

ADAM J. COOK

adamcook@stanford.edu | personal website: www.thechempire.com | palo alto, ca. usa.

RESEARCH INTERESTS AND INDEPENDENT PROGRAM

Research Interests: Synthetic chemistry, organometallic catalysis, high-throughput experimentation, chemical biology, drug delivery, lipid nanoparticles, RNA therapeutics and translational molecular design. My independent program will develop chemistry-driven platforms for targeted therapeutics including antibody-catalyst conjugates, ionizable lipid delivery systems and RNA-drug conjugates, emphasizing high-throughput chemistry, earth-abundant catalysis, electrocatalysis and function-oriented molecular design.

EDUCATION AND WORK EXPERIENCE

2026 – Present	Assistant Professor , Virginia Commonwealth University
2024 – 2026	Banting Postdoctoral Research Fellow , Stanford University <i>Project title:</i> Design of drugs and drug delivery systems for HIV eradication and improved cancer immunotherapy; <i>Supervisor:</i> Prof. Paul Wender
2023	Visiting Researcher , Cornell University <i>Project title:</i> Activation of aliphatic alcohols using high-throughput electrocatalysis; <i>Supervisor:</i> Prof. Song Lin
2019 – 2024	PhD, Organic Chemistry . Centre for Catalysis Research and Innovation, University of Ottawa <i>Thesis title:</i> Expanding the scope of nickel catalyzed carbon-oxygen bond activation; <i>Supervisor:</i> Prof. Stephen Newman
2016	Visiting Researcher , Cardiff University <i>Project title:</i> Exploring Lewis acid catalysis; <i>Supervisor:</i> Prof. Rebecca Melen
2013 – 2017	BSc (Hons), Pharmaceutical Chemistry . OntarioTech University (formerly UOIT) <i>Thesis title:</i> Reduction of benzhydrols with diethyl ether under mild acidic conditions; <i>Supervisor:</i> Prof. Yuri Bolshan

ACADEMIC HONOURS AND AWARDS

2025	Canadian Institute of Health Research Travel Award; \$5000 CAD to attend the 74 th Lindau Nobel Laureates Meeting
2025	CCUCC Chemistry Doctoral Award; \$2000 CAD
2024 – 2026	Banting Postdoctoral Fellowship; \$140,000 CAD
2021 – 2024	NSERC Alexander Graham Bell Canadian Graduate Scholarship; \$105,000 CAD
2024	uOttawa Faculty of Science Denis Vezina Award for Research Excellence; \$3500 CAD
2023	uOttawa Department of Chemistry Tony Durst Award for Research Excellence
2023	Michael-Smith Foreign Study Supplement; \$6000 CAD to study at Cornell University

2022	University of Ottawa Certificate in University Teaching
2021	NSERC Postgraduate Scholarship; \$63,000 CAD
2021	Ontario Graduate Scholarship; \$15,000 CAD. <i>Declined in favour of PGS-D scholarship</i>
2019	Tito Scaiano Scholarship; \$6000 CAD
2016	Queen Elizabeth II Diamond Jubilee (QEIIDJ) Scholarship; \$6000 CAD
2016	UOIT STAR Award; \$6000 CAD. <i>Declined in favour of QEIIDJ scholarship</i>

PUBLICATIONS

10. Cook, A.; Yadav, P. K.; Wender, P. A. Circular RNA delivery in vitro and in vivo using doubly-branched aminoethoxy-functionalized ionizable lipid nanoparticles. **2026**. [*Manuscript Submitted; ja-2026-14175g*].
9. Ives, R. A.; Azulay, D. N.; Cook, A.; Dagar, M.; Fansher, D. J.; Keshari, R.; Ojha, A. A.; Patel, S.; Sandoval-Pauker, C.; Sanghai, N.; Trinh, B. K.; Yadav, V.; Zheng, Z. Reconsidering Excellence in the Chemical Sciences: Lessons from First-Generation Chemists. **2026**. [*In revision; oc-2026-00822a*].
8. Cook, A.; Kassymbek, A.; Vaezghaemi, A.; Barbary, C.; Newman, S. G. An S_N1 -approach to cross-coupling: Deoxygenative arylation facilitated by the β -silicon effect. *J. Am. Chem. Soc.* **2024**, *146*, 19929–19938.
- Highlighted in *Synfacts* (10.1055/s-0043-1775100)
- Highlighted in *OPRD* (10.1021/acs.oprd.4c00352)
7. Cook, A.; Newman, S. G. Alcohols as Substrates in Transition-Metal-Catalyzed Arylation, Alkylation and Related Reactions. *Chem. Rev.* **2024**, *124*, 6078–6144
6. Cook, A.; St. Onge, P.; Newman, S. G. Deoxygenative Suzuki-Miyaura Arylation of Tertiary Alcohols through Silyl Ethers. *Nature Synthesis*, **2023**, *2*, 663–669.
- Highlighted in *Synform* (10.1055/s-0040-1720618)
5. Cook, A.; Bezaire, M.; Newman, S. G. Nickel-Catalyzed Desulfonylative Olefination of β -Hydroxysulfones. *Org. Chem. Front.* **2023**, *10*, 1399–1404.
4. St. Onge, P.; Khan, S. I.; Cook, A.; Newman, S. G. Reductive Cleavage of $C(sp^2)$ - CF_3 Bonds in Trifluoromethylpyridines. *Org. Lett.* **2023**, *25*, 1030–1034.
- Highlighted in *OPRD* (10.1021/acs.oprd.3c00103)
3. Cook, A.; MacLean, H.; St. Onge, P.; Newman, S. G. Nickel-Catalyzed Reductive Deoxygenation of Diverse C–O Bond Bearing Species. *ACS Catal.*, **2021**, *11*, 13337–13347.
2. Cook, A.; Clement, R.; Newman, S. G. Reaction Screening in Multiwell Plates: High-Throughput Optimization of a Buchwald-Hartwig Amination. *Nature Protocols* **2021**, *16*, 1152–1169.
1. Cook, A.; Prakash, S.; Zheng, Y. -L.; Newman, S. G. Exhaustive Reduction of Esters Enabled by Nickel Catalysis. *J. Am. Chem. Soc.* **2020**, *142*, 8109–8115.
- Highlighted in *ChemistryViews*

CONFERENCES ATTENDED

2026	10 th Annual Stanford Drug Discovery Symposium
2026	Stanford Medicine CAR-T, Blood and Marrow Transplantation Symposium
2025	74 th Lindau Nobel Laureates Meeting, Lindau, Germany.

2025	108 th Canadian Chemistry Conference and Exhibition, Ottawa, ON. [invited presentation]
2023	33 rd Quebec and Ontario Mini-Symposium in Bioorganic and Organic Chemistry, Concordia University, Montreal, QC. [poster presentation: awarded CIC prize]
2023	21 st International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis (OMCOS), Vancouver, BC. [poster presentation: awarded Gold Medal prize]
2023	106 th Canadian Chemistry Conference and Exhibition, Vancouver, BC. [oral presentation awarded RSC Discovery prize]
2023	Ottawa-Carleton Chemistry Institute Day, Ottawa, ON. [oral presentation: awarded first prize]
2022	Quebec-Ontario Physical Organic Chemistry Mini-Symposium, Royal Military College of Canada, Kingston, ON. [oral presentation: awarded first prize]
2022	32 nd Quebec and Ontario Mini-Symposium in Bioorganic and Organic Chemistry, McMaster University, Hamilton, ON. [oral presentation: awarded first prize]
2022	105 th Canadian Chemistry Conference and Exhibition, Calgary, AB. [oral and poster presentations]
2022	Ottawa-Carleton Chemistry Institute Day, Ottawa, ON. [oral presentation: awarded first prize]
2021	24 th Annual Chemistry and Biochemistry Graduate Research Conference, Concordia University, Montreal, QC. [oral presentation: awarded first prize]
2021	51 st IUPAC General Assembly and 104 th Canadian Chemistry Conference and Exhibition, Montreal, QC. [oral presentation: awarded first prize ; ChemiSTEAM “Art in Chemistry” competition: awarded first prize]
2021	Ottawa-Carleton Chemistry Institute Day, Ottawa, ON. [oral presentation: awarded first prize]
2020	Quebec-Ontario Physical Organic Mini-Symposium, Royal Military College of Canada, Kingston/virtual, ON. [oral presentation: awarded first prize]

RESEARCH AND WORK EXPERIENCE

2024 – Present	Banting Postdoctoral Fellow, Department of Chemistry, Stanford University - Under the supervision of Prof. Paul Wender - Works in an interdisciplinary lab on projects ranging from the total synthesis of complex molecules to drug delivery, all towards developing improved therapeutic interventions for medical challenges such as cancer immunotherapy, HIV/AIDS eradication, and the treatment of neurological disease. - Led projects developing novel drug delivery systems and novel classes of protein kinase C (PKC) modulators, assessed PKC activity and drug delivery efficacy through <i>in vitro</i> cell- and non-cell-based assays. - Developed group website, organized group meetings and events, supervised inventory
----------------	---

- 2023 **Research Intern**, Baker Research Laboratories, Cornell University
- Under the supervision of [Prof. Song Lin](#)
 - Worked in a large synthetic chemistry laboratory on projects concerning the development of electrocatalytic methods for non-activated alcohol activation.
 - Gained experience using cyclic voltammetry, ElectraSyn 2.0 and high-throughput electrochemical technologies.
- 2019 – 2024 **PhD Candidate**, Centre for Catalysis Research and Innovation, uOttawa
- Under the supervision of [Prof. Stephen Newman](#)
 - Worked in a homogeneous catalysis-oriented chemistry laboratory on projects concerning the development of novel nickel catalyzed reactions for the activation of carbon-oxygen bonds.
 - Active use of the Centre for Catalysis Research and Innovation lab – one of only a handful of multi-million dollar high-throughput experimentation academic labs in North America. Strong expertise in high-throughput chemical techniques.
 - Key responsibilities included preventative maintenance and utilization of ESI-MS, Combiflash automated column chromatography instrument. Also acted as the group social and organizational leader.
- 2017 – 2018 **Fluid Analysis Chemist**, Scheduled Oil Services Laboratory, Toromont CAT
- Under the supervision of [Simon Jin](#)
 - Worked in an ISO 9001 certified chemistry laboratory analyzing various types of fluids (oils, coolants, fuels) coming from customers in the mining, agriculture, automotive, power systems, transportation and general construction industries.
 - Responsibilities included active maintenance and use of FTIR, ICP-OES, GC, dilution and particle counting technologies, while also conducting other analyses (viscosity, refractive index, titrations).
 - Other activities included standard preparation, quality control, sample preparation and disposal according to environmental regulations.
- 2016 – 2017 **Undergraduate Thesis Student**, Faculty of Science, UOIT.
- Under the supervision of [Prof. Yuri Bolshan](#)
 - Worked in a synthetic organic chemistry laboratory on a project concerning the Bronsted-acid catalyzed reduction of alcohols. Optimized the reaction, elucidated its mechanism, synthesized and characterized 24 compounds.
 - Responsible for active quality assurance and maintenance of lab instruments including rotary evaporators, vacuum pumps and purification systems. Also responsible for keeping track of inventory (scientific supplies and chemicals).
 - Trained five undergraduate students how to use lab equipment and conduct synthetic chemistry experiments
- 2016 **Research Assistant**, Faculty of Science, UOIT.
- Under the supervision of [Prof. Kevin Coulter](#)
 - Worked in an inorganic chemistry laboratory on a project concerned with transition metal catalyzed water splitting technologies and their potential use as a large-scale renewable energy resource.
 - Involved the use, maintenance and manipulation of solar cell technology

- Helped develop this work into an outreach activity aimed towards high school students, currently run under the Let's Talk Science program

2016

Research Assistant, School of Chemistry, Cardiff University.

- Under the supervision of [Prof. Rebecca Melen](#)
- Worked as an international exchange student in a group focused on main-group chemistry, funded by the QEIIDJ scholarship program.
- Worked on projects concerning Lewis Acid catalysis, specifically on variations of the Diels-Alder and Meerwein reactions.

2015

Research Assistant, Faculty of Science, UOIT.

- Under the supervision of [Prof. Yuri Bolshan](#)
- Worked in a synthetic organic chemistry laboratory on various projects concerned with organosulfur and organoboron chemistry.

ADMINISTRATIVE, OUTREACH AND VOLUNTEER EXPERIENCE

2024 – 2025

Instructor, Stanford Splash Program, Stanford University

- Designed and acted as principal instructor for a series of engaging chemistry lectures to high school students from the Bay area

2023

Lead volunteer, Verna J. Kirkness Indigenous Educational Program, uOttawa

- Led an outreach activity wherein two Indigenous high school students visited our research lab; taught and supervised them as they conducted high-throughput experiments focused on developing methods for the deoxygenation of sugar compounds

2023

Lead volunteer, Mini-Courses Enrichment program, uOttawa

- Led an outreach activity wherein 20 elementary school students visited the undergraduate labs at uOttawa; taught them basic lab techniques including electrodeposition, liquid-liquid extraction, distillation, etc.

2022

Judge, ChemiSTEAM Art in Science Competition

2021 – 2022

President and co-founder, Chemistry Literacy Initiative, uOttawa

2021 – 2023

Member, Academic Integrity Committee, uOttawa Faculty of Science

2021 – present

Judge, SCInapse Undergraduate Science Case Competition

- Evaluate a series of undergraduate research proposals in this annual competition

2019 – 2020

Lead volunteer, Faculty of Science, uOttawa Let's Talk Science Program

- Visit local elementary schools, teaching fundamental scientific concepts to third-grade students using planned activities and demonstrations.

2019 – 2023

Building warden, Biosciences Building, uOttawa

- Floor safety leader in case of emergency situations on campus

2019

Organizing volunteer, QOMSBQC Conference Committee, uOttawa

- Designed conference logo, assisted in the concept, design and execution of the conference booklet. Designed and ordered themed t-shirts. Facilitated conference events, designed introduction presentation.

2016 – 2017	President , Operation Smile UOIT-DC - Facilitated and organized group meetings and events - Worked in a team-based, goal-oriented environment to raise funds and awareness for a non-profit charity organization - Recruited and trained new members, ensured continuity of club
2016 – 2017	Lead volunteer , Faculty of Science, UOIT Let's Talk Science Program - Led an outreach program along with Dr. Kevin Coulter that taught several high school students to use SEAL solar cell technology kits in an attempt to develop an efficient water-splitting catalyst.
2016 – 2017	Lead presenter , Department of Chemistry, UOIT Outreach activities - Acted as Master of Ceremonies and presenter - Presented a lecture titled "Breaking Bad... Chemistry Habits" to over 150 high school students and their teachers
2015 – 2017	Lead lab volunteer , Department of Chemistry, UOIT Open Houses - Gave various short presentations based on chemistry concepts and techniques in front of an audience of high school students and their parents
2014 – 2016	Director of Operations and co-founder , Operation Smile UOIT-DC - Planned inaugural meeting and events - Recruited new members and developed connections within the community - Developed protocol regarding group meetings and fundraising - Supervised all communication with external parties

TEACHING EXPERIENCE

2026	Guest Lecturer , Stanford University Course title: Organic Chemistry II [regular professor: Prof. Paul Wender]
2025	Co-Instructor , Stanford University Course title: Organic Chemistry I [alongside Prof. Paul Wender]
2022	Guest Lecturer , University of Ottawa Course title: Organic Chemistry I [regular professor: Prof. Michael Organ]
2020 – 2023	Tutorial Instructor , University of Ottawa Course titles: General Chemistry, Organic Chemistry I, Organic Chemistry II
2019 – 2023	Lab Demonstrator , University of Ottawa Course titles: General Chemistry, Organic Chemistry I, Organic Chemistry II, Introduction to Biochemistry, Characterization of Advanced Materials
2016 – 2017	Teaching Assistant , University of Ontario Institute of Technology Course titles: General Chemistry I, General Chemistry II

MENTORSHIP

2023	Carlos Barbary, BSc, University of Ottawa – Mentored on nickel-catalyzed alcohol arylation project; co-author on <i>JACS</i> 2024 publication Jacey Matthews, Templeton Academy Samantha Gillis, Templeton Academy
2020	Maxwell Bezaire, BSc, University of Ottawa – Mentored on β -hydroxysulfone olefination project; co-author on <i>Org. Chem. Front.</i> 2023 publication.
2019	Haydn MacLean, BSc, University of Newcastle – Mentored on nickel-catalyzed deoxygenation project; co-author on <i>ACS Catal.</i> 2021 publication. Louis Brigandat, MSc, University of Lyon
2016	Robert Maillet, BSc, University of Ontario Institute of Technology

NON-PEER REVIEWED PUBLICATIONS AND MEDIA INTERVIEWS

Cook, A. ChemiSTEAM 2020: The atomic connection. *CIC News*, March **2021**. Link: <https://www.cheminst.ca/magazine/article/chemisteam-2020-the-atomic-connection/>

Cook, A. ChemiSTEAM 2021: Quinine: The Bite is in the Bark. *CIC News*, November **2021**. Link: <https://www.cheminst.ca/magazine/article/chemisteam-2021-quinine-the-bite-is-in-the-bark/>

Rizk, B. Scientists at uOttawa streamline a widely used chemical reaction, creating new manufacturing opportunities. *uOttawa Gazette*. May **2023**. Link: <https://www.uottawa.ca/faculty-science/news-all/scientists-uottawa-streamline-widely-used-chemical-reaction-creating-new-manufacturing>

Rizk, B. Revolutionizing Drug Discovery: Transforming Abundant Molecules into Lifesaving Compounds *uOttawa Gazette*, July **2024**. Link: <https://www.uottawa.ca/faculty-science/news-all/revolutionizing-drug-discovery-transforming-abundant-molecules-lifesaving-compounds>

Arachchillage, T. R. Breaking bonds, building solutions: The journey of an organic chemistry graduate. *uOttawa Gazette*, April **2025**. Link: <https://www.uottawa.ca/faculty-science/news-all/breaking-bonds-building-solutions-journey-organic-chemistry-graduate>

RELEVANT SKILLS

Strong expertise using high-throughput laboratory techniques in chemistry. Strong expertise in synthetic chemistry laboratory techniques, using both organic and organometallic reagents under ambient and inert conditions, including conducting photochemical and electrochemical reactions. Strong expertise in drug discovery and delivery, including lipid nanoparticles formulation and gene delivery. Working level experience with 1D and 2D NMR, FT-IR, molecular fluorescence spectroscopy, GC-FID, LC-MS, ICP-OES, ICP-MS, HPLC, flash chromatography, atomic absorption spectroscopy, UV-vis spectroscopy, cyclic voltammetry, electroanalytical methods, *in vitro* cell based and non-cell based analyses, flow chemistry and machine learning. Proficient with computer programs such as Microsoft Office, SigmaPlot, Maple, ACD Labs, ChemDraw, MestreNova, Schrodinger Maestro, and PyMol.

REFERENCES

Reference format: Name, Department, University (*relationship to myself*, role at university). Email address.

- Prof. Paul Wender, Department of Chemistry, Stanford University (postdoctoral research advisor, professor). Email: wenderp@stanford.edu
- Prof. Stephen Newman, Centre for Catalysis Research and Innovation, uOttawa (*graduate research supervisor*, professor). Email: stephen.newman@uottawa.ca
- Dr. Rashmi Venkateswaran, Department of Biochemical and Chemical Sciences, uOttawa (*teaching supervisor*, undergraduate lab coordinator). Email: vrashmi@uottawa.ca
- Prof. Michael Organ, Centre for Catalysis Research and Innovation, uOttawa (*member of thesis advisory committee*, professor and director of Centre for Catalysis Research and Innovation). Email: organ@uottawa.ca
- Dr. Kevin Coulter, Faculty of Science, UOIT (*research/teaching supervisor*, senior lab instructor). Email: kevin.coulter@uoit.ca