

**Curriculum Vitae**  
***Phil S. Baran***

*Appointment:* Scripps Research  
Professor, Department of Chemistry  
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January, **2013** Darlene Shiley Professor of Chemistry

April, **2009** Member, Skaggs Institute for Chemical Biology

June, **2008** Professor of Chemistry

July, **2006** Associate Professor of Chemistry (with Tenure)

June, **2003** Assistant Professor of Chemistry

*Date/Place of Birth:* 10 Aug 1977 / Denville, NJ, USA

*Citizenship:* United States

**Education**

2001 – 2003 Postdoctoral Associate  
*Advisor:* Professor E.J. Corey  
Harvard University, Cambridge, Massachusetts

1997 – 2001 Ph.D. Graduate Student in Chemistry

*Advisor:* Professor K.C. Nicolaou  
The Scripps Research Institute, La Jolla, California

1995 – 1997 B.S. with Honors in Chemistry  
*Advisor:* Professor D.I. Schuster  
New York University, New York, New York

1991 – 1995 Simultaneous high school graduation from Mt. Dora High School and  
A.A. degree with honors, Lake Sumter Community College, Florida

### **Awards**

- Danisco Science Excellence Medal Award, 2022
- Bristol Chemical Synthesis Syngenta Award, 2021
- Janssen Prize for Creativity, 2020
- Inhoffen Medal, 2019
- Manchot Research Professorship, 2017
- Member, The National Academy of Sciences, 2017
- Emanuel Merck Lectureship, 2017
- Blavatnik National Laureate in Chemistry, 2016
- ACS Elias J. Corey Award, 2016
- Member, American Academy of Arts and Sciences, 2015
- College of Arts and Science Alumni Distinguished Service Award, New York University, 2015
- Reagent of the Year Award (EROS), 2015
- Mukaiyama Award, 2014
- MacArthur Fellowship, 2013
- Royal Society of Chemistry Synthetic Organic Chemistry Award, 2013
- Fellow, Royal Society of Chemistry, 2013
- Fellow, AAAS, 2012 – Present
- ACS San Diego Section Distinguished Scientist Award, 2012
- ISHC Katritzky Heterocyclic Chemistry Award, 2011
- Thieme-IUPAC Prize in Synthetic Organic Chemistry, 2010
- ACS Award in Pure Chemistry, 2010

- Raymond and Beverly Sackler Prize in the Physical Sciences, 2009
- National Fresenius Award, ACS, 2007
- Novartis Lecturer, 2007 – 2008
- Hirata Gold Medal, 2007
- Pfizer Award for Creativity in Organic Synthesis, 2006
- Beckman Foundation Fellow, 2006 – 2008
- Alfred P. Sloan Foundation Fellow, 2006 – 2008
- BMS Unrestricted “Freedom to Discover” Grant, 2006 – 2010
- NSF CAREER Award, 2006 – 2010
- Eli Lilly Young Investigator Award, 2005 – 2006
- AstraZeneca Excellence in Chemistry Award, 2005
- DuPont Young Professor Award, 2005
- Roche Excellence in Chemistry Award, 2005
- Amgen Young Investigator Award, 2005
- Searle Scholar Award, 2005
- GlaxoSmithKline Chemistry Scholar Award, 2005 – 2006

#### **Awards (Pre- and Post-Doctoral)**

- ACS Nobel Laureate Signature Award in Chemistry, 2003
- National Institutes of Health Post-Doctoral Fellowship Award, Harvard, 2001 – 2003
- Hoffmann-La Roche Award for Excellence in Organic Chemistry, 2000
- Lesly Starr Shelton Award for Excellence in Chemistry Graduate Studies, Scripps, 2000
- National Science Foundation Pre-Doctoral Research Fellowship Award, Scripps, 1998 – 2001
- William and Sharon Bauce Family Foundation Fellowship Award, Scripps, 1997
- Dean’s Undergraduate Research Fund Award in Chemistry, NYU, 1996 – 1997
- George Granger Brown Award for Excellence in Chemistry, NYU, 1996 – 1997
- College of Art and Sciences Scholarship, NYU 1995 – 1997
- Herman and Margaret Sokol Chemistry Fellowship, NYU, 1995 – 1997

### **Editorial Activities and Advisory Boards**

1. International Advisory Board, *Angewandte Chemie*, 2014 – 2016
2. Advanced Synthesis and Catalysis Academic Advisory Board, 2014 – present
3. Editorial Advisory Board, *J. Am. Chem. Soc.*, 2015 – 2016
4. Editorial Advisory Board, *ACS Central Science*, 2015 – present
5. Associate Editor, *J. Am. Chem. Soc.*, 2016 – 2020
6. Editorial Advisory Board, *ACS Medicinal Chemistry Letters*, 2021 – present
7. Editorial Advisory Board, *Accounts of Chemical Research*, 2021 – present

### **Professional Activities**

1. NIH Study Section Member, SBC-B, 2008 – 2012
2. NIH Study Section Member, CMLD Special emphasis panel, July 2008
3. NIH Study Section Member, ad-hoc, SBC-B, June 2005
4. Scripps Graduate Student Admissions Committee, 2004 – 2011
5. Discussion Chair, GRC (Heterocycles), July 2006
6. Co-Chair, ACS Western Regional Meeting, 2007
7. Scripps Academic Advisory Committee, 2009 – Present
8. Shanghai Institute of Organic Chemistry, International Evaluation Committee Member, 2013

### **Scientific Advisory Boards**

1. Eisai (Scientific Advisory Board), 2012 – present
2. AsymChem (Scientific Advisory Board), 2013 – present

3. Kemxtree (Scientific Advisory Board), 2015 – present
4. Quanta Therapeutics, Inc, 2018 – present
5. N8 Medical LLC and Kinnear Pharmaceuticals, 2021 – present
6. Alkermes, Inc 2021 – present

### **Companies Co-Founded**

1. Sirenas Marine Discovery
2. Galileo Biosciences
3. Vividion Therapeutics
4. Elsie Biotechnologies

### **Consulting Activities**

1. Bristol-Myers Squibb (exclusive, all sites), 2005 – present
2. DuPont, 2007 – 2013
3. TetraPhase (Scientific Advisory Board and consultant), 2007 – 2009
4. TEVA, 2010 – 2016
5. Sirenas Marine Discovery (Co-founder and consultant), 2012 – present
6. Boehringer Ingelheim Pharmaceuticals, Inc., 2012 – present
7. Abide Therapeutics (Scientific Advisory Board and consultant), 2013 – 2017
8. AsymChem, 2013 – present
9. AstraZeneca, 2013 – 2016
10. Vividion Therapeutics (Co-founder and consultant), 2016 – present
11. Gilead, 2018 – present

12. Galileo Biosystems, Inc. 2020 – present
13. Syngenta Crop Protection AG, 2020 – present
14. Alkermes, Inc., 2020 – present
15. Sling Therapeutics, Inc., 2020 – present
16. Twist Bioscience, 2020 – present
17. Daros, Inc., 2020 – present
18. polyARNA, Inc., 2022 – present

## Publications

1. Hioki, Y.; Costantini, M.; Griffin, J.; Harper, K. C.; Merini, M. P.; Nissl, B.; Kawamata, Y.; Baran, P. S. Overcoming the Limitations of Kolbe Coupling via Waveform-Controlled Electrosynthesis. *ChemRxiv Preprint* **2022**.
2. He, C.; Wang, Y.; Bi, C.; Peters, D. S.; Gallagher, T. J.; Teske, J.; Chen, J. S.; Corsetti, R.; D'Onofrio, A.; Lewis, K.; Baran, P. S. Total Synthesis of Kibdelomycin. *Angew. Chemie. Int. Ed.* **2022**, 61, e2022061.
3. Laudadio, G.; Palkowitz, M. D.; Ewing, T. E.-H.; Baran, P. S. Decarboxylative Cross-Coupling: A Radical Tool In Medicinal Chemistry. *ACS Med. Chem. Lett.* **2022**, 13, 9, 1413 – 1420.
4. Lou, T. S.-B.; Kawamata, Y.; Ewing, T.; Correa-Otero, G. A.; Collins, M. R.; Baran, P. S. Scalable, Chemoselective Ni-Electrocatalytic Sulfinylation of Aryl Halides with SO<sub>2</sub>, *Angew. Chemie. Int. Ed.* **2022**, 61, e2022080.
5. Lin, Y.-C.; Schneider, F.; Eberle, K. J.; Chiodi, D.; Nakamura, H.; Reisberg, S. H.; Chen, J.; Saito, M.; Baran, P. S. Atroposelective Total Synthesis of Darobactin A. *J. Am. Chem. Soc.* **2022**, 144, 32, 14458 – 14462.
6. Palkowitz, M. D., Laudadio, G.; Kolb, S.; Choi, J.; Oderinde, M. S.; Ewing, T. E.-H.; Bolduc, P.; Chen, T.; Zhang, H.; Cheng, P. T. W.; Zhang, B.; Mandler, M.; Richter, J. M.; Collins, M. R.; Schioldager, R. L.; T. G. M. Dhar; Vokits, B.; Zhu, Y.; Echeverria, P.-G.; Poss, M. A.; Shaw, S.; Clementson, S.; Petersen, N. N.; Mykhailiuk, P.; Baran, P. S. Overcoming Limitations in Decarboxylative Arylation via Ag-Ni Electrocatalysis. *J. Am. Chem. Soc.* **2022**, 144, 38, 17709 – 17720.

7. Gao, Y.; Zhang, B.; Levy, L.; Zhang, H. -J.; He, C.; Baran, P. S. Ni-Catalyzed Enantioselective Dialkyl Carbinol Synthesis via Decarboxylative Cross Coupling: Development, Scope, and Applications. *J. Am. Chem. Soc.* **2022**, 144, 24, 10992 – 11002.
8. Gnaim, S.; Gholap, S. P.; Ge, L.; Das, S.; Gutkin, S.; Green, O.; Shelef, O.; Hananya, N.; Baran, P. S.; Shabat, D. Modular Access to Diverse Chemiluminescent Dioxetan-Luminophores Through Convergent Synthesis. *Angew. Chem. Int. Ed.* **2022**, e202202187.
9. Hayashi, K.; Griffin, J.; Harper, K. C.; Kawamata, Y.; Baran, P. S. Chemoselective, Metal-free, (Hetero)Arene Electroreduction Enabled by Rapid Alternating Polarity. *J. Am. Chem. Soc.* **2022**, 144, 13, 5762 – 5768.
10. Kawamata, Y.; Ryu, K. A.; Hermann, G. N.; Sandahl, A.; Vantourout, J. C.; Olow, A. K.; Adams, L.-T., A.; Rivera-Chao, E.; Roberts, L. R.; Oslund, R. C.; Fadeyi, O. O.; Baran, P. S. Electroaffinity Labeling: A New Platform for Chemoproteomic-based Target Identification. *ChemRxiv Preprint* **2022**
11. Zhang, B.; Gao, Y.; Hioki, Y.; Oderinde, M. S.; Qiao, J. X.; Rodriguez, K. X.; Zhang, H.-J.; Kawmata, Y.; Baran, P. S. Ni-Electrocatalytic C(sp<sup>3</sup>)–C(sp<sup>3</sup>) Doubly Decarboxylative Coupling. *Nature* **2022**, 606, 313 – 318.
12. Gu, J.; Rodriguez, K. X.; Kanda, Y.; Yang, S.; Ociepa, M.; Wilke, H.; Abrishami, A. V.; Jørgensen, L.; Skak-Nielsen, T.; Chen, J. S.; Baran, P. S. Convergent Total Synthesis of (+)-Calcipotriol: A Scalable, Modular Approach to Vitamin D Analogs. *PNAS*, **2022**, 119, e2200814119.
13. Harwood, S. J.; Palkowitz, M. D.; Gannet, C. N.; Perez, P.; Yao, Z.; Sun, L.; Abruna, H. D.; Anderson, S. L.; Baran, P.S. Modular Terpene Synthesis Enabled by Mild Electrocatalytic Couplings. *Science*. **2022**, 375, 745 – 752.
14. Knouse, K. W.; Flood, D. T.; Vantourout, J. C.; Schmidt, M. A.; McDonald, I. M.; Eastgate, M. D.; Baran, P. S. Nature Chose Phosphates and Chemists Should Too: How Emerging P(V) Methods Can Augment Existing Strategies. *ACS Cent. Sci.* **2021**, 7, 1473 – 1485.
15. Gnaim, S.; Bauer, A.; Zhang, H.-J.; Chen, L.; Gannet, C.; Malapit, C. A.; Hill, D.; Vogt, D.; Tang, Tianhua, T.; Daley, R.; Hao, W.; Quertenmont, M.; Beck, W. D.; Kandahari, E.; Vantourout, J. C.; Echeverria, P.-G.; Abruna, H.; Blackmond, D.; Minter, S.; Reisman, S.; Sigman, M. S.; Baran, P. S. Cobalt-Electrocatalytic Hydrogen Atom Transfer for Functionalization of Unsaturated C-C Bonds. *Nature*, **2022**, 605, 687.

16. Ociepa, M.; Knouse, K. W.; He, D.; Vantourout, J. C.; Flood, D. T.; Padial, N. M.; Chen, J. S.; Sanchez, B. B.; Sturgell, E. J.; Zheng, B.; Qiu, S.; Schmidt, M. A.; Eastgate, M. D.; Baran, P. S. Mild and Chemoselective Phosphorylation of Alcohols Using a Psi-Reagent. *Org. Lett.* **2021**, *23*, 9337 – 9342.
17. Zhang, H.-J.; Chen, L.; Oderinde, M. S.; Edwards, J. T.; Kawamata, Y.; Baran, P. S. Chemoselective, Scalable Nickel-Electrocatalytic O-Arylation of Alcohols. *Angew. Chem. Int. Ed.* **2021**, *60*, 20700 – 20705.
18. Choi, J.; Laudadio, G.; Godineau, E.; Baran, P. S. Practical and Regioselective Synthesis of C4-Alkylated Pyridines. *J. Am. Chem. Soc.* **2021**, *143*, 11927 – 11933.
19. Maity, P.; Anandamurthy, A. S.; Shekarappa, V.; Vaidyanathan, R.; Zheng, B.; Zhu, J.; Schmidt, M. A.; Fox, R. J.; Knouse, K. W.; Vantourout, J. C.; Baran, P. S.; Eastgate, M. D. Synthesis of a Phosphorous Sulfur Incorporating Reagent for the Enantioselective Synthesis of Thiophosphates. *Org. Synth.* **2021**, *98*, 97-116.
20. Huang, Y.; Knouse, K. W.; Qiu, S.; Hao, W.; Padial, N. M.; Vantourout, J. C.; Zheng, B.; Mercer, S. E.; Lopez, J. O.; Narayan, R.; Olson, R. E.; Blackmond, D. G.; Eastgate, M. D.; Schmidt, M. A.; McDonald, I. M.; Baran, P. S. A P(V)-Platform for Oligonucleotide Synthesis. *Science*, **2021**, *373*, 1265 – 1270.
21. Kawamata, Y.; Hayashi, K.; Carlson, E.; Shaji, S.; Waldmann, D.; Simmons, B. J.; Edwards, J.; Zapf, C. W.; Saito, M.; Baran, P. S. Chemoselective Electrosynthesis Using Rapid Alternating Polarity. *J. Am. Chem. Soc.*, **2021**, *143*, 16580 – 16588.
22. Gao, Y.; Hill, D. E.; Hao, W.; McNicolas, B. J.; Vantourout, J. C.; Hadt, R. G.; Reisman, S. E.; Blackmond, D.; Baran, P. S. Electrochemical Nozaki – Hiyami – Kishi Coupling: Scope, Applications, and Mechanism. *J. Am. Chem. Soc.* **2021**, *143*, 9478 – 9488.
23. Barton, L. M.; Chen, L.; Blackmond, D.; Baran, P.S. Electrochemical Borylation of Carboxylic Acids. *Proc. Natl Sci.* **2021**, *118*, 34.
24. Saito, M.; Kawamata, Y.; Meanwell, M.; Navratil, R.; Chiodi, D.; Carlson, E.; Hu, P.; Chen, L.; Udyavara, S.; Kingston, C.; Tanwar, M.; Tyagi, S.; McKillan, B. P.; Gichinga, M. G.; Schmidt, M. A.; Eastgate, M. D.; Lamberto, M.; He, C.; Tang, T.; Malapit, C.; Sigman, M. S.; Minter, S. D.; Neurock, M.; Baran, P. S. N-Ammonium Ylide Mediators for Selective Electrochemical C–H Oxidation. *J. Am. Chem. Soc.* **2021**, *143*, 7859 – 7867.
25. Peters, D. S.; Pitts, C. R.; McClymont, K. S.; Stratton, T. P.; Bi, C.; Baran, P. S. Ideality in Context: Motivations for Total Synthesis. *Acc. Chem. Res.* **2021**, *54*, 605 – 617.



26. Gnaim, S.; Vantourout, J. C.; Serpier, F.; Echeverria, P.-G.; Baran, P. S. Carbonyl Desaturation: Where Does Catalysis Stand? *ACS Catal.* **2021**, 11, 883 – 892.
27. Hu, P.; Peters, B. K.; Malapit, C. A.; Vantourout, J. C.; Wang, P.; Li, J.; Mele, L.; Echeverria, P.-G.; Minter, S. D.; Baran, P. S. Electroreductive Olefin-Ketone Coupling. *J. Am. Chem. Soc.* **2020**, 142, 50, 20979–20986
28. Zhao, J.-X.; Chang, Y.; Elleraas, J.; Montgomery, T. P.; Spangler, J. E.; Nair, S. K.; Bel, D. M.; Gallego, G. M.; Mousseau, J. J.; Perry, M. A.; Collins, M. R.; Vantourout, J. C.; Baran, P. S. 1,2-Difunctionalized Bicyclo[1.1.1]pentanes: Long Sought After Bioisosteres for ortho/meta-Substituted Arenes. *Proc. Natl Sci.* **2020**, 118, 28.
29. Vantourout, J. C.; Adusumalli, S. R.; Knouse, K. W., Flood, D. T.; Ramirez, A.; Padial, N. M.; Istrate, A.; Maziarz, K.; deGruyter, J. N.; Merchant, R. R.; Qiao, J. X.; Schmidt, M. A.; Deery, M. J.; Eastgate, M. D.; Dawson, P. E.; Bernardes, G. J. L.; Baran, P. S. Serine-Selective Bioconjugation. *J. Am. Chem. Soc.* **2020**, 142, 41, 17236 – 17242.
30. Sheng, T.; Zhang, H. -J.; Shang, M.; He, C.; Vantourout, J. C.; Baran, P. S. Electrochemical Decarboxylative N-Alkylation of Heterocycles. *Org. Letters.* **2020**, 22, 7594 – 7598.
31. Chen, L.; Barton, L. M., Vantourout, J. C.; Xu, Y.; Chu, C.; Johnson, E. C.; Sabatini, J. J.; Baran, P. S. Electrochemical Cyclobutane Synthesis in Flow: Scaleup of a Promising Melt-Castable Energetic Intermediate. *Org. Process. Res. Dev.* **2020**, Just Accepted.
32. He, C.; Chu, H.; Stratton, T. P.; Kossler, D.; Eberle, K. J.; Flood, D. T.; Baran, P. S. Total Synthesis of Tagetitoxin. *J. Am. Chem. Soc.* **2020**, 142, 13683 – 13688.
33. Kanda, Y.; Ishihara, Y.; Wilde, N.; Baran, P.S. Two-Phase Total Synthesis of Taxanes: Tactics and Strategies. *J. Org. Chem.* **2020**, 85, 10293 – 10320.
34. Gnaim, S.; Takahira, Y.; Wilke, H. C.; Yao, Z.; Li, K.; Delbrayelle, D.; Echeverria, P. -G.; Vantourout, J. C.; Baran, P. S. Electrochemically Driven Desaturation of Carbonyl Compounds. *Nat Chem.* **2020**, 4, 367 – 372.
35. McClymont, K. S.; Wang, F.-Y.; Minakar, A.; Baran, P. S.; Total Synthesis of (–)-Maximiscin. *J. Am. Chem. Soc.* **2020**, 142, 19, 8608 – 8613.
36. Flood, D. T.; Knouse, K. W.; Vantourout, J. C.; Sanchez, B. B.; Sturgell, E. J.; Chen, J. S.; Baran, P. S.; Dawson, P. E. Synthetic Elaboration of Native DNA by RASS (SENDR) *ACS Cent Sci.* **2020**, 6, 10, 1789n – 1799.

37. Kanda, Y.; Nakamura, H.; Umemiya, S.; Puthukanoori, R. K.; Appala, V. R. M.; Gaddamanugu, G. K.; Paraselli, B. R.; Baran, P. S. Two-Phase Synthesis of Taxol®. *J. Am. Chem. Soc.* **2020**, *142*, 10526 – 10533.
38. Kawamata, Y.; Baran, P. S. Electrosynthesis: Sustainability Is Not Enough. *Joule*, **2020**, *4*, 701 – 704
39. Flood, D. T.; Kingston, C.; Vantourout, J. C.; Dawson, P. E.; Baran, P. S. DNA Encoded Libraries: A Visitor's Guide. *Isr. J. Chem.* **2020**, *60*, 268 – 280
40. Xu, D.; Rivas-Bascón, N.; Padial, N. M.; Knouse, K. W.; Zheng, B.; Vantourout, J. C.; Schmidt, M. A.; Eastgate, M. D.; Baran, P. S. Enantiodivergent Formation of C–P Bonds: Synthesis of P-Chiral Phosphines and Methyl-phosphonate Oligonucleotides. *J. Am. Chem. Soc.* **2020**, *142*, 5785 – 5792.
41. Flood, D. T.; Zhang, Z. Fu, Z. Zhao, Z.; Asai, S.; Sanchez, B.; Strugell, E. J.; Vantourout, J. C.; Richardson, P.; Flanagan, M. E.; Piotrowski, D. W.; Kölmel, D. K.; Wan, J.; Chang, Y.; Wang, Z.; Chen, J.; Baran, P. S.; Dawson, P. RASS-Enabled S/P–C and S–N Bond Formation for DEL Synthesis. *Angew. Chem. Int. Ed.* **2020**, doi:10.1002/anie.201915493
42. Reisberg, S. H.; Gao, Y.; Walker, A. S.; Helfrich, E. J. N.; Clardy, J.; Baran, P. S. Total synthesis reveals atypical atropisomerism in a small-molecule natural product, tryptorubin A. *Science* **2020**, *367*, 458 – 463.
43. Kingston, C.; Palkowitz, M. D.; Takahira, Y.; Vantourout, J. C.; Peters, B. K.; Kawamata, Y.; Baran, P. S. A Survival Guide for the "Electro-curious" *Acc. Chem. Res.* **2020**, *53*, 72 – 83.
44. Barton, L. M.; Edwards, J. T.; Johnson, E. C.; Bukowski, E. J.; Sausa, R. C.; Byrd, E. F. C.; Orlicki, J. A.; Sabatini, J. J.; Baran, P. S. Impact of Stereo- and Regiochemistry on Energetic Materials. *J. Am. Chem. Soc.* **2019**, *141*, 12531 – 12535.
45. Xiang, J.; Shang, M.; Kawamata, Y.; Lundberg, H.; Resiberg, S.; Chen, M.; Mykhailiuk, P.; Beutner, G.; Collins, M.; Davies, A.; Del Bel, M.; Gallego, G.; Spangler, J.; Starr, J. T.; Yang, S.; Blackmond, D.; Baran, P. S. Hindered Dialkyl Ether Synthesis via Electrogenenerated Carbocations. *Nature*. **2019**, *573*, 398 – 402.
46. Flood, D. T.; Asai, S.; Zhang, X.; Wang, J.; Yoon, L.; Adams, Z. C.; Dillingham, B. C.; Sanchez, B.; Vantourout, J. C.; Flanagan, M. E.; Piotrowski, D. W.; Richardson, P.; Green, S.; Shenvi, R.; Chen, J.; Baran, P. S.; Dawson, P. Expanding Reactivity in DNA-Encoded Library Synthesis via Reversible Binding of DNA to an Inert Quaternary Ammonium Support. *J. Am. Chem. Soc.* **2019**, *141*, 9998 – 10006.

47. Ni, S.; Padial, N. M.; Kingston, C.; Vantourout, J. C.; Schmitt, D. C.; Edwards, J. T.; Kruszyk, M.; Merchant, R. R.; Mykhailiuk, P. K.; Sanchez, B.; Yang, S.; Perry, M.; Gallego, G. M.; Mousseau, J. J.; Collins, M. R.; Cherney, R. J.; Lebed, P. S.; Chen, J. S.; Qin, T.; Baran, P. S. A Radical Approach to Anionic Chemistry: Synthesis of Ketones, Alcohols, and Amines. *J. Am. Chem. Soc.* **2019**, *141*, 6726 – 6739.
48. Takahira, Y.; Chen, M.; Kawamata, Y.; Mykhailiuk, P.; Nakamura, H.; Peters, B. K.; Reisberg, S. H.; Li, C.; Chen, L.; Hoshikawa, T.; Shibuguchi, T.; Baran, P. S. Electrochemical C(sp<sup>3</sup>)-H Fluorination. *Synlett*, **2019**, *30*, 1178-1182.
49. Kawamata, Y.; Vantourout, J. C.; Hickey, D. P.; Bai, P.; Chen, L.; Hou, Q.; Qiao, W.; Barman, K.; Edwards, M. A.; Garrido-Castro, A. F.; deGruyter, J. N.; Nakamura, H.; Knouse, K.; Qin, C.; Clay, K. J.; Bao, D.; Li, C.; Starr, J. T.; Garcia-Irizarry, C.; Sach, N.; White, H. S.; Neurock, M.; Minter, S. D.; Baran, P. S. Electrochemically Driven, Ni-Catalyzed Aryl Amination: Scope, Mechanism, and Applications. *J. Am. Chem. Soc.* **2019**, *141*, 6392 – 6402.
50. Peters, B. K.; Rodriguez, K. X.; Reisberg, S. H.; Beil, S. B.; Hickey, D. P.; Kawamata, Y.; Collins, M.; Starr, J.; Chen, L.; Udyavara, S.; Klunder, K.; Gorey, T. J.; Anderson, S. L.; Neurock, M.; Minter, S. D.; Baran, P. S. Scalable and Safe Synthetic Organic Electroreduction Inspired by Li-Ion Battery Chemistry. *Science*. **2019**, *363*, 838 – 845.
51. Shang, M.; Feu, K. S.; Vantourout, J. C.; Barton, L. M.; Osswald, H. L.; Kato, N.; Gagaring, K.; McNamara, C. W.; Chen, G.; Hu, L.; Ni, S.; Fernández-Canelas, P.; Chen, M.; Merchant, R. R.; Qin, T.; Schreiber, S.; Melillo, B.; Yu, J. –Q.; Baran, P. S. Modular Stereocontrolled C $\beta$ -H/C $\alpha$ -C Activation of Alkyl Carboxylic Acids. *Proc Natl Acad Sci.* **2019**, *116*, 18, 8721 – 8727.
52. Nakamura, H.; Yasui, K.; Kanda, Y.; Baran, P. S. 11-Step Total Synthesis of Teleocidins B-1-B-4. *J. Am. Chem. Soc.* **2019**, *141* (4) 1494 – 1497.
53. Chen, T. –G.; Zhang, H.; Mykhailiuk, P. K.; Merchant, R. R.; Smith, C. A.; Qin, T.; Baran, P. S. Quaternary Centers via Ni-Catalyzed Cross-Coupling of Tertiary Carboxylic Acids and Aryl Zinc Reagents. *Angew. Chem. Int. Ed.* **2019**, *58*, 2454 – 2458
54. Chi, H.; Stratton, T. P.; Baran, P. S. Concise Total Synthesis of Herquelines B and C. *JACS.* **2019**, *141*, 29 – 32.
55. Kingston, C.; Wallace, M.; Allentoff, A. J.; deGruyter, J.; Chen, J.; Gong, S.; Bonacorsi, S. Jr.; Baran, P. S. Direct Carbon Isotope Exchange Through Decarboxylative Carboxylation. *JACS.* **2019**, *141*, (2) 774 – 779.
56. Smith, J.; Dixon, J.; deGruyter, J. N.; Baran, P. S. Alkyl Sulfinates: Radical Precursors Enabling Drug Discovery. *J. Med. Chem.* **2018**, ASAPs.

57. Ni, S.; Garrido-Castro, A. F.; Merchant, R. R.; deGruyter, J. N.; Schmitt, D. C.; Mousseau, J. J.; Gallego, G. M.; Yang, S.; Collins, M. R.; Qiao, J. X.; Yeung, K.; Langley, D. R.; Poss, M. A.; Scola, P. M.; Qin, T.; Baran, P. S. A General Amino Acid Synthesis Enabled by Innate Radical Cross-Coupling, *Angew. Chem. Int. Ed.* **2018**, *57*, 14560 – 14565.
58. Wang, J.; Shang, M.; Lundberg, H.; Feu, K. S.; Hecker, S. J.; Qin, T.; Blackmond, D. G.; Baran, P. S. Cu-Catalyzed Decarboxylative Borylation. *ACS Catal.* **2018**, *8*, 9537 – 9542.
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265. Nicolaou, K.C.; Baran, P.S.; Zhong, Y.-L.; Fong, K.C.; He, Y.; Yoon, W.H.; Choi, H.S. Total Synthesis of the CP Molecules CP-263,114 and CP-225, 917 - Part 2: Evolution of the Final Strategy, *Angew. Chem. Int. Ed.* **1999**, *38*, 1676 – 1678.
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## Patents

1. Nicolaou, K. C.; Zhong, Y.-L.; Baran, P.S. Formation of Heterocycles Using *o*-Iodoxy Benzoic Acid (IBX). PCT WO 01/14348/2001.
2. Nicolaou, K. C.; Zhong, Y.-L.; Baran, P.S. Polycycization Reaction. PCT, WO 01/07979/2001.

3. Chen, K.; Richter, J. M.; Baran, P. S. 1,3-Diol Synthesis via Controlled, Radical-Mediated C–H Functionalization. PCT WO 09/137691/2009.
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5. Avdagic, A., Baran, P. S. Processes for the Preparation of an Intermediate in the Synthesis of Eltrombopag. WO 2013/049605A1.
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8. Baran, P. S. Difluoromethylation of Unsaturated Compounds, EP Patent No: 2785723/2016.
9. Valente, S.; Baran, P. S. Inhibitors of Retroviral Replication, US Patent No: 9,682,994/2017.
10. Romesberg, F. E.; Baran, P. S.; Peters, D. S. Synthesis of the Arylomycin Macrocyclic Core. PCT, WO 17/214534/2017.
11. Aspuru-Guzik, A.; Gomez-Bombarelli, R.; Hirzel, T. D.; Aguilera-Iparraguirre, J.; Baran, P. S. Compounds for Organic Light Emitting Diode Materials. WO 2017/205425A1.
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13. Baran, P. S.; Chase, C. E.; Fang, F. G. Intermediates in the Synthesis of Eribulin and Related Methods of Synthesis. US Patent No. 10,676,481/2020.
14. Baran, P. S.; Horn, E.; Waldmann, D. Closure for an Electrochemical Vessel, Electrochemical Vessel and Laboratory Device. US Patent No. 10,656,118/2020.
15. Baran, P. S.; Li, C.; Wang, J.; Chatterjee, A. K.; Kumar, M.; Yu, A. W.; Johnson, K. A.; Qin, T.; Shang, M. Cu and Ni-Catalyzed Decarboxylative Borylation. US Patent Application Publication No. 2020/0024290.

- Schmidt, M. A.; Zheng, B.; Knouse, K.; DeGruyter, J.; Eastgate, M. D.; Baran, P.; Ewing, W. R.; Olson, R. E.; McDonald, I. M. Novel Phosphorous (V)-Based Reagents, Processes for the Preparation Thereof, and Their Use in Making Stereo-Defined Organophosphorous (V) Compounds. US 2019/0322694.
- Cohen, S. B.; Lu, D.; Barmare, F.; Usui, I.; Macherla, V.R. R.; Stout, E. P.; Beverage, J. N.; Esquenazi, E.; Jordan, P. A.; Baran, P. S.; Teijaro, J. R. Compounds for use in Anti-Cancer Immunotherapy. US Application # WO2020US34991A/2020-05-28.
- Baran, P. S.; Vantourout, J. C.; Chen, T. -G.; Del-Brayelle, D.; Echeverria, P. G. Process for the Preparation of Silodosin. WO2021/205023 A1.

### **Educational Short Courses**

- Celgene, Heterocyclic Chemistry, **2009 – 2010**.
- Genentech, Heterocyclic Chemistry, **2014**.

### **Books**

- Ishihara, Y.; Montero, A.; Baran, P.S. *The Portable Chemist's Consultant: A Survival Guide for Discovery, Process, and Radiolabeling*. Macintosh Publishing, 2013. (electronic book) Link: <https://itunes.apple.com/us/book/portable-chemists-consultant/id618463142?ls=1>

### **Book Chapters**

- Gianatassio, R.; Ishihara, Y.; Baran, P. S. Sodium 1,1-Difluoroethanesulfinate. In *Encyclopedia of Reagents for Organic Synthesis*; Paquette, L. A., Ed.; Wiley: Chichester, 2014, DOI: 10.1002/047084289X.rn01783.



- Nicolaou, K. C.; Montagnon, T.; Baran, P. S.; Uyanik, M.; Ishihara, K. 1,2-Benziodoxol-3(1*H*)-one, 1-Hydroxy, 1-oxide. In *Encyclopedia of Reagents for Organic Synthesis*; Paquette, L. A., Ed.; Wiley: Chichester, 2014, DOI: 10.1002/047084289X.rn01787.
- Gianatassio, R.; Ishihara, Y.; Baran, P. S. Zinc Difluoromethanesulfinate. In *Encyclopedia of Reagents for Organic Synthesis*; Paquette, L. A., Ed.; Wiley: Chichester, 2014, DOI: 10.1002/047084289X.rn01787.
- Ishihara, Y.; Gianatassio, R.; Baran, P. S. Zinc Isopropylsulfinate. In *Encyclopedia of Reagents for Organic Synthesis*; Paquette, L. A., Ed.; Wiley: Chichester, 2014, DOI: 10.1002/047084289X.rn01785.
- Ishihara, Y.; Gianatassio, R.; Baran, P. S. Zinc Trifluoromethanesulfinate. In *Encyclopedia of Reagents for Organic Synthesis*; Paquette, L. A., Ed.; Wiley: Chichester, 2014, DOI: 10.1002/047084289X.rn01786.
- Pan, C.-M.; Ishihara, Y.; Baran, P. S. Zinc Palau'chlor. In *Encyclopedia of Reagents for Organic Synthesis*; Paquette, L. A., Ed.; Wiley: Chichester, 2016, DOI: 10.1002/047084289X.rn01901

### Miscellaneous

- Baran, P.S. Dead Ends and Detours. Direct Ways to Successful Total Synthesis. Book by Sierra, M.A.; de la Torre, M.C. *Angew. Chem. Int. Ed.* **2005**, *44*, 3338 – 3339. (Book Review)
- Baran, P. S.; Maimone, T. J. Organic chemistry: A tuxedo for iodine atoms. *Nature* **2007**, *445*, 826-827.
- McKerrall, S.; Baran, P.S. More Dead Ends and Detours. En Route to Successful Total Synthesis. Book by Sierra, M.A.; de la Torre, M.C.; Cossio, F.P. *Angew. Chem. Int. Ed.* **2014**, *53*, 1740. (Book Review)
- Baran, P.S. Carlos F. Barbas, III (1964-2014). *Angew. Chem. Int. Ed.* **2014**, *53*, 9704 – 9705. (Obituary).
- Smith, M. W.; Baran, P.S. As simple as [2+2]. *Science* **2015**, *349*, 925-926.
- Villaume, M. T.; Baran P. S. Organic Chemistry: Reactivity tamed one bond at a time. *Nature* **2015**, *513*, 324-325.
- Farmer, M. E.; Baran, P. S. Organic Chemistry: A cure for catalyst poisoning. *Nature* **2015**, *524*, 164-165.
- Yan, M; Baran, P. S. Drug Discovery: Fighting evolution with chemical synthesis. *Nature* **2016**, *533*, 326-327.

### **Book Forewords**

1. Li, J.J. *From Lipitor to Viagra: Stories Behind the Drugs We Use*, Oxford Press, **2006**
2. Li, J.J.; Limberakis, C.; Pflum, D.A. *Modern Organic Synthesis in the Laboratory*, Oxford Press, **2006**
3. Li, J.J. *Name Reactions*, Springer, 3<sup>rd</sup> edition, **2006**
4. Li, J.J. *Name Reactions*, Springer, 4<sup>th</sup> edition, **2009**

### **Named and Plenary Lectureships and Visiting Professorships**

1. Closs Lecturer, University of Chicago, Chicago, IL (January, 2005)
2. Plenary Lecturer, Roche Excellence in Chemistry Symposium, Nutley, NJ (May, 2005)
3. Visiting Professor, University of Strasbourg, Alsace, France (2 lectures, July, 2005)
4. Plenary Lecturer, Amgen Young Investigators Symposium, Thousand Oaks, CA (September, 2005)
5. Plenary Lecturer, GlaxoSmithKline Chemistry Scholars Symposium, Chapel Hill, NC (September, 2005)
6. Plenary Lecturer, AstraZeneca Award & Symposium, Wilmington, DE (October, 2005)
7. Foster Lecturer, University of New York, Buffalo, NY (December, 2005)
8. Bristol-Myers Squibb Lecturer, Princeton University, Princeton, NJ (March, 2006)
9. Novartis Lecturer, Boston University, Boston, MA (March, 2006)
10. Pfizer Lecturer, Harvard University, Boston, MA (April, 2006)
11. Plenary Lecturer, CMB Cyprus '06, Cyprus (May, 2006)
12. Plenary Lecturer, Visions in Chemistry Symposium, Bridgewater, NJ (May, 2006)
13. Plenary Lecturer, Roche Symposium, University of Colorado, Denver, CO (June, 2006)
14. Plenary Lecturer, ORCHEM Conference, Bad Nauheim, Germany (September, 2006)
15. Plenary Lecturer, University of Western Ontario Symposium, Ontario, Canada (November, 2006)
16. Merck Frosst Lecturer, Merck Frosst, Montreal, Quebec, Canada (November, 2006)

17. Merck Frosst Lecturer, University of Toronto, Toronto, Ontario, Canada (November, 2006)
18. Plenary Lecturer, Hirata Memorial Lecture, Nagoya, Japan (February, 2007)
19. Abbott Lecturer, University of California, Berkeley, Berkeley, CA (March, 2007)
20. Roche Lecturer, Colorado State University, Fort Collins, CO (March, 2007)
21. National Fresenius Award Symposium, 23<sup>rd</sup> ACS Meeting, Chicago, IL (March, 2007)
22. Abbot Lecturer, University of California, Berkeley, Berkeley, CA (March, 2007)
23. Plenary Lecturer, Bürgenstock Conference on Stereochemistry, Geneva, Switzerland (April, 2007)
24. Keynote Speaker, Pfizer, Groton, CT (August, 2007)
25. Keynote Speaker, Pfizer Green Chemistry Symposiums, La Jolla, CA (December, 2007)
26. National Fresenius Award Lecture, Purdue University, West Lafayette, IN (January, 2008)
27. Plenary Lecturer, Sheffield Stereochemistry Meeting, Sheffield, United Kingdom (January, 2008)
28. Abbott Lecturer, University of Kansas, Lawrence, KS (February, 2008)
29. Plenary Lecturer, Chemistry as a Life Sciences Symposium, Newark, NJ (March, 2008)
30. Abbott Lecturer, University of Notre Dame, Notre Dame, IN (April, 2008)
31. Plenary Lecturer, Lilly Symposium, Madrid, Spain (April, 2008)
32. Rothchild Lecturer, University of Rochester, Rochester, NY (May, 2008)
33. Plenary Lecturer, BOSS Symposium, Ghent, Belgium (July, 2008)
34. LEO Pharma Lecturer, Technical University of Denmark, Copenhagen, Denmark (July, 2008)
35. Novartis Lecturer, Novartis, Emeryville, CA (August, 2008)
36. Merck Lecturer, IASOC Conference, Ischia, Naples, Italy (September, 2008)
37. Merck-Frosst Lecturer, Université de Montréal, Montreal, Quebec, Canada (October, 2008)
38. Eli Lilly Lecturer, Yale University, New Haven, CT (November, 2008)
39. Novartis Lecturer, Cambridge University, Cambridge, United Kingdom (March, 2009)

40. Plenary Lecture, Munich Synthesis Fest, University of Munich, Munich, Germany (March, 2009)
41. Plenary Lecturer, 9<sup>th</sup> Bristol Synthesis Meeting, University of Bristol, Bristol, United Kingdom (March, 2009)
42. Distinguished Lecture Series, Genomics Institute of the Novartis Research Foundation, La Jolla, CA (March, 2009)
43. Sackler Prize Symposium, Tel Aviv University, Tel Aviv, Israel (May, 2009)
44. Plenary Lecture, National Organic Symposium, Boulder, CO (June, 2009)
45. Lecture Series, ICIQ Summer School, Tarragona, Spain (July, 2009)
46. Plenary Lecturer, Princeton American Chemical Society Symposium, Princeton, NJ (September, 2009)
47. Plenary Lecturer, Johnson Symposium, Stanford University, Palo Alto, CA (October 2009)
48. Plenary Lecturer, Welch Conference, Houston, TX (October, 2009)
49. Plenary Lecturer, IKCOC-11, Kyoto, Japan (November, 2009)
50. Japan Society for the Promotion of Science Fellowship Lecturer, University of Tokyo, Tokyo, Japan (November, 2009)
51. Plenary Lecturer, Visions in Organic Chemistry, Copenhagen, Denmark (January, 2010)
52. Plenary Lecturer, Frontiers in Biomedical Research Symposium, Indian Wells, CA (February, 2010)
53. Boehringer-Ingelheim Lecturer, University of Ottawa, Ontario, Canada (March, 2010)
54. Inaugural Lecturer of the Student Selected Seminar Series, Indiana University, Bloomington, IN (March, 2010)
55. Plenary Award Lecture, 239<sup>th</sup> National Meeting of the American Chemical Society, San Francisco, CA (March, 2010)
56. Francis Clifford Phillips Lecture, University of Pittsburgh, Pittsburgh, PA (April, 2010)
57. Plenary Lecturer, Balticum Organicum Syntheticum, Riga, Latvia (June, 2010)
58. Plenary Lecturer, IUPAC's 18<sup>th</sup> International Conference on Organic Synthesis, Bergen, Norway (August, 2010)
59. Keynote Lecturer, Gregynog Meeting, Wales, United Kingdom (September, 2010)
60. Life Science Lecturer, Bayer Schering Pharma AG, Berlin and Wuppertal, Germany (September, 2010)
61. Fuson Visiting Professor, University of Illinois, Urbana, IL (October, 2010)
62. Chemistry Graduate Student Society Distinguished Speaker, University of British Columbia, Vancouver, British Columbia, Canada (October, 2010)

63. Joel C. Huff Lecturer, Harvard University, Cambridge, MA (October, 2010)
64. Bristol-Myers Squibb Lecturer in Organic Chemistry, University of Michigan, Ann Arbor, MI (December, 2010)
65. Plenary Lecturer, Indian Organic Chemistry Conference, Goa, India (December, 2010)
66. Scynexis Lecturer, The University of North Carolina at Chapel Hill, Chapel Hill, NC (March, 2011)
67. Senior Speaker, American Chemical Society Meeting, Organic Division, Anaheim, CA (March, 2011)
68. AstraZeneca Distinguished Lecturer, Université de Sherbrooke, Sherbrooke, Quebec, Canada (May, 2011)
69. Plenary Lecturer, 17<sup>th</sup> European Symposium on Organic Chemistry, Crete, Greece (July, 2011)
70. AstraZeneca École Polytechnique Lecturer, Palaiseau, France (July, 2011)
71. Plenary Award Lecturer, 23<sup>rd</sup> International Congress on Heterocyclic Chemistry, Glasgow, Scotland (August, 2011)
72. Plenary Lecturer, 52<sup>nd</sup> American Society of Pharmacology Meeting, San Diego, CA (August, 2011)
73. Plenary Lecturer, 14<sup>th</sup> Brazilian Meeting on Organic Synthesis, Brasília, Brazil (September, 2011)
74. Plenary Lecturer, Symposium on Advanced Organic Synthesis and Catalysis, Hefei, China (October, 2011)
75. Keynote Lecturer, Vertex Day, University of California, Irvine, Irvine, CA (October, 2011)
76. Plenary Lecturer, 21<sup>st</sup> Symposium on Optically Active Compounds, Tokyo, Japan (November, 2011)
77. Plenary Lecturer, 13<sup>th</sup> Florida Heterocyclic and Synthetic Conference, Gainesville, FL (March, 2012)
78. Lecturer for the Frontiers in Chemistry Lecture Series, Case Western Reserve University, Cleveland, OH (March, 2012)
79. Lecturer, 2012 Medicinal Chemistry Colloquium Series, Gilead, Foster City, CA (March, 2012)
80. Lecturer for the Frontiers in Chemical Research Lecture Series, Texas A&M University, College Station, TX (April, 2012)
81. Plenary Lecturer, French American Chemical Society XIV Meeting, Nantasket, MA (June, 2012)
82. Plenary Lecturer, 24<sup>th</sup> Organic Chemistry Biannual Meeting of the Spanish Royal Chemical Society, San Sebastián, Spain (July, 2012)
83. Plenary Lecturer, RSEQ Organic Chemistry Symposium, Santiago de Compostela, Spain (July, 2012)
84. Plenary Lecturer, Gordon Research Conference, Organic Reaction and Processes, Smithfield, RI (July, 2012)
85. Plenary Lecturer, National American Chemical Society Meeting, Philadelphia, PA (August, 2012)

86. Plenary Lecturer, The 6<sup>th</sup> Takeda Science Foundation Symposium on Pharma Sciences, Osaka, Japan (September, 2012)
87. Howard Memorial Lecturer, Sydney University, University of New South Wales, Sydney, Australia (September, 2012)
88. Plenary Lecturer, 10<sup>th</sup> Lilly Research Awards for Graduate Students, Madrid, Spain (September, 2012)
89. Student Invited Speaker, Virginia Polytechnic Institute and State University, Blacksburg, VA (November, 2012)
90. Plenary Lecturer, Creativity Award Symposium for K.C. Nicolaou, NJ (November, 2012)
91. Plenary Lecturer, Novartis Chemical Sciences Lectureship, UT Southwestern Medical Center, Dallas, TX (December, 2012)
92. Student Invited Speaker, University of Houston, Houston, TX (December, 2012)
93. Lilly Lecturer 2013, Imperial College London, London, United Kingdom (January, 2013)
94. Samuel M. McElvian Academic Lecturer in Organic Chemistry, University of Wisconsin, Madison, WI (January, 2013)
95. Plenary Lecturer, E.B. Hershberg Award Symposium to honor Bruce Maryanoff, New Orleans, LA (April, 2013)
96. Plenary Lecturer, Bristol-Myers Squibb Symposium, Princeton, NJ (April, 2013)
97. Plenary Lecturer, Sackler Symposium, Tel Aviv, Israel (June, 2013)
98. Keynote Lecturer, Tetrahedron Conference, Vienna, Italy (June, 2013)
99. Plenary Lecturer, Synthesis in Organic Chemistry Symposium, University of Oxford, Oxford, United Kingdom (July, 2013)
100. Student Invited Organic Seminar Speaker, Harvard University, Cambridge, MA (August, 2013)
101. Plenary Lecturer, Princeton University, Princeton, NJ (September, 2013)
102. Plenary Lecturer, Pharmaron Symposium, Beijing, China (September, 2013)
103. Bristol-Myers Squibb Lecturer, Columbia University, New York, NY (January, 2014)
104. George Büchi Visiting Lecturer in Organic Chemistry for 2013-2014, Massachusetts Institute of Technology, Cambridge, MA (February, 2014)
105. Organic/Bristol-Myers Squibb Lecturer, U.C. Berkeley, Berkeley, CA (April, 2014)
106. Plenary Speaker, Institute of Chemical Research of Catalonia, Tarragona, Spain (July, 2014)
107. Plenary Lecturer, 2<sup>nd</sup> International Symposium on Natural Product Synthesis and Process Methods for Drug Manufacture, Nanjing University, China (September, 2014)

108. Mukaiyama Award Lecturer, The Committee of The Society of Synthetic Organic Chemistry, Fukuoka, Kyusyu, Japan (September, 2014)
109. 2014 Aldrich-UCLA Lecturer, Organic Colloquium, University of California, Los Angeles, Los Angeles, CA (October, 2014)
110. Plenary Lecturer, AbbVie Global Synthesis Summit, North Chicago, IL (October, 2014)
111. Plenary Speaker, Pauling Medal Award Symposium, Bellingham, WA (October, 2014)
112. The Ferrier Lecturer, Victoria University, Wellington, New Zealand (December, 2014)
113. Plenary Speaker, Royal Australian Chemical Institute National Congress, Adelaide, Australia (December, 2014)
114. 2015 5-College Lectures in Chemistry, Smith College, Northampton, MA (March, 2015)
115. Paul Gassman Memorial Seminar Speaker, Canisius College, Buffalo, NY (March, 2015)
116. Plenary Speaker, 32<sup>nd</sup> Annual HC Brown Lectures, Purdue University, West Lafayette, IN (April, 2015)
117. Morris S. Kharasch Visiting Professor, University of Chicago, Chicago, IL (April, 2015)
118. Bristol-Myers Squibb Lecturer, University of Pennsylvania, Philadelphia, PA (May, 2015)
119. College of Arts and Science Alumni Distinguished Service Award Recipient at the CAS Baccalaureate Graduation Ceremony, New York University, New York, NY (May, 2015)
120. Plenary Speaker, 15<sup>th</sup> Annual Symposium on Molecular Discovery, Boston University, Boston, MA (June, 2015)
121. Plenary Speaker, Yale University, New Haven, CT (June, 2015)
122. Plenary Speaker, Professor Stephen L. Buchwald's 60<sup>th</sup> Birthday, Massachusetts Institute of Technology, Cambridge, MA (August, 2015)
123. Plenary Speaker, International Society of Heterocyclic Chemistry Congress, Santa Barbara, CA (August, 2015)
124. Plenary Speaker, C&EN Virtual Symposium, Advances in Drug Discovery & Development, Virtual (September, 2015)
125. Plenary Speaker, 2015 Bristol-Myers Squibb Lecturer, Boston College, Chestnut Hill, MA (October, 2015)
126. Plenary Speaker, World ACD, San Diego, CA (October, 2015)
127. Bohlmann Lecturer, Institut für Chemie at the Technische Universität Berlin, Berlin, Germany (November, 2015)
128. Elias J. Corey Award for Outstanding Original Contribution in Organic Synthesis by a Young Investigator, Society's 251<sup>st</sup> ACS National Meeting, San Diego, CA (March, 2016)

129. Actelion Sandmeyer Lecturer, Actelion Pharmaceuticals Ltd., Allschwil, Switzerland (November, 2016)
130. EROS Reagent of the Year Lecturer, University of Basel, Basel, Switzerland (November, 2016)
131. Emanuel Merck Lectureship, TU Darmstadt, Darmstadt, Germany (May, 2017)
132. Keynote Speaker, Gordon Research Conference, New London, NH (August, 2017)
133. Plenary Speaker, IKA Works, Inc., ACS 254<sup>th</sup> National Meeting, Washington, D.C. (August, 2017)
134. Keynote Speaker, Pfizer, Groton, CT (October, 2017)
135. Keynote Speaker, Lilly Grantee Symposium, Indianapolis, IN (March, 2018)
136. Keynote Speaker, Gordon Research Conference, Newport, RI (June, 2018)
137. Tetrahedron Chair Lectureship, BOSS XVI, Brussels, Belgium "*Lecture: Studies in Natural Product Synthesis*" (July 2018)
138. Tetrahedron Chair Lectureship, BOSS XVI, Brussels, Belgium "*Lecture: Translational Chemistry - part 1*" (July, 2018)
139. Tetrahedron Chair Lectureship, BOSS XVI, Brussels, Belgium "*Lecture: Translational Chemistry - Part 2*" (July, 2018)
140. Tetrahedron Chair Lectureship, BOSS XVI, Brussels, Belgium "*Lecture: Electrifying Synthesis*" (July, 2018)
141. Keynote Speaker, The 44<sup>th</sup> Future Lecture Series, Beijing, China (September, 2018)
142. Keynote Speaker, 14<sup>th</sup> Winter Conference on Medicinal and Bioorganic Chemistry, Steamboat Springs, CO (January, 2019)
143. Inaugural Lecturer, 21<sup>st</sup> Annual Perspectives on Science, Point Loma Nazarene University, San Diego, CA (February, 2019)
143. Inhoffen Lecturer, Braunschweig, Germany (April, 2019)
144. Plenary Speaker, 9<sup>th</sup> Pacific Symposium on Radical Chemistry, Pacific Grove, CA (June, 2019)
145. Plenary Speaker, 20<sup>th</sup> European Symposium on Organic Chemistry, Vienna, Austria (July, 2019)
146. Keynote Speaker, Gordon Research Conference, Andover, NH (August, 2019)
147. Keynote Speaker, Karle Symposium, University of Michigan, Ann Arbor, MI (August, 2019)
148. Plenary Speaker, Drug Discovery Chemistry, Virtual (August 2020)
149. Keynote Speaker, OPT Congress, Oligonucleotide and Precision Therapeutics, Virtual (October 2020)
150. Plenary Speaker, 19<sup>th</sup> Annual CSCB, Virtual (December 2020)



151. Keynote Speaker, German Peptide Symposium, Virtual (March 2021)
152. Keynote Speaker, India-UK ISCC Mini-Symposium, Virtual (April 2021)
153. Plenary Speaker, ISySyCat2021, Virtual (August 2021)
154. Keynote Speaker, ECMNP-XII, Virtual (September 2021)
155. Plenary Speaker, University of Mexico, Virtual (December 2021)
156. Plenary Speaker, 142<sup>nd</sup> Annual Meeting of the Pharmaceutical Society of Japan, Virtual (March 2022)
157. Plenary Speaker, Swedish Chemical Society 2022, Virtual (June 2022)
158. Keynote Speaker, Curious2022 - Future Insight Conference, Virtual (July 2022)
159. Plenary Speaker, NZIC 2022, Virtual (November 2022)

### **Research Presentations**

1. Pfizer, St. Louis, MO (March, 2004)
2. Gordon Research Conference, Heterocyclic Compounds, Newport, RI (July, 2004)
3. San Diego Section of American Chemical Society, La Jolla, CA (August, 2004)
4. Pfizer, Ann Arbor, MI (September, 2004)
5. University of Michigan, Ann Arbor, MI (September, 2004)
6. Microwave Assisted Organic Synthesis Symposium, La Jolla, CA (October, 2004)
7. University of California, Los Angeles, Los Angeles, CA (November, 2004)
8. DuPont, Wilmington, DE (November, 2004)
9. Abbott Laboratories, Chicago, IL (February, 2005)
10. University of California, Santa Cruz, Santa Cruz, CA (March, 2005)
11. Brandeis University, Boston, MA (April, 2005)
12. Millenium Pharmaceuticals, Cambridge, MA (April, 2005)
13. Novartis, Cambridge, MA (April, 2005)

14. Eisai Pharmaceuticals, Cambridge, MA (April, 2005)
15. University of California, Los Angeles, Los Angeles, CA (May, 2005)
16. Schuster Symposium, New York University, New York, NY (June, 2005)
17. National Science Foundation Synthesis Workshop, Lake Arrowhead, CA (June, 2005)
18. Eli Lilly and Co., Indianapolis, IN (July, 2005)
19. International Conference Heterocyclic Chemistry Lecture, Palermo, Italy (July, 2005)
20. GlaxoSmithKline, Philadelphia, PA (August, 2005)
21. Bristol-Myers Squibb Pharmaceutical Research Institute, Lawrenceville, NJ (September, 2005)
22. Bristol-Myers Squibb Pharmaceutical Research Institute, Hopewell, NJ (September, 2005)
23. Kyoto Pharmaceutical University, Kyoto, Japan (September, 2005)
24. Tokyo Institute of Technology, Tokyo, Japan (September, 2005)
25. Tokyo University of Science, Tokyo, Japan (September, 2005)
26. Pennsylvania State University, State College, PA (November, 2005)
27. Hoffmann La Roche, Palo Alto, CA (December, 2005)
28. University of Wisconsin, Madison, WI (January, 2006)
29. Bristol-Myers Squibb, Process Research, East Brunswick, NJ (January, 2006)
30. University of California, Santa Barbara, Santa Barbara, CA (February, 2006)
31. University of Illinois, Urbana, IL (February, 2006)
32. University of Texas, Dallas, TX (February, 2006)
33. Lexicon Pharmaceuticals, Princeton, NJ (March, 2006)
34. Merck Research Laboratories, Whitehouse Station, NJ (March, 2006)
35. Pfizer La Jolla, San Diego, CA (March, 2006)
36. University of Alabama, Tuscaloosa, AL (March, 2006)

37. University of Utah, Salt Lake City, UT (April, 2006)
38. Brigham Young University, Provo, UT (April, 2006)
39. Searle Scholars Annual Meeting, Chicago, IL (April, 2006)
40. Cytokinetics, Inc., San Francisco, CA (April, 2006)
41. Genentech, San Francisco, CA (April, 2006)
42. Stanford University, Palo Alto, CA (April, 2006)
43. Scios Pharmaceuticals, San Francisco, CA (April, 2006)
44. Gilead, San Francisco, CA (April, 2006)
45. University of California, Irvine, Irvine, CA (April, 2006)
46. Schering-Plough Research Institute, Kenilwood, NJ (May, 2006)
47. Scripps Institute of Oceanography, Fenical Symposium, San Diego, CA (June, 2006)
48. Gordon Research Conference, Newport, RI (July, 2006)
49. Tokushima Pre-symposium – Natural Product Chemistry, Tokushima, Japan (July, 2006)
50. IUPAC International Conference on Biodiversity and Natural Products, Kyoto, Japan (July, 2006)
51. IUPAC Post-symposium, Sendai, Japan (July, 2006)
52. Helsinki University of Technology, Espoo, Finland (September, 2006)
53. University of Marburg, Marburg, Germany (September, 2006)
54. Max-Plank-Institute, Mulheim/Ruhr, Germany (September, 2006)
55. Schering Berlin, Berlin, Germany (September, 2006)
56. Johnson & Johnson, La Jolla, CA (December, 2006)
57. Eli Lilly, Madrid, Spain (January, 2007)
58. Columbia University, New York, NY (February, 2007)
59. Texas A&M University, College Station, TX (March, 2007)

60. Massachusetts Institute of Technology, Cambridge, MA (March, 2007)
61. 1<sup>st</sup> Annual Chemistry Graduate Student Seminar, University of Connecticut, Storrs, CT (March, 2007)
62. University of Missouri, Columbia, MI (April, 2007)
63. Amgen, Cambridge, MA (April, 2007)
64. Boston College, Boston, MA (May, 2007)
65. Sepracor, Marlborough, MA (May, 2007)
66. Bristol-Myers Squibb Symposium, New Brunswick, NJ (May, 2007)
67. Heterocyclic Compounds Gordon Research Conference, Newport, RI (June, 2007)
68. GlaxoSmithKline, Madrid, Spain (July, 2007)
69. Natural Products Gordon Research Conference, Tilton, NH (July, 2007)
70. Boston American Chemical Society Symposium, Joullie 80<sup>th</sup> Birthday Celebration, Boston, MA (August, 2007)
71. Beckman Young Investigator Symposium, Irvine, CA (August, 2007)
72. CSS Symposium, Wyeth, Collegeville, PA (September, 2007)
73. Johnson & Johnson PRD, Spring House, PA (October, 2007)
74. Novartis, Cambridge, MA (October, 2007)
75. POCC, University of Pennsylvania, Philadelphia, PA (October, 2007)
76. DuPont, Newark, DE (October, 2007)
77. Schering-Plough, Cambridge, MA (October, 2007)
78. California Institute of Technology, Organic Chemistry Seminar, Pasadena, CA (November, 2007)
79. Sanofi-Aventis, Frankfurt, Germany (January, 2008)
80. Novartis, Basel, Switzerland (January, 2008)
81. Novartis, Vienna, Austria (January, 2008)
82. Novartis, Horsham, United Kingdom (January, 2008)

83. GlaxoSmithKline, Harlow, United Kingdom (January, 2008)
84. AstraZeneca R&D Charnwood, Loughborough, UK (January, 2008)
85. Instituto de Química Orgánica General, Madrid, Spain (January, 2008)
86. 13<sup>th</sup> Biennial Eli Lilly Grantee Symposium, Indianapolis, IN (March, 2008)
87. University of Southern California, Los Angeles, CA (March, 2008)
88. Searle Scholars Annual Meeting, Chicago, IL (April, 2008)
89. Memorial Sloan-Kettering Cancer Center, New York, NY (May, 2008)
90. Bristol-Myers Squibb Symposium, New Brunswick, NJ (May, 2008)
91. Merck, Boston, MA (May, 2008)
92. Pfizer, Sandwich, Kent, United Kingdom (July, 2008)
93. Merck, West Point, PA (August, 2008)
94. Amgen, San Francisco, CA (August, 2008)
95. Exelixis, San Diego, CA (September, 2008)
96. IRBM, Merck, Rome, Italy (September, 2008)
97. AstraZeneca, Boston, MA (October, 2008)
98. Takeda, San Diego, CA (November, 2008)
99. New York University, New York, NY (January, 2009)
100. Genomics Institute of the Novartis Research Foundation, La Jolla, CA (March, 2009)
101. Université Pierre et Marie Curie, Paris, France (March, 2009)
102. Lecture Series, Swiss Federal Institute of Technology, Lausanne, Switzerland (April, 2009)
103. Lecture Series, Swiss Federal Institute of Technology, Basel, Switzerland (April, 2009)
104. Lecture Series, Swiss Federal Institute of Technology, Geneva, Switzerland (April, 2009)
105. Vitae Pharmaceuticals, Fort Washington, PA (July, 2009)

106. Beckman Young Investigators Symposium, Irvine, CA (August, 2009)
107. Boehringer-Ingelheim Pharmaceuticals, Ridgefield, CT (October, 2009)
108. Northwestern University, Evanston, IL (February, 2010)
109. University of Minnesota, Minneapolis, MN (March, 2010)
110. Boehringer-Ingelheim, Laval, Quebec, Canada (March, 2010)
111. GlaxoSmithKline, Upper Merion, PA (March, 2010)
112. Heterocyclic Compounds Gordon Research Conference, Newport, RI (June, 2010)
113. Celgene Research, San Diego, CA (July, 2010)
114. Stereochemistry Gordon Research Conference, Newport, RI (August, 2010)
115. Bristol-Myers Squibb, Wallingford, CT (September, 2010)
116. Syngenta, Jealott's Hill, Berkshire, United Kingdom (September, 2010)
117. UCB Pharma, Slough, United Kingdom (September, 2010)
118. Firmenich, Geneva, Switzerland (September, 2010)
119. The University of Delaware, Newark, DE (October, 2010)
120. The University of Texas at Austin, Austin, TX (November, 2010)
121. L.S. Skaggs Biomedical Symposium, La Jolla, CA (November, 2010)
122. AstraZeneca, Mölndal, Sweden (January, 2011)
123. Pfizer, Cambridge, MA (May, 2011)
124. Abbott Laboratories, Abbott Park, IL (June, 2011)
125. Vertex Pharmaceuticals, San Diego, CA (June, 2011)
126. PA Biotech Center, Doylestown, PA (June, 2011)
127. Eisai, Boston, MA (August, 2011)
128. GlaxoSmithKline Scholar Symposium, Raleigh, NC (September, 2011)

129. The Scripps Research Institute, Scripps Florida, Jupiter, FL (September, 2011)
130. SIOC, Shanghai, China (October, 2011)
131. SIMM, Shanghai, China (October, 2011)
132. WUXI, Shanghai, China (October, 2011)
133. Novartis, Shanghai, China (October, 2011)
134. Albany Molecular Research Inc. Albany, NY (November, 2011)
135. Dow AgroSciences, Indianapolis, IN (March, 2012)
136. Merck Research Laboratories, Boston, MA (March, 2012)
137. Pfizer, San Diego, CA (May, 2012)
138. Millennium Pharmaceuticals, Boston, MA (June, 2012)
139. Broad Institute of MIT and Harvard, Cambridge, MA (July, 2012)
140. Merck Serono, Darmstadt, Germany (August, 2012)
141. Sanofi-Aventis, Frankfurt, Germany (August, 2012)
142. AsymChem Fall Symposium, Tianjin, China (October, 2012)
143. Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai, China (October, 2012)
144. Jiaotong University, Shanghai, China (October, 2012)
145. 5<sup>th</sup> International Forum on Homogeneous Catalysis, SIOC, Shanghai, China (October, 2012)
146. 1<sup>st</sup> International Symposium of C-H Activation, Peking University, Beijing, China (October, 2012)
147. University of Chicago, Department Colloquium, Chicago, IL (December, 2012)
148. Dart NeuroScience, San Diego, CA (April, 2013)
149. 23<sup>rd</sup> Annual Meeting on Structural Biology, San Jose del Cabo, Mexico (May, 2013)
150. Merck, Rahway, NJ (July, 2013)
151. AstraZeneca, Alderley Park, UK (July, 2013)

152. GlaxoSmithKline, Stevenage, UK (July, 2013)
153. Eisai, United Kingdom (July, 2013)
154. Academia Sinica, Taiwan, China (September, 2013)
155. Asymchem Inc., Tianjin, China (September, 2013)
156. Boehringer-Ingelheim, Ridgefield, CT (October, 2013)
157. LEO Ingenol Science Day, LEO Pharma A/S, Ballerup, Denmark (February, 2014)
158. Celgene, San Diego, CA (March, 2014)
159. Marine Natural Products Gordon Research Conference, Ventura, CA (March, 2014)
160. "Advances in C-H Functionalization" Symposium, American Chemical Society National Meeting, Dallas, TX (March, 2014)
161. "MEDI Awards" Symposium, American Chemical Society National Meeting, Dallas, TX (March, 2014)
162. "Award Symposium to Honor Amir Hoveyda," American Chemical Society National Meeting, Dallas, TX (March, 2014)
163. Jewish Federation of San Diego FED Talks, San Diego, CA (March, 2014)
164. Bristol-Myers Squibb Symposium, Princeton, NJ (May, 2014)
165. Johnson & Johnson, San Diego, CA (June, 2014)
166. AstraZeneca, Waltham, MA (October, 2014)
167. Hewitt Foundation Symposium, San Diego, CA (January, 2015)
168. GlaxoSmithKline, King of Prussia, PA (March, 2015)
169. Temple University, Philadelphia, PA (May, 2015)
170. Teva Global Research and Development, West Chester, PA (May, 2015)
171. Gordon Research Conference, New London, NH (June, 2015)
172. San Diego Bio-Pharma Conference, San Diego, CA (June, 2015)
173. AstraZeneca, Waltham, MA (August, 2015)
174. Teva Pharmaceutical Scholars Symposium, Boston, MA (August, 2015)



175. Kevli Symposium, Boston, MA (August, 2015)
176. American Chemical Society, Boston, MA (August, 2015)
177. International Society of Heterocyclic Chemistry, Santa Barbara, CA (August, 2015)
178. Bristol-Myers Squibb Symposium, Princeton, NJ (September, 2015)
179. Northern Section of the ACS Process Symposium, Boston Harbor, MA (October, 2015)
180. Asymchem Inc., Tianjin, China (October, 2015)
181. SIOC, Shanghai, China (October, 2015)
182. WuHan University, WuHan, China (October, 2015)
183. Harvard University, Cambridge, MA (November, 2015)
184. Pacificchem Symposium on Strategies and Tactics in Complex Molecule Synthesis, Honolulu, HI (December, 2015)
185. C-H Functionalization Symposium, Pacificchem, Honolulu, HI (December, 2015)
186. Symposium on Innovative Strategies for the Synthesis of Nitrogen Heterocycles, Honolulu, HI (December, 2015)
187. Genentech, South San Francisco, CA (February, 2016)
188. Emory University, Novartis Lecture, Atlanta, GA (April, 2016)
189. Gilead Sciences, Inc., San Francisco, CA (August, 2016)
190. Inception Sciences, San Diego, CA (August, 2016)
191. Asymchem, Inc., Tianjin, China (October, 2016)
192. University of Basel, Basel, Switzerland (November, 2016)
193. Binghamton University, Binghamton, NY (December, 2016)
194. Student Invited Speaker, Duke University, Durham, NC (April, 2017)
195. Eli Lilly, Madrid, Spain (July, 2017)
196. Student Invited Speaker, 254<sup>th</sup> ACS National Meeting, Graduate Symposium (August, 2017)
197. Alkermes, Waltham, MA (August, 2017)

198. Blueprint Medicines, Cambridge, MA (August, 2017)
199. Celgene, Inc., Summit, NJ (August, 2017)
200. Asymchem, Inc., Tianjin, China (September, 2017)
201. Nankai University, Tianjin, China (September, 2017)
202. Yale University, New Haven. CT (October, 2017)
203. University of Delaware, Wilmington, DE (October, 2017)
204. Stockholm University, Stockholm, Sweden (January, 2018)
205. LEO Pharma, Copenhagen, Denmark (January, 2018)
206. H. Lundbeck A/S, Copenhagen, Denmark (January, 2018)
207. The Torkil Holm Symposium, Copenhagen, Denmark (January, 2018)
208. 255<sup>th</sup> ACS National Meeting, E.J Corey Symposium, New Orleans, LA (March, 2018)
209. Cornell University, Baker Symposium, Ithaca, NY (May, 2018)
210. Electrochemical Society, Seattle, WA (May, 2018)
211. University of CA, Los Angeles (June, 2018)
212. Merck, Rahway, NJ (June, 2018)
213. Novartis, San Diego, CA (June, 2018)
214. UCB Bio Pharma, Brussels, Belgium (July, 2018)
215. Syngenta, Jealott's Hill, UK (July, 2018)
216. GlaxoSmithKline, Stevenage, UK (July, 2018)
217. HitGen Ltd., Chengdu, China (September, 2018)
218. YingDe Lecture, Peking University, Beijing, China (September, 2018)
219. Asymchem, Inc., Tianjin, China (September, 2018)
220. Vertex, San Diego, CA (October, 2018)

221. 257th ACS National Meeting, Derek Horton Symposium, Orlando, FL (March, 2019)
222. 257th ACS National Meeting, Innovative Green Chemistry, Orlando, FL (March, 2019)
223. Beilstein Electrochemistry Symposium, Mainz, Germany (April, 2019)
224. Gordon Research Conference, Newport, RI (June, 2019)
225. IUPAC World Chemistry Congress, Paris (July, 2019)
226. 257th ACS National Meeting, Strained Ring Symposium, San Diego, CA (August, 2019)
227. 257th ACS National Meeting, Smissman Award, San Diego, CA (August, 2019)
228. Colorado State University, Williams Distinguished Lectureship, Fort Collins, CO (October, 2019)
229. IKA Works, EChem Webinar (April, 2020)
230. Cambridge University, Virtual Webinar (May, 2020)
231. Distinguished Lecture, Lawrence Berkeley National Laboratory, Virtual (September 2020)
232. Janssen Prize Scientific Lecture, Virtual (September 2020)
233. International Forum on Green Chemistry, Virtual (October 2020)
234. 3<sup>rd</sup> World Laureates Forum, Virtual (October 2020)
235. CiQUS, Virtual (November 2020)
236. KAIST, Virtual (November 2020)
237. ICBS2020, Virtual (November 2020)
238. ACS-SBQ, Virtual (November 2020)
239. Smissman Lecture, Virtual (March 2021)
240. ICBMS Lyon, Virtual (March 2021)
241. MacLean Lecture, Virtual (May 2021)
242. University of Bristol, Bristol Chemical Synthesis Syngenta Award, Virtual (June 2021)
243. ACS Fall 2021 Meeting, Resilience of Chemistry, Virtual (August 2021)

244. Mitsubishi Chemical, Virtual (August 2021)
245. Sanofi, Virtual (September 2021)
246. ACSCVS, Virtual (September 2021)
247. Amgen, Inc., Virtual (September 2021)
248. USciences Bicentennial Symposium, Virtual (October 2021)
249. ICIQ PhD Day, Virtual (October 2021)
250. Bayer AG, Virtual (November 2021)
251. Clayton Heathcock Lecture, UC Berkeley, Virtual (November 2021)
252. Baylor University, Virtual (November 2021)
253. Masterclasses in Organic Synthesis, Seoul National University, Virtual (November 2021)
254. New Trends in Organic Synthesis, Virtual (November 2021)
255. AIMECS2021, University of Tokyo, Virtual (December 2021)
256. Electrochemistry in organic synthesis, KTH Royal Institute of Technology, Virtual (December 2021)
257. PacifiChem 2021, Virtual (December 2021)
258. Stauffer Lecturship, Stanford University, Virtual (February 2022)
259. McGill University, Virtual (February 2022)
260. University of Louisville, Virtual (February 2022)
261. Davidson College, Virtual (March 2022)
262. OPT Congress, Virtual (March 2022)
263. ACS Spring 2022, San Diego, CA (March 2022)
264. Royal Dutch Chemistry Symposium, Wageningen International Symposium, Virtual (April 2022)
265. Andrews University, Virtual (April 2022)
266. Evotec, Virtual (May 2022)
267. BOSS XVII - 17th Belgian Organic Synthesis Symposium, Namur, Belgium (July 2022)

268. ACS Fall 2022, Virtual (August 2022)
269. IRT 2022, Virtual (August 2022)
270. Washington University in St. Louis, Virtual (September 2022)
271. University of Nebraska, Virtual (September 2022)
272. Galapagos, Virtual (October 2022)
273. UCLA, Los Angeles, CA (October 2022)
274. PMI, Austin, TX (October 2022)
275. Amgen, Virtual (November 2022)
276. Alnylam, Pharmaceuticals, Virtual (December 2022)