

BRADLEY L. PENTELUTE
Pfizer-Laubach Career Development Associate Professor
Associate Member, Broad Institute of Harvard and MIT
Member, Center for Environmental Health Sciences MIT

Curriculum Vitae

Department of Chemistry
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Cambridge, MA 02139

Phone: 617 324-0180
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Degrees:

Ph.D., Organic Chemistry, University of Chicago, 2008, Thesis
Advisor Steve Kent

M.S., Chemistry, University of Chicago, 2004

B.S., Chemistry, University of Southern California, 2003

B.A., Psychology, University of Southern California, 2003

Employment:

Associate Professor without tenure, Department of Chemistry,
Massachusetts Institute of Technology 2016-

Assistant Professor, Department of Chemistry, Massachusetts
Institute of Technology 2011-2016

Postdoctoral Fellow, Department of Microbiology and Molecular
Genetics, Harvard Medical School 2008-2011, John Collier's Lab

Senior Scientist, Ethos Pharmaceuticals 1/2008-9/2008

Graduate Student, Department of Chemistry, University of
Chicago, 2004-2008, Steve Kent's Lab

External Positions Held:

American Peptide Society, Nominating Committee, 2015-present
Committee member, Safety Culture in Academic Research
Laboratories, The National Academies, 2013
Ad Hoc Grant Reviewer NSF Grants, 2015

Honors:

Amgen Young Investigator Award, 2016
Novartis Early Career Award in Organic Chemistry, 2015
Sloan Research Fellow in Chemistry, 2015
NSF CAREER Award, 2014
Sontag Distinguished Scientist Award, 2013
Young Chemical Biologist Award, International Chemical Biology
Society, 2013
Damon Runyon-Rachleff Innovation Award, 2013
Vallee Foundation Travel Award, 2012
Collier Award, Gordon Conference, Microbial Toxins and
Pathogenicity, 2010
Poster Prize, University of Chicago, Science at the Interface, 2008
Student Travel Award for Australian Peptide Society, 2006
U.S.C. Chemistry Alumni Award for Outstanding Undergraduate
Research, 2003
Renaissance Scholar, U.S.C., top 10 of graduating class, 2003

Teaching Experience:

MIT 5.54, Frontiers in Chemical Biology, Fall 2012-2015
MIT 5.36, Biochemistry & Organic Lab, Spring 2012, 2013, 2015
MIT 5.38, Fast Flow Peptide and Protein Synthesis, Spring 2015

Service:

Internal Service:

MIT DCIF faculty member, 2014 – present

Faculty advisor chemistry career panel, 2012 – present

Faculty advisor ACS MIT Chemistry Club, 2012 – present

Graduate Student Admission Committee for Biological Chemistry,
2011 – present

MIT Prehealth Faculty Committee, 2012 – 2014

DOW-MIT Access Program in Chemistry, participant weekend
visits, 2012 – present

MIT Amgen scholars graduate school admissions advisor, 2012 –
present

Chemistry Undergraduate Advisor (P. Suen) 2012 – present

Thesis Chair (Harris Liu, Austin Travis, Haritha Chileveru, Phoom
Chairatana, Tsehai Ariane Grell, Nicole Yang (BE), Yisu Han,
Nicholas DeLateur, Jaideep Dudani (BE))

External Service:

Reviewer for *Journal American Chemical Society*, *Nature
Protocols*, *Chemical Science*, *Proceedings of the National
Academy of Sciences*, and *ChemBioChem*.

Publications from MIT (independent & collaborative):

1. Lautrette, G., Touti, F., Lee, H.G., Dai, P. Pentelute, B.L. (2016)
Nitrogen arylation for macrocyclization of unprotected peptides.
JACS, 138(27):8340-3
2. Rabideau, A.E. & Pentelute, B.L. (2016) Delivery of non-native
cargo into mammalian cells using anthrax lethal toxin. *ACS Chem.
Biol.*, 11(6):1490-501
3. Totaro K.A., Liao, X., Bhattacharya, K., Finneman, J.L., Sperry,
J.B., Massa, M.A., Thorn, J., Ho, S.V., Pentelute, B.L. (2016)
Systematic investigation of EDC/sNHS-mediated bioconjugation
reactions of carboxylated peptide substrates. *Bioconjug. Chem.*
27(4):994-1004

4. Luhmann*, T., Mong*, S.K., Simon, M.D., Meinel, L., Pentelute, B.L. (2016) A perfluoroaromatic abiotic analogue of H2 relaxin enabled by rapid flow-based peptide synthesis. *Org. Biomol. Chem.* 14(13):3345-9 (* = co-first authors)
5. Vinogradov, A.A., Choo, Z.N., Totaro, K.A., Pentelute, B.L. (2016) Macrocyclization of unprotected peptide isocyanates. *Org. Lett.* 18(6), 1226-9
6. Vinogradov, A.A., Simon, M.D., Pentelute, B.L. (2016) C-terminal modification of fully unprotected peptide hydrazides via in situ generation of isocyanates. *Org. Lett.* 18(6), 1222-5
7. Zhang, C., Welborn, M., Zhu, T., Santos, M., Yang, N., Van Voorhis, T., Pentelute, B.L. (2016) π -Clamp mediated cysteine conjugation. *Nature Chemistry*, (8)2, 120-128
8. Rabideau, A., Pentelute, B.L., (2015) A D-Amino Acid at the N-Terminus of a Protein Abrogates Its Degradation by the N-End Rule Pathway. *ACS Central Science*, 1, 423-430
9. Vinogradova, E.V.*, Zhang, C.*, Spokoyny, A. M., Pentelute, B.L.*, Buchwald, S.L.* (2015) Organometallic palladium reagents for cysteine bioconjugation. *Nature*, 526(7575), 687-691 (*Co-corresponding authors and first authors)
10. Cohen, D.T.*, Zhang, C.*, Pentelute, B.L.*, Buchwald, S.L.*, (2015) An Umpolung Approach for the Chemoselective Arylation of Selenocysteine in Unprotected Peptides, *Journal of the American Chemical Society*, 137(31), 9784-7 (*Co-corresponding authors and first authors)
11. Rabideau, A.*, Liao, X.*, Akcay, G., Pentelute, B.L., (2015) Translocation of Non-Canonical Polypeptides into Cells Using Protective Antigen. *Scientific Reports*, 5, 11944-11950 (*Co- first authors)
12. Jensen, J., Pentelute, B.L., Collier, R.J., Zhou, H., (2015) Atomic structure of anthrax PA pore elucidates toxin translocation. *Nature*, 521, 545-549

13. Vinogradov, A.A., Evans, E. D., Pentelute, B.L., (2015) Total synthesis and biochemical characterization of mirror image barnase. *Chemical Science*, 6, 2997-3002
14. Akkaladevi, N., Mukherejee, S., Katayama, H., Janowiak, B., Patel, D., Gogol, E.P., Pentelute, B.L., Collier, R.J., Fisher, M.T., (2015). Following Nature's Lead: On the Construction of Membrane-Inserted Toxins in Lipid Bilayer Nanodiscs. *J. Membrane Biology*, 248(3), 595-607
15. Liao, X.,* Rabideau, A.,* Pentelute, B.L., (2015) Delivery of mirror image polypeptides into cells. *Chemical Science*, 6, 648-653 (*Co-first authors)
16. Zhang, C., Dai, P., Spokoyny, A., Pentelute, B.L., (2014) Enzyme catalyzed macrocyclization of long unprotected peptides. *Organic Letters*, 16(14): 3652-5
17. Liao, X.,* Rabideau, A.,* Pentelute, B.L., (2014) Delivery of antibody mimics into mammalian cells via anthrax toxin protective antigen. *ChemBioChem*, 15(16): 2458-66. (*Co-first authors)
18. Policarpo, R.P., Kang, H., Liao, X., Rabideau, A.E., Simon, M.D., Pentelute, B.L., (2014), Flow-Based Enzymatic Ligation via Sortase A. *Angewandte Chemie*, 53(35):9203-8
First and second authors, MIT undergrads
19. Mong, S.K., Vinogradov, A.A., Simon, M.D., Pentelute, B.L. Rapid Total Synthesis of DARPin pE59 and RNase B. a., (2014). *ChemBioChem*, 15(5): 721-33.
20. Simon, M.D., Heider, P., Adamo, A., Vinogradov, A.A., Mong, S.K., Li, X., Berger, T., Policarpo, R.I., Zhang, C., Zou, Y., Liao, X., Spokoyny, A.M., Jensen, K.F., Pentelute, B.L., (2014). Rapid Flow-Based Peptide Synthesis. *ChemBioChem*, 15(5): 713-20.
21. Zou, Y., Spokoyny, A.M., Zhang, C., Simon, M.D., Yu, H., Lin, Y., Pentelute, B.L., (2014). Convergent Diversity-Oriented Side-Chain Macrocyclization Scan for Unprotected Polypeptides. *Organic and Biomolecular Chemistry*, 12(4): 566-73.
22. Zhang, C., Spokoyny, A.M., Zou, Y., Simon, M.D., Pentelute, B.L. (2013). Enzymatic "click" ligation: selective cysteine modification

enabled by promiscuous glutathione S-transferase. *Angewandte Chemie*, 52(52): 14001-5.

23. Zhang, N., Gao, P., Gogol, E.P., Pentelute, B.L., Collier, R.J., Fisher, M.T., (2013). Monitoring the kinetics of the pH-driven transition of anthrax toxin prepore to the pore by biolayer interferometry and surface plasmon resonance. *Biochemistry*, 52(37): 6335-47.
24. Spokoyny, A., Zou, Y., Ling, J., Pentelute, B.L., (2013). A perfluoroaryl-cysteine S_NAr chemistry approach to unprotected peptide stapling. *Journal of the American Chemical Society*, 135 (16): 5946-9.
25. Gogol, E.P., Akkaladevi, N., Szerszen, L., Mukherjee, S., Chollet-Hinton, L., Pentelute, B.L., Collier, R.J., Fisher, M.T., (2013). Three dimensional structure of the anthrax toxin translocon-lethal factor complex by cryo-electron microscopy. *Protein Science*, 22(5): 586-594.
26. Hubbard, B.P., Gomes, A.P., Dai, H., Li, J., Case, W. A., Considine, T., Riera, T.V., Lee, J.L., E, S. Y., Lamming, D.W., Pentelute, B. L., Schuman, E.R., Stevens, L.A., Ling, A.J.Y., Armour, S.M., Michan, S., Zhao, H., Jiang, Y., Sweitzer, S.M., Blum, C.A., Disch, J.S., Ng, P.Y., Howitz, K.T., Rolo, A.P., Hamuro, Y., Moss, J., Perni, R.B., Ellis, J.L., Vlasuk, G.P., Sinclair, D.A., (2013). Evidence for a common mechanism of SIRT1 regulation by allosteric activators. *Science*, 339:1216-19.
27. Akkaladevi, N., Hinton-Chollet, L., Katayama, H., Mitchell, J., Szeersen, L., Mukherjee, S., Gogol, E.P., Pentelute, B.L., Collier, R.J., Fisher, M.T., (2013). Assembly of anthrax toxin pore: Lethal –factor complexes into lipid nanodiscs. *Protein Science*, 22(4): 492-501.
28. Ling, J.J., Policarpo, R.L., Rabideau, A.E., Liao, X., Pentelute, B.L. (2012). Protein thioester synthesis enabled by sortase. *Journal of the American Chemical Society*, 134 (26): 10749-52.

Publications prior to MIT (* = from graduate school)

29. *Bunker, R.D., Mandal, K., Chaston, J.J., Pentelute, B.L., Lott, J.S., Kent, S.B., Baker, E.N. (2015). A functional role of Rv1738 in mycobacterium tuberculosis persistence suggested by racemic protein crystallography. *PNAS*, 112(14): 4310-5.
30. *Kent, S., Sohma, Y., Liu, S., Bang, D., Pentelute, B.L., Mandal, K. (2012). Through the looking glass –a new world of proteins enabled by chemical synthesis. *J. Pept. Sci.* 18 (7): 428-36.
31. *Mandal, K., Pentelute, B.L., Bang, D., Gates, Z.P., Torbeev, V.Y., Kent, S.B.H., (2012). Design, total synthesis, and X-ray structure of a protein having a novel linear-loop polypeptide chain topology. *Angewandte Chemie*, 51 (6): 1481-6.
32. *Sawaya, M.R., Pentelute, B.L., Kent, S.B., Yeates, T.O., (2012). Single-wavelength phasing strategy for quasi-racemic protein diffraction data. *Acta Crystallogr. D Biol. Crystallogr.*, 68 pt1: 62-8.
33. *Liu, Suhuai, Pentelute, B.L., Kent, S.B.H., (2012). Convergent Chemical Synthesis of [Lysine^{24,38,83}] Human Erythropoietin. *Angewandte Chemie*, 51 (4): 993-9.
34. Fischer, A., Holden, M., Pentelute, B.L., Collier, R.J.C., (2011), Ultrasensitive detection of anthrax toxin protein translocation across droplet hydrogel bilayers. *Proc. Natl. Acad. Sci USA*; 108 (40): 16577-81.
35. Lee J., Kwon Y., Pentelute, B.L., Bang, D. (2011). Use of Model Peptide Reactions for the Characterization of a Kinetically Controlled Ligation (KCL). *Bioconjugate Chemistry*; 22(8): 1645-9.
36. Pentelute, B.L., Sharma, O., Collier, R.J. (2011). Chemical dissection of protein translocation through anthrax toxin pore. *Angewandte Chemie*, 50 (10): 2294-6
37. *Pentelute, B.L., Gates, Z.P., Mandal, K., Sawaya, M.R., Yeates, T.O., Kent, S.B.H. (2010). Total chemical synthesis and X-ray

structure of kaliotoxin by racemic protein crystallography. *Chemical Communications*, 46(43): 8174-6

38. Pentelute, B.L., Barker, A.P., Janowiak, B.E., Kent, S.B.H., Collier, R.J. (2010). A semisynthesis platform for investigating structure-function relationships in the N-terminal domain of the anthrax Lethal Factor. *ACS Chemical Biology*, 5(4): 359-64.
39. *Mandal, K., Pentelute, B.L., Tereshko, V., Thammavaongsa, V., Kossiakoff, A.A., Kent, S.B.H. (2009). Total chemical synthesis and racemic protein crystallography used to determine the X-ray structure of plectasin by direct methods. *Protein Science*, 18(6): 1146-54. (cover and commentary)
40. *Mandal, K., Pentelute, B.L., Tereshko, V., Kossiakoff, A.A., Kent, S.B.H. (2009). X-ray structure of native scorpion toxin BmBKTx1 by racemic protein crystallography using direct methods. *Journal of the American Chemical Society*, 131 (4): 1362-1363. (featured in Chemical Research and Engineering News)
41. *Pentelute, B.L., Gates, Z.P., Tereshko, V., Dashnau, J.L., Vanderkooi, J.M., Kossiakoff, A.A., Kent, S.B.H. (2008). X-ray structure of snow flea antifreeze protein determined by racemic crystallization of synthetic protein enantiomers. *Journal of the American Chemical Society*, 130 (30): 9695-9701. (Commentary Nature Chemistry)
42. *Pentelute, B.L., Gates, Z.P., Tereshko, V., Dashnau, J.L., Vanderkooi, J.M., Kossiakoff, A.A., Kent, S.B.H. (2008). Mirror image forms of snow flea antifreeze protein prepared by total chemical synthesis have identical antifreeze activities. *Journal of the American Chemical Society*, 130 (30): 9702-9707. (featured Science Daily)
43. *Sohma, Y., Pentelute, B.L., Whittaker, J., Qin-xin, H., Whittaker, L.J., Weiss, M.A., Kent, S.B.H. (2008). Total chemical synthesis of Insulin-like Growth Factor I (IGF-1) and [Gly7D-Ala]IGF-1 by use of native chemical ligation. *Angewandte Chemie*, 47 (6): 1102-1106.

44. *Johnson, E.C.B., Malito, E., Shen, Y., Pentelute, B.L., Rich, D., Florián, J., Wei-Jen, T., Kent, S.B.H. (2007). Insights from atomic-resolution X-ray structures of chemically-synthesized HIV-1 protease in complex with inhibitors. *Journal of Molecular Biology*, 373(3): 573-586.
45. *Pentelute, B.L., Kent, S.B.H. (2007). Selective desulfurization of cysteine in the presence of Cys(Acm) in polypeptides obtained by native chemical ligation. *Organic Letters*, 9 (4): 687-690.
46. *Bang, D., Pentelute, B.L., Kent, S.B.H.(2006). Kinetically controlled ligation for the convergent chemical synthesis of proteins. *Angewandte Chemie*, 45 (24): 3985-3988. (cover)
47. *Bang, D., Pentelute, B.L., Gates, Z.P., Kent, S.B.H. (2006). Direct on-resin synthesis of peptide-(alpha)thiophenylesters for use in native chemical ligation. *Organic Letters*, 8 (6): 1049-1052.

Submitted and In Progress Publications

Dai, P., Zhang, C., Welborn, M., Shepherd, J., Zhu, T., Van Voorhis, T., Pentelute, B.L. (2016). Salt effect accelerates site-selective cysteine bioconjugation. *ACS Central Science*, In review

Evans, E. & Pentelute, B.L. Discovery of self-labeling miniproteins. *JACS*, in review

Simon, M.D., Maki, Y., Vinogradov, A.A., Zhang, C., Yu, H., Lin, Y., Kajihara, Y., Pentelute, B.L. (2016). D-amino acid scan of two small proteins. *JACS*, In review

Lee, H. G., Lautrette, G., Pentelute, B.L., Buchwald, S.L. (2016). Pd-mediated arylation of lysine in unprotected peptides. In progress

Mijalis, A.,* Thomas, D.A.,* Simon, M.D., Adamo, A., Beaumont, R., Jensen, K.F., Pentelute, B.L. (2016). Automated flow peptide synthesis: toward amide bonds at Nature's pace. In progress (*=co-first)

Patents

S. B. H. Kent, D. Bang, B. L. Pentelute, T. Durek, E. Johnson, Convergent synthesis of proteins by kinetically controlled ligation. US patent # 20070082378.

R. J. Collier & B. L. Pentelute. Methods for delivering agents into cells using bacterial toxins. US provisional # 61/431,272.

B. L. Pentelute, Compositions and methods for treatment of pain. #62/210,610

B. L. Pentelute, Methods for making targeted protein toxins by Sortase-mediated protein ligation. US 14/727,017

R. J. Collier, G. Marsischky, A. McCluskey, B. L. Pentelute, Delivery of site-specific nucleases via bacterial toxin pores to Facilitate directed modification of genomic DNA. #17398J

B. L. Pentelute, L. Xiaoli, A. E. Rabideau, J. Ling, R. Policarpo. Protein retrosplicing enabled by a double ligation reaction. US provisional # 61/649,866

B. L. Pentelute, L. Xiaoli, A. E. Rabideau. Translocation of non-natural chemical entities through anthrax protective antigen pore. US provisional # 61/649,421

B. L. Pentelute, A. M. Spokoyny, Z. Yekui. Modification of peptides via S_NAR reactions of thiols with fluorinated aromatics. US provisional # 61/705,747

M.D. Simon, B.L. Pentelute, P. L. Heider, A. Adamo, K.F. Jensen. Solid phase peptide synthesis processes and associated systems. PCT filed

B.L. Pentelute, Chi Zhang. Single-site specific cysteine arylation directed by a genetically encodable pi-clamp. Filed

S. Buchwald, B. L. Pentelute, A. Spokoyny, C. Zhang, E. Vinogradova. Chalcogen arylation in biomolecules using palladium-based reagents. Filed

A. Mijalis, B. L. Pentelute, D. Thomas. Enhanced polypeptide synthesis by inline reagent pretreatment.. Filed

A. Mijalis, B. L. Pentelute, D. Thomas. Rapid temperature control of flow peptide synthesis. Filed

S. Buchwald, D. Cohen, B. L. Pentelute, C. Zhang. Selective Metal-mediated arylation of dichalogenides in biomolecules. Filed

D. Cohen, D. Dunkelmann, Z. Gates, B.L. Pentelute, K. Totaro. Chemical ligation of aspartyl (Beta-Hydroamic Acid)-peptides. Filed

A. Mijalis, B.L. Pentelute, D. Thomas. Enhanced polypeptide Synthesis by UV monitoring and feedback control. Filed

I. Chiu, R. Collier, B. L. Pentelute. Compositions and methods for treatment of pain. 62/210,610

Invited Presentations:

Cysteine Arylation, Frontiers in Chemical Biology, Germany, 2016

Cysteine Arylation, Breslow medal for Prof. Muir, ACS Meeting, Philadelphia, PA., 2016

Precision Delivery of Agents Into Cells, Duke Neuroscience, Raleigh, N.C., 2016

Ultra-rapid Flow Peptide Synthesis, Chinese Peptide Society, Nanjing, CN, 2016

Precision Delivery of Agents Into Cells and Cysteine Arylation, BMS, Princeton, NJ., 2016

Precision Delivery of Agents Into Cells and Cysteine Arylation, BMS, New Brunswick, NJ., 2016

Cysteine Arylation for Antibody Drug Conjugates, Next Generation Protein Summit, San Francisco, CA., 2016

Precision Delivery of Agents Into Cells and Cysteine Arylation, Merck Annual Retreat, Skytop, PA., 2016, Keynote Address

Precision Delivery of Agents Into Cells and Cysteine Arylation, Department of Chemistry, OSU, OR., 2016

Precision Delivery of Agents Into Cells and Cysteine Arylation, Pfizer, Groton, CT., 2016

Precision Delivery of Agents Into Cells and Cysteine Arylation, Department of Chemistry, University of Oregon, OR., 2016

Automatide, Zing Conference on Flow Chemistry, Faro, Portugal, 2016

Precision Delivery of Agents Into Cells and Cysteine Arylation, Department of Chemistry, Yale University, CT., 2016

Precision Delivery of Agents Into Cells and Cysteine Arylation, Department of Chemistry, UIUC, IL., 2016

Cysteine Arylation, EMN Conference, Kona, HI., 2016

Precision Cellular Delivery, Sontag Foundation Annual Retreat, Palm Springs, CA., 2016

Ultra Rapid Peptide Synthesis and Cysteine Arylation, AstraZeneca, Waltham, MA., 2016

Guppie Tank, Lab Central, Cambridge, MA., 2015

Ultra Rapid Peptide Synthesis and Cysteine Arylation, Sarepta Therapeutics, Cambridge, MA., 2015

Cysteine Arylation, Australian Peptide Society, Australia, 2015

Ultra Rapid Peptide Synthesis, Solid Phase Chemistry, Australia, 2015

Precision Delivery of Agents Into Cells, Prostrate Cancer Foundation, Washington, D.C., 2015

Cysteine Perfluoroarylation, Staples, and Ultra Rapid Synthesis, Syracuse University, Syracuse, NY., 2015

Cysteine Perfluoroarylation, Staples, and Ultra Rapid Synthesis, Cornell, Ithaca, NY., 2015

Precision Delivery of Agents Into Cells, NIH, Bethesda, MA., 2015

Automatide, TSRC, Telluride, CO., 2015

Cysteine Perfluoroarylation Enables Peptide Macrocyclization, American Peptide Society, Orlando, FL., 2015

Precision Delivery of Agents Into Cells, Chemical Protein Synthesis, Orlando, FL., 2015

Cysteine Arylation and Precision Delivery of Agents Into Cells, PepTalks, Novartis, Cambridge, MA., 2015

Cysteine Arylation and Precision Delivery of Agents Into Cells, University of Toronto, Toronto, Canada, 2015

Cysteine Arylation Enables Site-specific Conjugation, IBC, San Francisco, CA., 2015

Precision Delivery of Agents Into Cells, IBC, San Francisco, CA., 2015

Ultra Rapid Peptide Synthesis, PEGS, Boston, MA., 2015

Cysteine Perfluoroarylation, TIDES, San Diego, CA., 2015

Ultra Rapid Peptide Synthesis, TIDES, San Diego, CA., 2015

Fast Flow Peptides, Idea Stream, Cambridge, MA., 2015

Cysteine Arylation and Precision Delivery of Agents Into Cells, Stanford, CA., 2015, Novartis Lecture Series

Cysteine Arylation and Precision Delivery of Agents Into cells, Emeryville, CA., 2015, Novartis Lecture Series

Fast Flow Peptide Synthesis and Cysteine Arylation, Novo Nordisk, Copenhagen, Denmark, 2015

Cysteine Arylation to Hit Brain Cancer, Sontag Brain Cancer Retreat, Jacksonville, FL., 2015

Abiotic Peptides to Treat Antibacterial Infections, Visterra, Cambridge, MA., 2015

Bioconjugation Perspectives, Pfizer, St. Louis, MO., 2015

Cysteine Arylation Enables Synthesis of Abiotic Peptides and Proteins, Foldamers Conference, Bordeaux, France, 2015

Printing Biomolecules, PBIC, Palm Beach, FL., 2014

Precision Delivery of Agents Into Cells, Amgen, Cambridge, MA., 2014

Cysteine Perfluoroarylation, Staples, and Ultra Rapid Synthesis, Merck, Kenilworth, NJ., 2014

Cysteine Perfluoroarylation, Staples, and Ultra Rapid Synthesis, Pfizer, Cambridge, MA., 2014

Precision Delivery of Biologics Into Cancer Cells, Next Generation Protein Therapeutics Conference, GTC, Boston, MA., 2014

Precision Delivery of Biologics Into Cancer Cells, Damon Runyon Foundation, Project Update, New York, NY., 2014

Flowing into URIECA Moments at MIT, Visiting Committee Chemistry, Cambridge, MA., 2014

Synthetic Polymer Xenoproteins, DARAP F(X) Kick Off Meeting, Telluride, CO., 2014

Cysteine Perfluoroarylation, Staples, and Ultra Rapid Synthesis, Ferring, San Diego, CA., 2014

Cysteine Perfluoroarylation, Staples, and Ultra Rapid Synthesis, Boehringer-Ingelheim, Ridgefield, CT, 2014

Precision Delivery of Biologics Into Cancer Cells, Koch Institute, MIT, Cambridge, MA., 2014

Precision Delivery of Biologics Into Cancer Cells, Broad Institute, Cambridge, MA., 2014

Flowing into URIECA Moments at MIT, Chemistry, Cambridge, MA., 2014

Precision Delivery of Biologics Into Cancer Cells, Harvard Medical School, Boston, MA., 2014

Precision Delivery of Biologics Into Cancer Cells, PEGS, Boston, MA., 2014

Precision Delivery of Biologics Into Cells, University of Kansas Medical Center, 2014

Fast-flow Peptide Synthesis, Idea Stream, MIT, 2014

A Protein Pump for Delivery of Non-natural Entities into Live Cells, Emerging Technologies Breakout, Broad Institute, Cambridge, Ma., 2014

A Protein Pump for Delivery of Non-natural Entities into Live Cells, Protein-protein Interactions, GTC, San Diego, CA., 2013

Cysteine Perfluoroarylation, Staples, and Ultra Rapid Synthesis, PepTalk, Cambridge, MA., 2013

Crossing the Plasma Membrane with a Delivery Platform Based on Anthrax Lethal Toxin, ICBS, Kyoto, Japan, 2013

Cysteine Perfluoroarylation, Ipsen., Milford, MA, 2013

Cysteine Perfluoroarylation, Igenica Inc., San Francisco, CA, 2013

Crossing the Plasma Membrane with a Delivery Platform Based on Anthrax Lethal Toxin, Genentech, San Francisco, CA, 2013

Hijacking a Platform from Nature for Delivery of Novel Agents to the Cytosol of Cells, Next Generation Protein Therapeutics Summit, San Diego, CA, 2013

Hijacking a Platform from Nature for Delivery of Novel Agents to the Cytosol of Cells, Dean's advisory council meeting, MIT School of Science, 2013

Cysteine Perfluoroarylation, TIDES, Peptide Discovery and Development, Boston, MA, 2013

Crossing the Plasma Membrane with a Delivery Platform Based on Anthrax Lethal Toxin, Departmental Seminar, Cell Physiology and Molecular Biophysics, TTUHC, Lubbock, TX, 2013

Crossing the Plasma Membrane with a Delivery Platform based on Anthrax Lethal Toxin, Department of Chemistry, University of Pennsylvania, 2013

Research in the Pentelute lab, Junior Faculty Lunch, MIT, 2012

Crossing the Plasma Membrane with a Delivery Platform Based on Anthrax Lethal Toxin, MIT Chemistry visiting committee, November 2012

Crossing the Plasma Membrane with a Delivery Platform Based on Anthrax Lethal Toxin CEHS, MIT, 2012

Crossing the Plasma Membrane with a Delivery Platform Based on Anthrax Lethal Toxin Merck & Co. Research Laboratories, West Point, PA, 2012

Crossing the Plasma Membrane with a Delivery Platform Based on Anthrax Lethal Toxin, MIT Biophysics Retreat, Cambridge, MA, 2012

Crossing the Plasma Membrane with a Delivery Platform Based on Anthrax Lethal Toxin, Next Generation Protein Summit, San Francisco, CA, 2012

The Holy Grail: Getting Protein Therapeutics Inside Cells, Next Generation Protein Summit, San Francisco, CA, Panel member, 2012

Getting Peptides Into Cells, Peptide Discovery and Development, Las Vegas, NV, 2012

Crossing the Plasma Membrane with a Delivery Platform Based on Anthrax Lethal Toxin, MIT Biotechnology Retreat, Cambridge, MA, 2012

Chemical Dissection of Lethal Factor Translocation Through Anthrax Toxin Pore, ETOX 15, Oslo, Norway, 2011

Chemical Dissection of Lethal Factor Translocation Through Anthrax Toxin Pore, Departmental Seminar, Cell Physiology and Molecular Biophysics, TTUHC, Lubbock, TX, 2011

Chemical Dissection of Lethal Factor Translocation Through Anthrax Toxin Pore, Departmental Seminar, Microbiology and Molecular Genetics, Harvard Medical School, 2010