DAVID C. MILLER

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Employment

Oklahoma State University — Stillwater, OK, USA
Assistant Professor, Department of Chemistry — 2022 – Present

California Institute of Technology — Pasadena, CA, USA
Ruth L. Kirschstein NRSA Postdoctoral Fellow — 2018 – 2022
Adviser: Frances H. Arnold

Education

Princeton University – Ph.D. (Chemistry) — Princeton, NJ, USA
Adviser: Robert R. Knowles — 2013 – 2018

Johns Hopkins University – B.A. with Honors (Chemistry) — Baltimore, MD, USA
Advisers: Thomas C. Lectka and Tyrel M. McQueen — 2009 – 2012

Awards and Honors

Arts and Sciences Research Program, Summer Salary Award	2024
NIH Ruth L. Kirschstein NRSA Postdoctoral Fellowship	2018
Arthur A. Patchett '51 Graduate Fellowship in Chemistry	2017
Bristol Myers Squibb Graduate Research Fellowship	2016
Chemistry Department Citation for Academic Excellence (Princeton University)	2014
Chemistry Departmental Honors (Johns Hopkins University)	2012
General University Honors (Johns Hopkins University)	2012

Presentations and Conferences

Arnold Lab 35th Reunion Symposium (Attendee)	2026
Gordon Research Conference: Heterocycles (Poster)	2026
ACS Pentasectional Meeting, Pittsburg State University	2026
Florida Heterocycles (FloHet)	2026

Oklahoma State University, Student ACS Chapter	2022
Caltech Center for Molecular and Cellular Medicine	2021
Bristol Myers Squibb Research Symposium	2016
Gordon Research Conference: Heterocycles (Poster)	2016

Teaching and Mentorship

CHEM 6420 – Medicinal Organic Chemistry	F26
CHEM 4313 – Medicinal Organic Chemistry	F26
CHEM 3053 – Organic Chemistry I	F22, F23, F24, F25
CHEM 5063 – Foundations of Organic Chemistry	S23, S25, S26
CHEM 4990 – Special Problems in Chemistry	F23 – Present
CHEM 2890 – Chemical Demonstrations	S25
CHEM 3890 – Contemporary Issues in Chemistry and Biochemistry	F23

Current Graduate Students

Yashodha Aluth Gedara (5th Year Student)
William Jones III (5th Year Student)
Robert A. Myers (5th Year Student)
Pratap Rijal (4th Year Student)
Esther Appau (2nd Year Student)

Current Undergraduate Students

Mackenzie Armstrong
Milani Bankston (REU Student)
Beau Thompson
Sarah Wiese
Nathan Woods

Former Undergraduate Students

Nicholas "DM" York (OSU '25)
Noah B. Smith (OSU '24)
Menley C. Westhoff (OSU '24)

Professional Activities and Memberships

Member: NIH F04A Fellowship Panel (Biochemistry and Biophysics A)	May 2026
Member: NIH F04A Fellowship Panel (Biochemistry and Biophysics A)	May 2025
Temporary Member/Early Career Reviewer: NIH, CSB Study Section	2024
Member: American Chemical Society	2012 – Present

Reviewer: *Journal of the American Chemical Society, Journal of Organic Chemistry, Chem, Accounts of Chemical Research, ACS Catalysis, New Journal of Chemistry, Chemical Science*
Proposal Reviewer: *ACS Petroleum Research Fund, Elsevier Acquisitions*

Publications

15. Jones, W.R.; Myers, R.A.; Aluth Gedara, Y.; Woods, N.D.; Borin, V.A.; Miller, D.C. Biocatalytic, Enantioselective Oxa-Pictet-Spengler Reactions for the Asymmetric Synthesis of Tetrahydropyranoindoles. *ChemRxiv*, **2026**,
DOI: 10.26434/chemrxiv.15005708/v1

14. Miller, D.C.; Lal, R.G.; Marchetti, L.A.; Arnold, F.H. Biocatalytic One-Carbon Ring Expansion of Aziridines to Azetidines via a Highly Enantioselective [1,2]-Stevens Rearrangement. *J. Am. Chem. Soc.* **2022**, *144*, 4739. DOI:10.1021/jacs.2c00251

13. Miller, D.C.; Athavale, S.V.; Arnold, F.H. Combining chemistry and protein engineering for new-to-nature biocatalysis. *Nature Synthesis*, **2022**, *1*, 18. DOI:10.1038/s44160-021-00008-x

12. Miller, D.C.; Ganley, J.M.; Musacchio, A.J.; Sherwood, T.C.; Ewing, W.R.; Knowles, R.R. Anti-Markovnikov Hydroamination of Unactivated Alkenes with Primary Amines. *J. Am. Chem. Soc.* **2019**, *141*, 16590.
DOI: 10.1021/jacs.9b08746

11. Brandenberg, O.F.; Miller, D.C.; Markel, U.; Chaib, A.O.; Arnold, F.H. Engineering Chemoselectivity in Hemoprotein-Catalyzed Indole Amidation. *ACS Catal.* **2019**, *9*, 8271.
DOI: 10.1021/acscatal.9b02508

10. Biegasiewicz, K.F.; Cooper, S.J.; Emmanuel, M.A.; Miller, D.C.; Hyster, T.K. Catalytic promiscuity enabled by photoredox catalysis in nicotinamide-dependent oxidoreductases. *Nature Chemistry*, **2018**, *10*, 770.
DOI: 10.1038/s41557-018-0059-y

09. Choi, G.J.; Zhu, Q.; Miller, D.C.; Gu, C.J.; Knowles, R.R. Catalytic alkylation of remote C–H bonds enabled by proton-coupled electron transfer. *Nature*, **2016**, *539*, 268.
DOI: 10.1038/nature19811

08. Miller, D.C.; Tarantino, K.T.; Knowles, R.R. Proton-Coupled Electron Transfer in Organic Synthesis: Fundamentals, Applications, and Opportunities. *Top Curr. Chem.* **2016**, *374*, 30.
DOI: 10.1007/s41061-016-0030-6

07. Miller, D.C.; Choi, G.J.; Orbe, H.S.; Knowles, R.R. Catalytic Olefin Hydroamidation Enabled by Proton Coupled Electron Transfer. *J. Am. Chem. Soc.* **2015**, *137*, 13492.

DOI: 10.1021/jacs.5b09671

06. Tarantino, K.T.; Miller, D.C.; Callon, T.A.; Knowles, R.R. Bond-Weakening Catalysis: Conjugate Aminations Enabled by the Soft Homolysis of Strong N-H Bonds. *J. Am. Chem. Soc.* **2015**, *137*, 6640.
DOI: 10.1021/jacs.5b03428

05. Cottingham, P.; Miller, D.C.; Sheckelton, J.P.; Feyenson, M.; Hug, A.; McQueen, T.M. Dynamic Charge Disproportionation in the 1D Chain Material PdTeI. *J. Mater. Chem. C*, **2014**, *2*, 3238.
DOI: 10.1039/C3TC32051K

04. Bloom, S.P., Pitts, C.R., Miller, D.C., Haselton, N.; Holl, M.G., Urheim, E.; Lectka, T. A Polycomponent Metal-Catalyzed Aliphatic, Allylic, and Benzylic Fluorination. *Angew. Chem. Int. Ed.* **2012**, *51*, 10580.
DOI: 10.1002/anie.201203642

03. Erb, J.; Strull, J.; *Miller, D.*; He, J.; Lectka, T. The Diels-Alder Cyclization of Ketenimines. *Org. Lett.* **2012**, *14*, 2191.
DOI: 10.1021/ol300742t

02. Caron J.M.; Neilson J.R.; Miller, D.C.; Arpino K.; Llobet, A.; McQueen T.M. Orbital Selective Magnetism in the Spin-Ladder Iron Selenides $Ba_{1-x}KFe_2Se_3$ *Phys. Rev. B*, **2012**, *85*, 180405.
DOI: 10.1103/PhysRevB.85.180405

01. Caron, J.M.; Neilson J.R., Miller, D.C.; Llobet, A.; McQueen, T.M. Iron Displacements in the Antiferromagnetic Spin-Ladder Compound $BaFe_2Se_3$. *Phys. Rev. B*, **2011**, *84*, 180409.
DOI: 10.1103/PhysRevB.84.180409