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Education

1997 Ph.D. (Chemistry), Harvard University
1990 B.S. (Chemistry), University of California, Berkeley

Research and Professional Experience

2019 – present Associate Provost, MIT
2015 – 2019 Department Head, MIT, Department of Chemistry
2015 – present Robert R. Taylor Professor of Chemistry, MIT Department of Chemistry
2009 – present Professor, MIT, Department of Chemistry
2006 – 2009 Associate Professor, MIT, Department of Chemistry
2004 – 2006 Associate Professor (without tenure), MIT, Department of Chemistry
2002 – 2005 Paul M. Cook Career Development Chair
1999 – 2004 Assistant Professor, MIT, Department of Chemistry
1997 – 1999 Postdoctoral Fellow, Harvard University (Prof. Eric N. Jacobsen)
1991 – 1997 Graduate Student, Harvard University (Prof. Stuart L. Schreiber)
1990 – 1991 Fulbright Fellow, ETH Zürich, Switzerland (Prof. Steven A. Benner)
1988 – 1990 Undergraduate Research, UC Berkeley (Prof. Henry Rapoport)
1988 Summer Research Assistant, Eastman Kodak, Rochester, NY
1987 Co-op Research Assistant, ICI Americas, Richmond, CA

Honors, Awards, and Professional Activities

2018 Change Maker Award, MIT Title IX
2016 FP - Global Thinker of 2016
2015 – 2018 *Chemical Reviews*, Associate Editor
2014 – present Co-Founder, Chairman of the Board, and Scientific Advisor, Snapdragon Chemistry, Inc.
2014 Council of Chemical Research Collaboration Award
2013 Teaching Prize for Undergraduate Education, MIT School of Science
2012 – present Fellow of the Royal Society of Chemistry
2012 Royal Society of Chemistry Merck Award
2011 Arthur C. Cope Scholar Award, American Chemical Society
2011 – present *Journal of Flow Chemistry*, Editorial Board
2011 – present *Advanced Synthesis and Catalysis*, Academic Advisory Board
2008 – 2010 Petroleum Research Fund Advisory Board
2006 JSPS Invitation Fellowship
2004 Sloan Research Fellow
2004 GlaxoSmithKline Scholar Award
2003 Amgen Young Investigator Award
2002 Paul M. Cook Career Development Chair
2002 Boehringer Ingelheim New Investigator Award
2001 National Science Foundation CAREER Award
2000 3M Innovation Award
1997 – 1999 Postdoctoral Fellow, Cancer Research Fund, Damon Runyon-Walter Winchell Foundation
1991 – 1994 National Science Foundation Predoctoral Fellow
1991 – 1993 Certificate of Distinction in Teaching, Harvard University (3 times)
1990 – 1991 Fulbright Fellow (Swiss Universities Grant)
1990 Graduated with High Honors (Chemistry), UC Berkeley
1990 Saegebarth Prize (Undergraduate Research Excellence in Chemistry)

1990	Phi Beta Kappa
1988 – 1989	President's Undergraduate Fellow, UC Berkeley
1985 – 1989	Chancellor's Scholar, UC Berkeley
1986 – 1989	Eastman Kodak Scholar

Publications:

MIT

2022

Mear SJ, Nguyen LV, Rochford AJ, Jamison TF. "Synthesis of (±)-Emtricitabine and (±)-Lamivudine by Chlorotrimethylsilane-Sodium Iodide Promoted Vorbrüggen Glycosylation". *The Journal of Organic Chemistry* **2022**; 87 (5), 2887-2897 DOI: 10.1021/acs.joc.1c02772

2021

Gopalsamuthiram, V.; Kadam, A. L.; Noble, J.; Snead, D. R.; Williams, C.; Jamison, T.F.; Senanayake, C.; Yadaw, A.; Roy, S.; Sirasani, G.; Gupton, B.F.; Burns, J.; Cook, D.W.; Stringham, R.W.; Ahmad, S.; and Krack, R.; "Toward a Practical, Nonenzymatic Process for Investigational COVID-19 Antiviral Molnupiravir from Cytidine: Supply Centered Synthesis" *Organic Process Research & Development*. **2021** 25, 2679-2685. DOI: 10.1021/acs.oprd.1c00219

Ahlqvist, G. P.; Burke, E. G.; Johnson, J. A.; Jamison, T. F. "Continuous dimethyldioxirane generation for polymer epoxidation," *Polymer Chem.* **2021**, 12, 489-493. DOI: 10.1039/d0py01676d.

Gopalsamuthiram, V.; Williams, C.; Noble, J.; Jamison, T. F.; Gupton, B. F.; Snead, D. R. "A Concise Route to MK-4482 (EIDD-2801) from Cytidine: Part 2," *Syn. Lett.* **2021**, 32, 326-328. DOI: 10.1055/a-1275-2848.

Dietz, J.-P.; Ferenc, D.; Jamison, T. F.; Gupton, B. F.; Opatz, T. "Di-tert-butyl Phosphonate Route to the Antiviral Drug Tenofovir," *Org. Process Res. Dev.* **2021**, 25, 789-798. DOI: 10.1021/acs.oprd.0c00473.

Ahlqvist, G. P.; McGeough, C. P.; Senanayake, C.; Armstrong, J. D.; Yadaw, A.; Roy, S.; Ahmad, S.; Snead, D. R.; and Jamison, T. F. "Progress Toward a Large-Scale Synthesis of Molnupiravir (MK-4482, EIDD-2801) from Cytidine," *ACS Omega* **2021**, 6, 10396-10402. DOI: 10.1021/acsomega.1c00772.

Breen, C. P.;* Nambiar, A. M. K.;* Jamison, T. F.; Jensen, K. F. "Ready, Set, Flow! Automated Continuous Synthesis and Optimization," *Trends in Chemistry* **2021**, 3, 373-386. DOI: 10.1016/j.trechm.2021.02.005. *contributed equally

Fu, W. G.; MacQueen, P. M.; Jamison, T. F. "Continuous flow strategies for using fluorinated greenhouse gases in fluoroalkylations," *Chemical Society Reviews* **2021**, 50, 7378-7394. DOI: 10.1039/d0cs00670j.

Florit, F.; Nambiar, A. M. K.; Breen, C. P.; Jamison, T. F.; Jensen, K. F. "Design of dynamic trajectories for efficient and data-rich exploration of flow reaction design spaces," *React. Chem. Eng.* **2021**, 6, 2306-2314. Advance Article. DOI: 10.1039/D1RE00350J.

Gopalsamuthiram, V.; Kadam, A. L.; Noble, J.; Snead, D.; Williams, C.; Jamison, T. F.; Senanayake, C.; Yadaw, A.; Roy, S.; Sirasani, G.; Gupton, B. F.; Burns, J.; Cook, D. W.; Stringham, R. W.; Ahmad, S.; Krack, R. "Towards a Practical, Non-enzymatic Process for Molnupiravir from Cytidine," *Organic Process Research & Development* **2021** 25, 2679-2685, DOI: 10.1021/acs.oprd.1c00219

McGeough, C. P.;* Mear, S. J.;* Jamison, T. F. "A Call for Increased Focus on Reproductive Health within Lab Safety Culture," *J. Am. Chem. Soc.* **2021**, 143, 12422-12427. DOI: 10.1021/jacs.1c03725. *contributed equally

2020

Vasudevan, N.; Ahlqvist, G. P.; McGeough, C. P.; Paymode, D. J.; Cardoso, F. S. P.; Lucas, T.; Dietz, J.-P.; Opatz, T.; Jamison, T. F.; Gupton, F. B.; Snead, D. R. "A concise route to MK-4482 (EIDD-2801) from cytidine," *Chem. Comm.* **2020**, 56, 13363-13364. DOI: 10.1039/d0cc05944g.

Danahy, K. E.; Styduhar, E. D.; Fodness, A. M.; Heckman, L. M.; Jamison, T. F. "On-Demand Generation and Use in Continuous Synthesis of the Ambiphilic Nitrogen Source Chloramine," *Org. Lett.* **2020**, 22, 8392-8395. DOI: 10.1021/acs.orglett.0c03021.

Fu, W. C.; Jamison, T. F. "Deuteriodifluoromethylation and *gem*-Difluoroalkenylation of Aldehydes Using ClCF₂H in Continuous Flow," *Angew. Chem. Int. Ed.* **2020**, 59, 2-8.

Nguyen, L.; Jamison, T. F. "Total Synthesis of (±)-Sceptrin," *Org. Lett.* **2020**, <https://pubs.acs.org/doi/10.1021/acs.orglett.0c01381>

Breen, C. P.; Parrish, C.; Shangguan, N.; Majumdar, S.; Muren, H.; Jamison, T. F.; Bio, M. M. "A Scalable Membrane Pervaporation Approach for Continuous Flow Olefin Metathesis," *Org. Process Res. Dev.* **2020**, <https://pubs.acs.org/doi/abs/10.1021/acs.oprd.0c00061>.

Monos, T. M.; Jaworski, J. N.; Stephens, J. C.; Jamison, T. F. "Continuous-Flow Synthesis of Tramadol from Cyclohexanone," *Synlett.* **2020**, 31, A-G.

Russell, M. G.; Veryser, C.; Hunter, J. F.; Beingessner, R. L.; Jamison, T. F. "Monolithic Silica Support for Immobilized Catalysis in Continuous Flow," *Adv. Synth. Catal.* **2020**, 362, 314-319.

2019

Seo, H. Jamison, T. F. "Catalytic Generation and Use of Ketyl Radical from Unactivated Aliphatic Carbonyl Compounds," *Org. Lett.* **2019**, 21, 10159-10163.

Mear, S. J.; Jamison, T. F. "Diazotization of S-Sulfonyl-cysteines," *J. Org. Chem.* **2019**, 84, 15001-15007.

- Breen, C. P.; Jamison, T. F. "Continuous Flow Synthesis of ACE Inhibitors From *N*-Substituted L-Alanine Derivatives," *Chem. Eur. J.* **2019**, 25, 14527-14531.
- Kelley, E. H.; Jamison, T. F. "Synthesis of the *EFG* Framework of the Tamulamides A and B," *Org. Lett.* **2019**, 21, 8027-8030.
- Coley, C. W.; Thomas, D. A.; Lummiss, J. A. M.; Jaworski, J. N.; Breen C. P.; Schultz, V.; Hart, T.; Fishman, J. S.; Rogers, L.; Gao, H.; Hicklin, R. W.; Plehiers, P. P.; Byington, J.; Piotti, J. S.; Green, W. H.; Hart, A. J.; Jamison, T. F.; Jensen, K. F. "A Robotic Platform for Flow Synthesis of Organic Compounds Informed by AI Planning," *Science* **2019**, 365, eaax1566.
- **MIT News:** Ham, B. "[Guided by AI, robotic platform automates molecule manufacture](http://news.mit.edu/2019/automate-molecule-production-ai-0808)" <http://news.mit.edu/2019/automate-molecule-production-ai-0808>
 - **Technology Networks:** "[Pairing Prediction and Robotic Flow Synthesis](https://www.technologynetworks.com/drug-discovery/news/pairing-prediction-and-robotic-flow-synthesis-322689)" <https://www.technologynetworks.com/drug-discovery/news/pairing-prediction-and-robotic-flow-synthesis-322689>
- Fu, W. C.; Jamison, T. F. "Modular Continuous Flow Synthesis of Imatinib and Analogues," *Org. Lett.* **2019**, 21, 6112-6116.
- Sittihan, S.; Jamison, T. F. "Total Synthesis of the Marine Ladder Polyether Gymnocin B," *JAm.Chem. Soc.* **2019**, 141, 11239-11244.
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- Russell, M. G.; Jamison, T. F. "Seven-Step Continuous Flow Synthesis of Linezolid Without Intermediate Purification," *Angew. Chem. Int. Ed.* **2019**, 58, 7678-7681.
- Bedermann, A. A.; McTeague, T. A.; Jamison, T. F. "Automated On-Demand Titration of Organometallic Reagents in Continuous Flow," *Org. Process. Res. Dev.* **2019**, 23, 278-282.
- Coley, C. W.; Jin, W.; Rogers, L.; Jamison, T. F.; Jaakkola, T. S.; Green W. H.; Barzilay, R.; Jensen, K. F. "A Graph Convolution Neural Network Model for the Prediction of Chemical Reactivity," *Chem.Sci.* **2019**, 10, 370-377.

2018

- Seo, H.; Nguyen, L. V.; Jamison, T. F. "Using Carbon Dioxide as a Building Block in Continuous Flow Synthesis," *Adv. Synth. Catal.* **2018**, 361, 247-264.
- Bédard, A.-C.; Adamo, A.; Aroh, K. C.; Russell, M. G.; Bedermann, A. A.; Torosian, J.; Yue, B.; Jensen, K. F.; Jamison, T. F. "Reconfigurable System for Automated Optimization of Diverse Chemical Reactions," *Science* **2018**, 361, 1220-1225.
- **C&E News:** Nguyen, T. "[Chemists Hand Off Reaction Optimization to Automated Plug and Play Flow System](https://cen.acs.org/synthesis/Chemists-hand-off-reaction-optimization/96/i38)" <https://cen.acs.org/synthesis/Chemists-hand-off-reaction-optimization/96/i38>
 - **MIT News:** Trafton, A. "[Plug-and-Play Technology Automates Chemical Synthesis](http://news.mit.edu/2018/technology-automates-chemical-synthesis-0920)" <http://news.mit.edu/2018/technology-automates-chemical-synthesis-0920>

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- Heckman, L. M.; He, Z.; Jamison, T. F. "Synthesis of Highly Substituted 2-Arylindoles via Copper-Catalyzed Coupling of Isocyanides and Arylboronic Acids," *Org. Lett.* **2018**, *20*, 3263-3267.
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- 2017**
- Britton, J.; Jamison, T. F. "The Assembly and Use of Continuous Flow Systems for Chemical Synthesis," *Nat. Protoc.* **2017**, *12*, 2423-2446.
- Seo, H.; Bédard, A.-C.; Chen, W. P.; Hicklin, R. W.; Alabugin, A.; Jamison, T. F. "Selective *N*-Monomethylation of Primary Anilines with Dimethyl Carbonate in Continuous Flow," *Tetrahedron* **2017**, *74*, 3124-3128.
- Morse, P. D.; Jamison, T. F. "Synthesis and Utilization of Nitroalkyne Equivalents in Batch and Continuous Flow," *Angew. Chem. Int. Ed.* **2017**, *56*, 13999-14002.

- Seo, H.; Liu, A.; Jamison, T. F. "Direct b-Selective Hydrocarboxylation of Styrenes with CO₂ Enabled by Continuous Flow Photoredox Catalysis," *J. Am. Chem. Soc.* **2017**, 139, 13969-13972.
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- Su, X.; Tan, K.-J.; Elbert, J.; Rüttiger, C.; Gallei, M.; Jamison, T. F.; Hatton, T. A. "Asymmetric Faradaic Systems for Selective Electrochemical Separations," *Energy Environ. Sci.* **2017**, 10, 1272-1283.
- Britton, J.; Jamison, T. F. "A Unified Continuous Flow Assembly-Line Synthesis of Highly Substituted Pryazoles and Pyrazolines," *Angew. Chem. Int. Ed.* **2017**, 56, 8823-8827.
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- Bédard, A.-C.; Longstreet, A. R.; Britton, J.; Wang, Y.; Moriguchi, H.; Hicklin, R. W.; Green, W. H.; Jamison, T. F. "Minimizing E-Factor in the Continuous-Flow Synthesis of Diazepam and Atropine," *Bioorg. Med. Chem.* **2017**, 25, 6233-6241.
- Seo, H.; Katcher, M. H.; Jamison, T. F. "Photoredox Activation of Carbon Dioxide for Amino Acid Synthesis in Continuous Flow," *Nat. Chem.* **2017**, 9, 453-356.
- Morse, P. D.; Beingessner, R. L.; Jamison, T. F. "Enhanced Reaction Efficiency in Continuous Flow," *Isr. J. Chem.* **2017**, 57, 218-227.

2016

- McTeague, T. A.; Jamison T. F. "Photoredox Activation of SF₆ for Fluorination," *Angew. Chem. Int. Ed.* **2016**, 55, 15072-15075.
- Su, X.; Kulik, H. J.; Jamison, T. F.; Hatton, T. A. "Anion-Selective Redox-Electrodes: Electrochemically-Mediated Separation with Heterogeneous Organometallic Interfaces," *Adv. Funct. Mater.* **2016**, 26, 3394-3404.

Adamo, A.; Beingessner, R. L.; Behnam, M.; Chen, J.; Jamison, T. F.; Jensen, K. F.; Monbaliu, J.-C. M.; Myerson, A. S.; Revalor, E. M.; Snead, D. R.; Stelzer, T.; Weeranoppanant, N.; Wong, S. Y.; Zhang, P. "On-Demand Continuous Flow Production of Pharmaceuticals in a Compact, Reconfigurable System," *Science* **2016**, 352, 61-67.

- **C&E News (Top Research of 2016):** Borman, S. "Mini Factory Made Drugs on Demand" <http://yearinreview.cenmag.org/top-research-of-2016/>
- **MIT Tech Review:** Orcutt, M. "The Drug-Making Process Is Slow and Wasteful – This Machine Could Fix That" <https://www.technologyreview.com/s/601142/the-drug-making-process-is-slow-and-wasteful-this-machine-could-fix-that/>
- **IEEE Spectrum:** Waltz, E. "The Dial-a-Drug-Machine" <http://spectrum.ieee.org/the-human-os/biomedical/devices/the-dialadru-machine>
- **In the Pipeline:** Lowe, D. "Drugs on Demand" <http://blogs.sciencemag.org/pipeline/archives/2016/04/01/drugs-on-demand>
- **Nature:** "Drug Manufacture of Demand" <http://www.nature.com/nature/journal/v532/n7597/full/532008b.html>
- **C&E News:** Borman, S. "Mini Drug Factory Continuously Produces Doses" <http://cen.acs.org/articles/94/i14/Mini-drug-factory-continuously-produces.html>
- **Scientific American:** Roehr, B. "On-Demand Drug Production Is on the Horizon" <http://www.scientificamerican.com/article/on-demand-drug-production-is-on-the-horizon/>
- **MIT News:** Trafton, A. "Pharmacy on Demand" <http://news.mit.edu/2016/portable-pharmacy-on-demand-0331>
- **STAT:** Samuel, L. "This Fridge-Sized Machine Can Pop Out Meds for Allergies, Depression, and Anxiety" <https://www.statnews.com/2016/03/31/pharmacy-on-demand-drugs/>
- **Kurzweil Accelerating Intelligence:** "Creating Custom Drugs on a Portable Refrigerator-Size Device" <http://www.kurzweilai.net/creating-custom-drugs-on-a-portable-refrigerator-size-device>
- **UPI:** Norton, A. "Fridge-Sized Machine Makes Prescription Drugs on Demand" http://www.upi.com/Health_News/2016/03/31/Fridge-sized-machine-makes-prescription-drugs-on-demand/6171459447943/
- **HNGN:** Griffin, C. "New Pharmacy on Demand Device Creates Variety of Drugs" <http://www.hngn.com/articles/194258/20160401/new-pharmacy-demand-device-creates-variety-drugs.htm>
- **Daily Mail UK:** Liberatore, S. "Print Your Pills at Home: Researchers Reveal Fridge-Sized Machine that Can Make Prescription Drugs on Demand" <http://www.dailymail.co.uk/sciencetech/article-3519735/Print-pills-home-Researchers-reveal-fridge-sized-machine-make-prescription-drugs-demand.html>
- **Inquisitr:** Babcock, L. "Pharmacy on Demand: Will We Soon Be Able to Print Pills At Home?" <http://www.inquisitr.com/2956432/pharmacy-on-demand-will-we-soon-be-able-to-print-pills-at-home/>
- **The Pharmaceutical Journal:** Oswald, K. "Compact Machine Produces Drugs Demand" <http://www.pharmaceutical-journal.com/sign-in?rtn=news-and-analysis/news/compact-machine-produces-drugs-on-demand/20200961.article>

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Andrade, L. H.; Kroutil, W.; Jamison, T. F. "Continuous Flow Synthesis of Chiral Amines in Organic Solvents: Immobilization of *E. coli* Cells Containing Both ω -Transaminase and PLP," *Org. Lett.* **2014**, *16*, 6092-6095.

He, Z.; Bae, M. W.; Wu, J.; Jamison, T. F. "Synthesis of Highly Functionalized Polycyclic Quinoxaline Derivatives Using Visible-Light Photoredox Catalysis," *Angew. Chem. Int. Ed.* **2014**, *53*, 14451-14455.

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