

Aaron B. Beeler, Ph.D.

Education

October 2003	Postdoctoral Research Associate Boston University, Boston, MA Professor John A. Porco, Jr., Advisor
May 2002	Ph.D. Medicinal Chemistry University of Mississippi, Oxford, MI Professor John M. Rimoldi, Advisor
May 1998	B.S. Biology Belmont University, Nashville, TN

Professional Experience

July 2012 - present	Assistant Professor Department of Chemistry; Molecular Biology, Cell Biology & Biochemistry Program Boston University; Department of Pharmacology Boston University School of Medicine
August 2009 – July 2012	Associate Director Center for Chemical Methodology and Library Development, Boston University
February 2009 – July 2012	Research Assistant Professor; Department of Chemistry, Boston University
January 2005 – August 2009	Assistant Director Center for Chemical Methodology and Library Development (CMLD), Boston University
October 2003 – January 2005	CMLD Fellow; CMLD, Boston University

Awards

Dean's Award for Excellence in Graduate Education 2017

Thieme Chemistry Journals Award 2015

NSF CAREER Award 2016

Publications

(1) "Synthesis of fipronil sulfide, an active metabolite from the parent insecticide fipronil," Beeler, A. B.; Schlenk, D. K.; Rimoldi, J. M. *Tetrahedron Lett.* **2001**, 42, 5371-5372.

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- (2) "Toxicity of Fipronil and Its Degradation Products in *Procambarus* sp.," Schlenk, D.; Huggett, D. B.; Allgood, J.; Bennett, E.; Rimoldi, J.; Beeler, A. B.; Block, D.; Holder, A. W.; Hovinga, R.; Bedient, P. *Field and Laboratory Studies. Arch. Environ. Contam. Toxicol.* **2001**, *41*, 325-332.
- (3) "Stereochemical Diversity Through Cyclodimerization: Synthesis of Polyketide-like Macrodilolides," Su, Q.; Beeler, A. B.; Lobkovsky, E.; Porco, J. Jr.; Panek, J. *Org. Lett.* **2003**, *5*, 2149-2152.
- (4) "Synthesis and *In-Vitro* Biological Evaluation of Fluorosubstituted-4-Phenyl-1,2,3,6-Tetrahydropyridines as Monoamine Oxidase B Substrates," Beeler, A. B.; Gadepalli, R. S.; Steyn, S.; Castagnoli, N. Jr.; Rimoldi, J. M. *Biorg. Med. Chem.* **2003**, *11*, 5229-5234.
- (5) "Convergent Synthesis of a Complex Oxime Library Using Chemical Domain Shuffling," Su S.; Eastwood, E. L.; Beeler, A. B.; Yeager, A. R.; Lan, P.; Arumugasamy, J.; Acquilano, D. E.; Min, G. K.; Giguere, J. R.; Lei, X.; Zhou, Y.; Panek, J. S.; Snyder, J. K.; Schaus, S. E.; Porco, J. A. Jr. *Org. Lett.* **2005**, *9*, 2751.
- (6) "Chemical Library Synthesis Using Convergent Approaches," Beeler, A. B.; Schaus, S. E.; Porco, J. A. Jr. *Curr. Opin. Chem. Bio.* **2005**, *9*, 277.
- (7) "Synthesis of a Library of Complex Macrodilolides Employing Cyclodimerization of Hydroxy Esters," Beeler, A. B.; Acquilano, D. E.; Su, Q.; Yan, F.; Roth, B. L.; Panek, J. S.; Porco, J. A. Jr. *J. Comb. Chem.* **2005**, *7*, 673.
- (8) "Convergent Synthesis of Complex Diketopiperazines Derived from Pipecolic Acid Scaffolds and Parallel Screening against GPCR Targets," Dandapani, S.; Lan, P.; Beeler, A. B.; Beischel, S.; Abbas, A.; Roth, B. L.; Porco, J. A. Jr.; Panek, J. S. *J. Org. Chem.* **2006**, *71*, 8934.
- (9) "Synthesis of 1,4,5-trisubstituted-1,2,3-triazoles by copper-catalyzed cycloaddition-coupling of azides and terminal alkynes," Gerard, B.; Ryan, J.; Beeler, A. B.; Porco, J. A. Jr. *Tetrahedron*, **2006**, *62*, 6405.
- (10) "Discovery of Chemical Reactions through Multidimensional Screening," Beeler, A. B.; Su, S.; Singleton, C. A.; Porco, J. A. Jr. *J. Am. Chem. Soc.* **2007**, *129*, 1413.
- (11) "Generation of Oxamic Acid Libraries: Antimalarials and Inhibitors of Plasmodium falciparum Lactate Dehydrogenase," Choi, S-R.; Beeler, A. B.; Pradhan, A.; Watkins, E. B.; Rimoldi, J. M.; Tekwani, B.; Avery, M. A. *J. Comb. Chem.* **2007**, *9*, 292.
- (12) "1,2,3,4-Tetrahydro-1,5-naphthyridines and related heterocyclic scaffolds: exploration of suitable chemistry for library development," Grace H. C. Woo; Aaron B. Beeler; John K. Snyder *Tetrahedron* **2007**, *63*, 5649
- (13) "Nucleophilic addition to N-phosphinylimines by rare-earth-metal triflate/trifluoroacetic anhydride activation," Winnie W. Ong; Aaron B. Beeler; Sarathy, Kesavan; James S. Panek; John A. Porco *Angew. Chem. Int. Ed.* **2007**, *39*, 7470.
- (14) "Identification of novel epoxide inhibitors of hepatitis C virus replication using a high-throughput screen," Peng, L. F.; Kim, S. S.; Matchacheep, S.; Lei, X.; Su, S.; Lin, W.; Runguphan, W.; Choe, W-H; Sakamoto, N.; Ikeda, M.; Kato, N.; Beeler, A. B.; Porco, J. A. Jr.; Schreiber, S. L.; Chung, R. T. *Antimicrobi. Agents Chemo.* **2007**, *10*, 3756.
- (15) "Library Synthesis Using 5,6,7,8-Tetrahydro-1,6-naphthyridines as Scaffolds," Zhou, Y.; Beeler, A. B.; Cho, S.; Wang, Y.; Franzblau, S. G.; Snyder, J. K. *J. Comb. Chem.* **2008**, *10*, 534-540.

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- (16) "Reaction Discovery Employing Macrocycles: Transannular Cyclizations of Macrocyclic Bis-lactams," Han, C.; Rangarajan, S.; Voukides, A. C.; Beeler, A. B.; Johnson, R.; Porco, J. A., Jr. *Org. Lett.*, **2009**, *11*, 413–416.
- (17) "Development of an Automated Microfluidic Reaction Platform for Multidimensional Screening: Reaction Discovery Employing Bicyclo[3.2.1]octanoid Scaffolds." Goodell J. R.; McMullen, J. P.; Zaborenko, N.; Maloney, J. R.; C-X Ho; Jensen, K. F.; Porco, J. A. Jr.; Beeler, A. B. *J. Org. Chem.* **2009**, *74*, 6169.
- (18) "A Time-Resolved Fluorescence–Resonance Energy Transfer Assay for Identifying Inhibitors of Hepatitis C Virus Core Dimerization," Kota, S.; Scampavia, L.; Spicer, T.; Beeler, A. B.; Takahashi, V. Snyder, J. K.; J. A. Porco Jr.; Hodder, P.; Strosberg, A. D. *Assay Drug Dev.* **2010**, *8*, 66.
- (19) "Tandem Processes Identified from Reaction Screening: Nucleophilic Addition to Aryl *N*-Phosphinylimines Employing La(III)-TFAA Activation," Kinoshita, H. ; Ingham, Oscar, J.; Ong, W. W.; Beeler, A. B; Porco, J. A., Jr. *J. Am. Chem. Soc.* **2010**, *132*, 6412.
- (20) "Multidimensional Screening and Methodology Development for Condensations Involving Complex 1,2-Diketones," Goodell, J. R.; Leng, B.; Snyder, T. K.; Beeler, A. B.; Porco, J. A. Jr. *Synthesis*, **2010**, 2254.
- (21) "Catalytic Enantioselective Alkylative Dearomatization–Annulation: Total Synthesis and Absolute Configuration Assignment of Hyperibone K," Qi, J.; Beeler, A. B.; Zhang, Q.; Porco, J. A. Jr. *J. Am. Chem. Soc.* **2010**, *132*, 13642.
- (22) "Discovery of New Antimalarial Chemotypes Through Chemical Methodology and Library Development," Brown, L. E.; Cheng, K, C-C; Wei, W-G.; Yuana, P.; Dai, P.; Trilles, R.; Ni, F.; Yuan, J.; MacArthur, R.; Guhab, R.; Johnson, R. L.; Suc, X-Z; Domingueza, M. M.; Snyder, J. K.; Beeler, A. B.; Schaus, S. E.; Inglese, J.; Porco, J. A. Jr. *Proc. Nat. Aca. Sci.* **2011**, *108*, 6775.
- (23) "Truncated Aspidosperma Alkaloid-like Scaffolds: Unique Structures For the Discovery of New, Bioactive Compounds," Benson, S. C.; Lee, L.; Wei, W.; Ni, F.; David, J.; Olmos, J.; Strom, K. R.; Beeler, A. B.; Cheng, K. C-C.; Inglese, J.; Kota, S.; Takahashi, V.; Strosberg, A. D.; Connor, J. H.; Bushkin, G. G.; Snyder, J. K. *Heterocycles*, **2011**, *84*, 135.
- (24) "Remodelling of the Natural Product Fumagillol Employing a Reaction Discovery Approach," Balthaser, B. R.; Maloney, M. C.; Beeler, A. B.; Porco, J. A. Jr.; Snyder, J. K. *Nature Chem.* **2011**, *3*, 969.
- (25) "Development of a Photochemical Microfluidics Platform," Pimparkar, K.; Yen, B.; Goodell, J. R.; Martin, V. I.; Lee, W-H.; Porco, J. A. Jr.; Beeler, A. B. Jensen, K. F. *J. Flow Chem.* **2011**, *2*, 53.
- (26) "Synthesis and Reactivity of Bicyclo[3.2.1]Octanoid-Derived Cyclopropanes," Goodell, J. R.; Poole, J. L.; Beeler, A. B.; Aubé, J.; Porco, J. A. Jr. *J. Org. Chem.* **2011**, *76*, 9792.
- (27) "Synthesis of azaphilone-based chemical libraries," Achard, M.; Beeler, A.; Porco, J., *ACS Comb. Sci.* **2012**, *14*, 236-280.
- (28) "Synthesis of a novel chemotype via sequential metal-catalyzed cycloisomerizations" Leng, B.; Chichetti, S.; Su, S.; Beeler, A. B.; Porco, J. A., Jr.; *Beilstein J. Org. Chem.*, **2012**, *8*, 1338-1343.

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- (29) "Multidimensional Reaction Screening for Photochemical Transformations as a Tool for Discovering New Chemotypes" Martin, M. I.; Goodell, J. R.; Ingham, O. J.; Porco, J. A.; Beeler, A. B. *J. Org. Chem.* **2014**, 79, 3838-3846.
- (30) "Development of a Photolabile Amine Protecting Group Suitable for Multistep Flow Synthesis" Yueh, H.; Voevodin, A.; Beeler, A. B. *J. Flow Chem.* **2015**, 5, 155-159.
- (31) "[2+2]-Photocycloaddition of Cinnamates in Flow and Development of a Thiourea Catalyst" Telmesani, R.; Park, S. H.; Lynch-Colameta, T. Beeler, A. B. *Angew. Chem. Int. Ed.* **2015**, 54, 11521-11525.
- (32) "Fine-tuning of macrophage activation using synthetic rocaglate derivatives" Bhattacharya, B.; Chatterjee, S.; Devine, W. G.; Kobsik, L.; Beeler, A. B.; Porco, J. A.; Kramnik, I. *Scientific Reports* **2016**, 6, 24409.
- (33) "Development of a Potent and Selective HDAC8 Inhibitor" Ingham, O.J.; Paranal, R. M.; Smith, W. B.; Escobar, R. A; Yueh, H.; Snyder, T.; Porco, J. A.; Bradner, J. E.; Beeler, A. B. *ACS Med. Chem. Lett.* **2016**, 7, 929-932.
- (34) Beeler, A. B. "Introduction: Photochemistry in Organic Synthesis" *Chem. Rev.* **2016**, 116, 9629-9630.
- (35) "Identification of Anti-Prion Compounds Using a Novel Cellular Assay" Imberdis, T.; Heeres, J. T.; Yueh, H.; Fang, C.; Zhen, J.; Rich, C.; Glicksman, M.; Beeler, A. B; Harris, D. A. *J. Bio. Chem.* **2016**, 50, 26164-26176.
- (36) "Redesign of a Pyrylium Photoredox Catalyst and Its Application to the Generation of Carbonyl Ylides" Alfonzo, E.; Alfonso, F. S.; Beeler, A. B. **2017**, *Org. Lett.*, ASAP.
- (37) "Regioselective and Enantioselective Intermolecular Buchner Reactions in Flow" Fleming, G; Beeler, A. B. **2017**, *Submitted*.

Invited Presentations

- (1) "New Approaches to the Discovery of Novel Chemical Reactions and Chemotypes," Keynote Speaker: MedChem Europe, February 19, 2008.
- (2) "Discovery of Chemical Reactions through Multidimensional Screening," Gordon Research Conferences (Combinatorial Chemistry), June 9, 2009.
- (3) "Discovery of New Chemical Reactions and Chemotypes," American Chemical Society Northeast Regional Meeting, June 4, 2010.
- (4) "Application of Microfluidics in Multidimensional Reaction Screening," Keynote Speaker: Flow Chemistry Europe, March 28, 2011.
- (5) "Application of Microfluidics in Multidimensional Reaction Screening," Keynote Speaker: Flow Chemistry Congress, April 28, 2011.
- (6) "Discovery of New Chemotypes Enabled by Microfluidics," Frontiers In Organic Synthesis Technology, October 12, 2011.
- (7) "Developments for Photochemistry in Flow," Flow Chemistry Congress Boston, May 14, 2013.
- (8) "Synthesis and Optimization of Biologically Active Molecules," University of Rhode Island, Department of Chemistry, March 17, 2014.

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- (9) "Synthesis and Optimization of Biologically Active Molecules," Woods Hole Oceanographic Institute, May 13, 2014.
- (10) "Development and Application of Micro-scale and Flow Photochemistry," Plenary Speaker: International Conference on Microreactor Technology, June 23, 2014.
- (11) "High-throughput Approach Toward Medicinal Chemistry," Society for Laboratory Automation and Screening, February 10, 2015,
- (12) "Continuous Flow Approaches Toward Synthesis and Medicinal Chemistry" Bridgewater State, March 6, 2015
- (13) "Continuous Flow Approaches Toward Synthesis and Medicinal Chemistry" Keynote Speaker, Flow Chemistry Congress, September, 2015
- (14) "Photochemical Reactions in Flow" Pacifichem, December, 2015
- (15) "Continuous Flow Approaches Toward Synthesis and Medicinal Chemistry" DOW Chemicals, January, 2016
- (16) "Continuous Flow Approaches Toward Synthesis and Medicinal Chemistry" UMass Dartmouth, March 23, 2016
- (17) "Continuous Flow Approaches Toward Synthesis and Medicinal Chemistry" International Conference on Microreactor Technology, Beijing China, September 2016
- (18) "How Flow Chemistry is Changing Small Molecule Manufacturing by Expanding the Reaction Toolbox" 2nd International Symposium on Continuous Manufacturing of Pharmaceuticals" MIT, September 2016
- (19) Enabling Synthesis and Medicinal Chemistry with Continuous Flow Reactions" Rice University, October 2016
- (20) "Continuous Flow Approaches Toward Synthesis and Medicinal Chemistry" Keynote Speaker, Flow Chemistry Congress, November 2016
- (21) "Enabling Synthesis and Medicinal Chemistry with Continuous Flow Reactions" International Symposium on Integrated Synthesis, Awaji Japan, November 2016
- (22) "Enabling Synthesis and Medicinal Chemistry with Continuous Flow Reactions" Keio University, Japan, November 2016
- (23) "Enabling Synthesis and Medicinal Chemistry with Continuous Flow Reactions" Waseda University, Japan, November 2016
- (24) "Enabling Synthesis and Medicinal Chemistry with Continuous Flow Reactions" Tokyo University of Agriculture and Technology, Japan, November 2016
- (25) "Enabling Synthesis and Medicinal Chemistry with Continuous Flow Reactions" Tokyo Institute of Technology, Japan, November 2016
- (26) "Enabling Synthesis and Medicinal Chemistry with Continuous Flow Reactions" X-CHEM Pharmaceuticals, January 2017
- (27) "Enabling Synthesis and Medicinal Chemistry with Continuous Flow Reactions" Florida Atlantic University, January 2017
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Patents

(1) Beeler, A.; Ingham, O.; Porco, J.; Bradner, J. "Selective Histone Deacetylase 8 Inhibitors" **International Application No. PCT/US14/12968** – Filed: January 24, 2014

(2) Biasini, E.; Harris, D.; Beeler, A.; Fluharty, B.; Barreca, M.; Iraci, N.; Ingham, O. Title: Prion Protein Ligands as Therapeutic Agents for Neurodegenerative Disorders" **International Application No. PCT/US13/53796** – Filed: August 6, 2013

Professional Activities

(1) Regional Editor, *Journal of Flow Chemistry* (2010- present)

(2) Reviewer of applications for the Natural Sciences and Engineering Research Council of Canada (2012-present)

(3) Discussion Leader, Gordon Research Conference: High Throughput Chemistry and Chemical Biology (2013)

(4) NSF CAREER Award Review Panel (2016)

(5) Reviewer for the following journals: *Journal of the American Chemical Society*; *Nature Chemistry*; *Organic Letters*; *Journal of Organic Chemistry*; *Tetrahedron Letters*; *Journal of Flow Chemistry*; *Beilstein Journal of Organic Chemistry*; *Journal of Photochemistry and Photobiology A: Chemistry*; *Expert Review of Clinical Immunology*; *Synthesis*; *Bioorganic and Medicinal Chemistry Letters*; *Journal of Medicinal Chemistry*; *Chemistry: A European Journal*; *Organic Process Research and Development*, *Nature Protocols*.

Service

(1) Chemical Instrumentation Center Committee (2012-present)

(2) Chemistry Graduate Admissions Committee (2012-present)

(3) Chemistry Graduate Program Committee (2013-present)

(4) Chemistry Colloquium Committee (2103-present)

(5) Chair's Advisory Committee (2014-present)

(5) Boston University Research Faculty Task Force (2012-2013)

(6) Seven-Year Liberal Arts/Medical Education Admissions Committee (2013-present)

(7) Modular Medical Integrated Curriculum Admission Committee (2014-present)

Outreach Activities

(1) Mentor, Boston University UROP Program (2013 - present)

(2) Mentor, Boston University RISE Program (Summer 2013)

(3) Mentor, Boston University REU Program (2013 - present)

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- (4) Organizer, Boston University Upward Bound Math and Science Program, Chemistry Laboratory Experience (2013-present)
 - (5) Faculty Advisor, Alpha Chi Sigma Professional Fraternity in Chemistry (2013-present)