiophosphate Esters: Nottingham, K. G.; McNally, A.*; McNaughton, B. R.* *Tetrahedron Lett.* **2018**, 59, 234-237.
16. Selective Formation of Heteroaryl Thioethers via a Phosphonium Ion Coupling Reaction. Anderson, R. G.; Jett, B. M.; McNally, A.* *Tetrahedron* **2018**, 74, 3129-3136.
17. 4-Selective Pyridine Functionalization Reactions via Heterocyclic Phosphonium Salts: Dolewski, R. D.; Hilton, M. C.; McNally, A.* *Synlett* **2018**, 29, 8-14.
18. Phosphonium Salts as Pseudohalides: Regioselective Nickel-Catalyzed Cross-Coupling of Complex Pyridines and Diazines: Zhang, X.; McNally, A.* *Angew. Chem. Int. Ed.* **2017**, 56, 9833-9836.
19. Selective Functionalization of Pyridines via Heterocyclic Phosphonium Salts: Hilton, M. C.; Dolewski, R. D.; McNally, A.* *J. Am. Chem. Soc.* **2016**, 138, 13806-13809.
20. Stereoselective Synthesis: Molecular Editing of Carbohydrates. McNally, A.* *Nature Chemistry* **2015**, 7, 539-541.

Prior to CSU

21. Palladium-Catalyzed C–H Activation of Aliphatic Amines to Give Strained Nitrogen Heterocycles: McNally, A.; Haffemeyer, B.; Collins, B. S. L. *Nature* **2014**, *510*, 129-133.
 22. Organocatalytic C–H Bond Arylation of Aldehydes to Bis-Heteroaryl Ketones: Toh, Q-Y.; McNally, A.; Vera, S.; Erdmann, N.; Gaunt, M. J. *J. Am. Chem. Soc.* **2013**, *135*, 3772-3775.
 23. Discovery of an α -Amino C–H Arylation Reaction Using the Strategy of Accelerated Serendipity: McNally, A.; Prier, C. K.; MacMillan D. W. C. *Science* **2011**, *334*, 1114-1117.
 24. Enantioselective Organocatalysis: Gaunt, M. J; Johansson, C. C. C; McNally, A; Vo, N.T. *Drug Discov. Today* **2007**, *2*, 8-27.
 25. Organocatalytic Sigmatropic Reactions: Development of a [2,3]-Wittig Rearrangement via Secondary Amine Catalysis: McNally, A.; Evans, B.; Gaunt, M. J. *Angew. Chem. Int. Ed.* **2006**, *45*, 2116-2119.
-

PUBLIC PRESENTATIONS (*denotes contributed rather than invited)

2023 March	The University of Oxford – UK
2023 March	Inaugural Pharmaron Lectureship, University of Cambridge – UK
2023 March	The University of Liverpool – UK
2023 March	ICIQ – Tarragona, Spain
2023 March	Fresenius Award Symposium in Honor of Todd Hyster – ACS, Indianapolis
2023 January	Corteva – Indianapolis
2023 January	Eli Lilly – Indianapolis
2023 January	IUPIU – Indianapolis
2022 September	The University of Texas at San Antonio
2022 September	28th International Society of Heterocyclic Chemistry Congress – Santa Barbara, CA
2022 April	Cornell University
2022 April	UCLA
2022 March	ACS PRF 65 th Anniversary Symposium – San Deigo, CA.
2022 March	Bristol Myers Squibb – Cambridge, MA. Virtual Seminar.
2022 February	15 th Winter Conference on Medicinal and Bioorganic Chemistry – Steamboat, Colorado
2021 December	1 st Winter In Person Organic Symposium (WIPOS), Hawai
2021 October	University of Chicago
2021 September	The Philadelphia Organic Chemistry Club (POCC)
2021 September	Eli Lilly Grantee Award Symposium
2021 June	Vertex Pharmaceuticals
2021 February	Third Rock Ventures – Boston.
2020 October	University of Wisconsin – Madison
2020 October	UCB Biopharma
2019 October	Amgen Young Investigator Award Symposium
2019 September	University of Minnesota – Student Invited Speaker
2019 August	Young Academic Investigators Symposium at the San Diego ACS Meeting
2019 July	Janssen Pharmaceuticals – La Jolla, San Diego
2019 July	EuChemS Young Investigator Workshop – Vienna, Austria (<i>Selected by the ACS as one of two researchers from USA</i>)
2019 April	4 th Genentech Graduate Student Symposium (<i>Keynote Speaker</i>) – South San Francisco
2019 April	Columbia University – Young Faces of Chemistry Lecture
2019 April	Michigan University – Ann Arbor

2019 April	Delaware University
2019 April	New York University
2019 March	University of North Carolina – Chapel Hill
2019 March	Emory University
2019 February	Bristol-Myers Squibb Organic Chemistry Seminar – New Brunswick, NJ, Process Chemistry Site.
2019 February	Bristol-Myers Squibb Organic Chemistry Seminar – Lawrenceville, NJ, Discovery Chemistry Site.
2019 January	Binghamton University
2019 January	Boston College
2019 January	MIT – Student Invited Seminar Speaker
2019 January	Astra Zeneca Organic Chemistry Seminar – Boston, MA
2018 December	Abbvie Organic Chemistry Seminar and consulting visit
2018 November	University of Pennsylvania
2018 November	Bristol-Myers Squibb Organic Chemistry Symposium, Princeton University (<i>Keynote Speaker</i>)
2018 October	Amgen Organic Chemistry Seminar and consulting visit – Amgen, Thousand Oaks, CA
2018 October	University of Rochester
2018 September	Gilead / U. Washington Organic Chemistry Seminar
2018 July	Eli Lilly Young Investigator Summer Seminar Series (Invited Lecture)
2018 May	Canadian Society of Chemistry Meeting - Edmonton
2018 April	Indiana University - Novartis Chemical Science Lectureship
2018 March	Florida Heterocycles Conference
2018 March	ACS New Orleans – Somorjai Award Symposium
	ACS New Orleans – Green Chemistry Institute Roundtable Symposium
2018 January	CU Boulder
2017 October	ACS Rocky Mountain Regional Meeting, Catalysis and Green Chemistry Symposium
2017 October	Denver University
2017 June	Heterocycles GRC, Salve Regina University
2017 May	Canadian Society of Chemistry Meeting - Toronto
2017 April	ACS National Meeting San Francisco, California*
2016 August	ACS Young Talent in Colorado Symposium

AWARDS

Sloan Research Fellowship 2020.

Eli Lilly Young Investigator Award 2019.

Amgen Young Investigator Award, 2019.

Thieme Chemistry Journal Award, 2014.

NSF CAREER Award, 2018.

TEACHING EXPERIENCE

University of Cambridge: *Undergraduate chemistry supervisor (current role).* All ranges of undergraduate from first year to final year chemistry courses. *Undergraduate lab demonstrator.* Teaching of basic through to advanced practical techniques. *Final year project supervisor.* Invention, management and day-to-day supervision of undergraduate students (three individual cases) during final year project work. *Laboratory head of class.* Responsible staff member for undergraduate lab teaching includes grading and assessment of student lab coursework.

Princeton University: *Project management and mentorship.* Supervision and project management of graduate students. *Introductory lecture course for undergraduates.* Outline of research level organic synthesis for final year undergraduates and prospective graduate students.

Colorado State University: *Chem 545 – Synthetic Organic Chemistry I.* Graduate synthesis class encompassing modern aspects of organic chemistry including basic synthetic strategies, new synthetic methods, stereoselective synthesis, pericyclic reactions and asymmetric catalysis.

Chem 480A2 – Medicinal Chemistry
Chem 346 – Organic Chemistry II (Majors and honors class).
Chem 343 – Organic Chemistry II (Non majors).

CURRENT STUDENTS

Year 1 – Kaila Steenback, James Klinkenberg, David Thomas

Year 2 – Amanda Melanese, Jake Selingo.

Year 3 – Marie Anderson, Ben Uhlenbruck, Dane Brunner

Year 4 – Louis DeLescure, Celena Josephetis, Hillary Nguyen.

Postdoctoral researchers: Mary K. Andrews

FORMER STUDENTS

Jake Greenwood, Jeff Levy, Chirag Patel, Patrick Fricke, Ben Boyle, Kyle Nottingham, Michael Hilton (defense August 2018), Ryan Dolewski, Luke Koniarczyk (defense October 2018) *Undergraduates* – Brianna Jett (attending graduate school FA 2019 – University of Michigan), Margaret Mohnike. (attending graduate school FA 2019 – Colorado State University) Emily Li (attending dental school FA 2019 – University of Denver)

Postdoctoral Researchers – Ben Jones, Xuan Zhang, Renrong Liu.

Masters Students. Ryan Anderson (Vast Therapeutics, North Carolina), Alix Overgard.

REU Students. Ben Sigmon (Washington College), Natalie Givens (Bates College).

GRANT FUNDING

Sloan Research Fellowship.

Eli Lilly Young Investigator Award.

Amgen Young Investigator Award.

NIH R01 – 12/01/2021- 11/30/2025. A New General Strategy for Pyridine Functionalization via Dearomatized Intermediates.

NIH R01 – 1/1/2018-11/30/2022. Selective Functionalization of Pyridines and Diazines via Heterocyclic Phosphonium Salts.

NSF GOALI – 9/1/2022-8/31/2025. A General Strategy for Piperidine Synthesis Using Zincke Imine Intermediates.

NSF CAREER – 5/1/2018-4/30/23. New Methods to Functionalize Pyridines and Diazines.

ACS Petroleum Research Fund Doctoral New Investigator Grant (DNI) – 9/1/2016-8/31/2018. A New Class of Reagents for Heterocycle Coupling Reactions.

DEPARTMENTAL SERVICE

Graduate Admissions Committee (2014 to present).

Graduate Admissions Committee Chair (2019 to present).

Communications Committee (2015 to present).

Undergraduate Advising Committee (2015-2018).

Organic Sector Seminar Coordinator (2014-2018).

EXTERNAL SERVICE

Reviewer for *Science*, *Nature Chemistry*, *J. Am. Chem. Soc.*, *Angewandte Chemie*, *Cell Chem*, *Organic Letters*, *Journal of Organic Chemistry*, *ACS Catalysis*, *Chemical Reviews*, *Tetrahedron Letters*, *Synlett*, *Synthesis*.

Ad Hoc Committee Member – NIH SBCA Study Section October 2018.

Ad Hoc Committee Member – NSF CAREER Panel (CAT) November 2018 and NSF CAREER Panel (SYNTH) November 2021.