

**ERANTHIE WEERAPANA**

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**Education**

February 2006      Ph.D. in Chemistry  
Massachusetts Institute of Technology, Cambridge, MA

May 2000            B.S. in Chemistry, *Cum Laude* with Honors  
Yale University, New Haven, CT

**Employment**

2016-                Associate Professor, Department of Chemistry  
Boston College, Chestnut Hill, MA

2010-2016        Assistant Professor, Department of Chemistry  
Boston College, Chestnut Hill, MA

**Research Experience**

2006-2010        Postdoctoral Research Assistant (Pfizer postdoctoral fellowship)  
The Scripps Research Institute, La Jolla, CA  
Advisor: Professor Benjamin F. Cravatt

2000-2006        Graduate Research Assistant  
Massachusetts Institute of Technology, Cambridge, MA  
Advisor: Professor Barbara Imperiali  
Thesis: Investigating asparagine-linked protein glycosylation in eukaryotic  
and prokaryotic systems

1997-2000        Undergraduate Research Assistant  
Yale University, New Haven, CT  
Advisors: Professors David. J. Austin and Andrew D. Hamilton

**Awards**

2011                Smith Family Award for Excellence in Biomedical Sciences  
2012                Damon Runyon-Rachleff Innovation Award  
2008-2010        Pfizer Postdoctoral Fellow (The Scripps Research Institute)

**Teaching Experience**

- Spring 2012/2013/2014      Chemistry 562: Biochemistry II
- Fall 2010/2011/2012      Chemistry 560: Principles of Chemical Biology
- Fall 2013                      Chemistry 567: Chemical Biology: Structure and Function
- Fall 2015/2016/2017      Chemistry 4461: Biochemistry I
- Spring 2017/2018          Chemistry 2242: Honors Organic Chemistry II

**Publications** (\* denotes corresponding author; undergraduate co-authors are underlined)**Boston College**

1. Bak DW, **Weerapana E**. Interrogation of Functional Mitochondrial Cysteine Residues by Quantitative Mass Spectrometry. *Methods Mol Biol.*, **2019**, 1967, 211-227.
2. Maurais AJ, **Weerapana E**. Reactive-cysteine profiling for drug discovery. *Curr. Opin. Chem. Biol.* **2019**, 50, 29-36.
3. Italia JS, Addy PS, Erickson SB, Peeler JC, **Weerapana E**, Chatterjee A. Mutually orthogonal nonsense-suppression systems and conjugation chemistries for precise protein labeling at up to three distinct sites. *J. Am. Chem. Soc.* **2019**, 141, 6204-6212.
4. Sen S, Mondal S, Zheng L, Salinger AJ, Fast W, **Weerapana E**, Thompson PR. Development of a Suicide Inhibition-Based Protein Labeling Strategy for Nicotinamide N-Methyltransferase. *ACS Chem Biol.*, **2019**, 14, 613-618.
5. Kulkarni RA<sup>#</sup>, Bak DW<sup>#</sup>, Bergholtz SE, Briney CA, Shrimp JH, Alpsy A, Thorpe AL, Bavari AE, Crooks DR, Levy M, Florens L, Washburn MP, Frizzell N, Dykhuizen EC, **Weerapana E**, Linehan WM, and Meier JL\*. A chemoproteomic portrait of the oncometabolite fumarate. *Nat. Chem. Biol.*, **2019**, *in press*. <sup>#</sup>These authors contributed equally to this work.
6. Long MJC, Lawson AP, Baggio R, Qian Y, Rozhansky L, Fasci D, El Oualid F, **Weerapana E**, Hedstrom L\*. Diarylcarbonates are a new class of deubiquitinating enzyme inhibitor. *Bioorg Med Chem Lett.* **2019**, 29, 204-211.
7. Bak DW\*, Bechtel TJ, Falco JA, **Weerapana E\***. Cysteine reactivity across the subcellular universe. *Curr Opin Chem Biol.* **2018**, 48, 96-105.
8. Gao J, Yang F, Che J, Han Y, Wang Y, Chen N, Bak DW, Lai S, Xie X, **Weerapana E**, Wang C\*. Selenium-encoded isotopic signature targeted profiling. *ACS Cent Sci.*, **2018**, 4, 960-970.
9. Luo W, Guo F, McMahon A, Couvertier S, Jin H, Diaz M, Fieldsend A, **Weerapana E**, Rosbash M\*. NonA and CPX link the circadian clockwork to locomotor activity in drosophila. *Neuron*, **2018**, 99, 768-780.
10. Nemmara VV, Tilvawala R, Salinger AJ, Miller L, Nguyen SH, **Weerapana E**, Thompson PR\*. Citrullination inactivates nicotinamide-N-methyltransferase. *ACS Chem. Biol.*, **2018**, 13, 2663-2672.

11. Bak DW\*, Gao J, Wang C, **Weerapana E\***. A Quantitative Chemoproteomic Platform to Monitor Selenocysteine Reactivity within a Complex Proteome. *Cell Chem. Biol.*, **2018**, *25*, 1157-1167.
12. Lentz CS, Sheldon JR, Crawford LA, Cooper R, Garland M, Amieva MR, **Weerapana E**, Skaar EP, Bogoy M\*. Identification of a *S. aureus* virulence factor by activity-based protein profiling (ABPP). *Nat. Chem. Biol.*, **2018**, *14*, 609-617.
13. Tilwawala R#, Nguyen SH#, Maurais AJ#, Nemmara VV, Nagar M, Salinger AJ, Nagpal, S, **Weerapana E**, Thompson PR\*. The Rheumatoid Arthritis-Associated Citrullinome. *Cell Chem Biol.*, **2018**, *25*, 691-704. #These authors contributed equally to this work.
14. Cole KS, Grandjean JMD, Chen K, Witt CH, O'Day J, Shoulders MD, Wiseman RL, **Weerapana E\***. Characterization of an A-Site Selective Protein Disulfide Isomerase A1 Inhibitor. *Biochemistry*. **2018**, *57*, 2035-2043.
15. Nemmara VV, Subramanian V, Muth A, Mondal S, Salinger AJ, Maurais AJ, Tilwawala R, **Weerapana E**, Thompson PR\*. The Development of Benzimidazole-Based Clickable Probes for the Efficient Labeling of Cellular Protein Arginine Deiminases (PADs). *ACS Chem Biol.* **2018**, *13*, 712-722.
16. Abo M, Li C, **Weerapana E\***. Isotopically-labeled iodoacetamide-alkyne probes for quantitative cysteine-reactivity profiling. *Mol. Pharmaceutics*. **2018**, *15*, 743-749.
17. Gorelenkova Miller O, Cole KS, Emerson CC, Allimuthu D, Golczak M, Stewart PL, **Weerapana E**, Adams DJ, Mieyal JJ\*. Novel chloroacetamido compound CWR-J02 is an anti-inflammatory glutaredoxin-1 inhibitor. *PLoS One*. **2017**, *12*, e0187991.
18. Abo M, **Weerapana E\***. Chemical probes for redox signaling and oxidative Stress. *Antioxid Redox Signal*. **2017**, *in press*.
19. Sun BB, Dwivedi N, Bechtel TJ, Paulsen JL, Muth A, Bawadekar M, Li G, Thompson PR, Shelef MA, Schiffer CA, **Weerapana E**, Ho I-C\*. Citrullination of NF- $\kappa$ B p65 promotes its nuclear localization and TLR-induced expression of IL-1 $\beta$  and TNF $\alpha$ . *Sci Immunol.* **2017**, *2*, pii: eaal3062.
20. Quinti L, Dayalan Naidu S, Träger U, Chen X, Kegel-Gleason K, Lières D, Connolly C, Chopra V, Low C, Moniot S, Sapp E, Tousley AR, Vodicka P, Van Kanegan MJ, Kaltenbach LS, Crawford LA, Fuszard M, Higgins M, Miller JRC, Farmer RE, Potluri V, Samajdar S, Meisel L, Zhang N, Snyder A, Stein R, Hersch SM, Ellerby LM, **Weerapana E**, Schwarzschild MA, Steegborn C, Leavitt BR, Degterev A, Tabrizi SJ, Lo DC, DiFiglia M, Thompson LM, Dinkova-Kostova AT, Kazantsev AG\*. KEAP1-modifying small molecule reveals muted NRF2 signaling responses in neural stem cells from Huntington's disease patients. *Proc Natl Acad Sci U S A.* **2017**, *114*, E4676-E4685.
21. Lawson AP, Bak DW, Shannon DA, Long MJC, Vijaykumar T, Yu R, El Oualid F, **Weerapana E**, Hedstrom L\*. Identification of deubiquitinase targets of isothiocyanates using SILAC-assisted quantitative mass spectrometry. *Oncotarget*. **2017**, *8*, 51296-51316.

22. Casas-Selves M, Zhang A\*, Dowling JE, Hallen S, Kawatkar A, Pace NJ, Denz C, Pontz T, Garahdaghi F, Cao Q, Sabirsh A, Thakur K, O'Connell N, Hu J, Cornella-Taracido I, **Weerapana E**, Zinda M, Goodnow RA\*. Target deconvolution efforts on Wnt pathway screen reveal dual modulation of oxidative phosphorylation and SERCA2. *ChemMedChem*. **2017**, *12*, 917-924.
23. Child MA, Garland M, Foe I, Madzelan P, Treeck M, van der Linden WA, Oresic Bender K, **Weerapana E**, Wilson MA, Boothroyd JC, Reese ML, Bogyo M\*. Toxoplasma DJ-1 Regulates Organelle Secretion by a Direct Interaction with Calcium-Dependent Protein Kinase 1. *MBio.*, **2017**, *8*, e02189-16.
24. Bak DW, Pizzagalli MD, **Weerapana E\***. Identifying Functional Cysteine Residues in the Mitochondria. *ACS Chem. Biol.*, **2017**, *12*, 947-957.
25. **Weerapana E\***. Redox regulation: Taking AKTion on HNEs (News and Views). *Nat. Chem. Biol.* **2017**, *3*, 244-245.
26. Bechtel TJ, **Weerapana E\***. From structure to redox: the diverse functional roles of disulfides and implications in disease. *Proteomics*, **2017**, *17*, 1600391.
27. Abo M, Bak DW, **Weerapana E\***. Optimization of caged electrophiles for improved monitoring of cysteine reactivity in living cells. *ChemBioChem*, **2017**, *18*, 81-84.
28. Qian Y, **Weerapana E\***. A quantitative mass-spectrometry platform to monitor changes in cysteine reactivity. *Methods Mol. Biol.*, **2017**, *1491*, 11-22.
29. Martell J, Seo Y, Bak DW, Kingsley SF, Tissenbaum HA, **Weerapana E\***. Global cysteine-reactivity profiling during impaired insulin/IGF-1 signaling in *C. elegans* identifies uncharacterized mediators of longevity. *Cell Chem. Biol.*, **2016**, *23*, 955-966.
30. Zhou Y#, Wynia-Smith SL#, Couvertier SM#, Kalous KS, Marletta MA\*, Smith BC\*, **Weerapana E\***. Chemoproteomic Strategy to Quantitatively Monitor Transnitrosation Uncovers Functionally Relevant S-Nitrosation Sites on Cathepsin D and HADH2. *Cell Chem Biol.*, **2016**, *6*, 727-37.  
#These authors contributed equally to this work.
31. Samarasinghe KT, Munkanatta Godage DN, Zhou Y, Ndombera FT, **Weerapana E**, Ahn YH\*. A clickable glutathione approach for identification of protein glutathionylation in response to glucose metabolism. *Mol. BioSyst.*, **2016**, *12*, 2471-80.
32. Jones LH\*, **Weerapana E\***. Protein Labelling (Editorial Overview). *Mol. BioSyst.*, **2016**, *12*, 1725-1727.
33. Louie S.M., Grossman E.A., Crawford L.A., Ding L., Camarda R., Huffman T.R., Miyamoto D.K., Goga A., **Weerapana E.**, Nomura D.K. GSTP1 Is a Driver of Triple-Negative Breast Cancer Cell Metabolism and Pathogenicity. *Cell Chem. Biol.*, **2016**, *23*, 567-578.
34. Crawford LA, **Weerapana E\***. A tyrosine-reactive irreversible inhibitor for glutathione S-transferase Pi (GSTP1). *Mol Biosyst.*, **2016**, *12*, 1768-1771.

35. Sanman LE, Qian Y, Eisele NA, Ng TM, van der Linden WA, Monack DM, **Weerapana E**, Bogoy M\*. Disruption of glycolytic flux is a signal for inflammasome signaling and pyroptotic cell death. *Elife*, **2016**, e13663.
36. Hatzios SK, Abel S, Martell J, Hubbard T, Sasabe J, Munera D, Clark L, Bachovchin DA, Qadri F, Ryan ET, Davis BM, **Weerapana E\***, Waldor MK\*. Chemoproteomic profiling of host and pathogen enzymes active in an animal model of cholera. *Nature Chem. Biol.*, **2016**, *12*, 268-74.
37. Saghatelian A, Nomura DK, **Weerapana E**. Editorial overview: Omics: The maturation of chemical biology *Curr. Opin. Chem. Biol.*, **2016**, *30*, v-vi. (Special issue on "Omics")
38. Clancy KW, **Weerapana E**, Thompson PR\*. Detection and identification of protein citrullination in complex biological systems. *Curr. Opin. Chem. Biol.*, **2016**, *30*, 1-6. (Special issue on "Omics")
39. Lawson AP, Long MJC, Coffey, RT, Qian Y, **Weerapana E**, El Oualid F, Hedstrom L\*. Naturally occurring isothiocyanates inhibit deubiquitinating enzymes. *Cancer Res.*, **2015**, *75*, 5130-42.
40. Bak DW, **Weerapana E\***. Cysteine-mediated redox signaling in the mitochondria. *Mol. Biosyst.* **2015**, *11*, 678-697.
41. Lewallen DM, Bicker KL, Subramanian V, Clancy KW, Slade DJ, Brust R, Martell J, Dreyton CJ, Sokolove J, **Weerapana E**, Thompson PR\*. A chemical proteomic platform to identify citrullinated proteins. *ACS Chem. Biol.*, **2015**, *10*, 2520-8.
42. Shannon DA, **Weerapana E\***. Covalent protein modification: the current landscape of residue-specific electrophiles. *Curr. Opin. Chem. Biol.*, **2015**, *24*, 18-26. (Special issue on "Omics")
43. Abo M, **Weerapana E\***. A caged electrophilic probe for global analysis of cysteine reactivity in living cells. *J. Am. Chem. Soc.* **2015**, *137*, 7087–7090.
44. Wei Y, Stec B, Redfield AG, **Weerapana E**, Roberts MF\*. Phospholipid-binding sites of phosphatase and tensin homolog (PTEN): exploring the mechanism of phosphatidylinositol 4,5-bisphosphate activation. *J Biol Chem.* **2015**, *290*, 1592-1606.
45. Couvertier SM, Zhou Y, **Weerapana E\***. Chemical-proteomic strategies to investigate cysteine posttranslational modifications. *Biochimica et Biophysica acta - Proteins and Proteomics*, **2014**, *1844*, 2315-2330.
46. Pace NJ, **Weerapana E\***. Zinc-binding cysteines: diverse functions and structural motifs. *Biomolecules*, **2014**, *4*, 419-434. (Special issue on "Metal-binding Proteins")
47. Tamburini E, Kelly T, **Weerapana E\***, Byers J\* Paper to plastics: An interdisciplinary summer outreach project in sustainability. *J. Chem. Ed.*, **2014**, *91*, 1574-1579.
48. Martell J, **Weerapana E\***. Applications of copper-catalyzed click chemistry in activity-based protein profiling. *Molecules*. **2014**, *19*, 1378-1393. (Special issue on "Bioorthogonal Chemistry")
49. Shannon DA, Banerjee R, Webster ER, Bak DW, Wang C, **Weerapana E\***. Investigating the proteome reactivity and selectivity of aryl halides. *J. Am. Chem. Soc.*, **2014**, *136*, 3330-3333.

50. Zhuang J, Kuo CH, Chou LY, Liu DY, **Weerapana E\***, Tsung CK\*. Optimized metal-organic-framework nanospheres for drug delivery: evaluation of small-molecule encapsulation. *ACS Nano*, **2014**, *8*, 2812-2819.
51. Shannon DA, **Weerapana E\***. Orphan PTMs: Rare, yet functionally important modifications of cysteine. *Biopolymers*. **2014**, *101*, 156-164. (Special issue on "The Next Frontier of Posttranslational Modifications")
52. Couvertier SM, **Weerapana E\***. Cysteine-reactive chemical probes based on a modular 4-amino-piperidine scaffold. *MedChemComm*, **2014**, *5*, 358-362.
53. Pace NJ, **Weerapana E\***. A competitive chemical-proteomic platform to identify zinc-binding cysteines. *ACS Chem. Biol.*, **2014**, *9*, 651-656.
54. Banerjee R, Brown DR, **Weerapana E\***. Recent developments in the synthesis of bioactive 2,4,6-trisubstituted-1,3,5-triazines. *Synlett*, **2013**, *24*, 1599–1605. (Synfacts article)
55. Schwaid A, Shannon DA, Ma J, Slavoff SA, Levin J, **Weerapana E\***, Saghatelian A\*. Chemoproteomic discovery of human sORFs. *J. Am. Chem. Soc.*, **2013**, *135*, 16750-16753.
56. Qian Y, Martell, J, Pace NJ, Ballard ET, Johnson DS\*, **Weerapana E\***. An isotopically tagged azobenzene-based cleavable linker for quantitative proteomics, *ChemBioChem*, **2013**, *14*, 1410-1414.
57. Banerjee R, Pace NJ, Brown DR, **Weerapana E\***. 1,3,5-Triazine as a modular scaffold for covalent inhibitors with streamlined target identification. *J. Am. Chem. Soc.*, **2013**, *135*, 2497-2500.
58. Child MA, Hall CI, Beck JR, Ofori LO, Albrow VE, Garland M, Bowyer PW, Bradley PJ, Powers JC, Boothroyd JC, **Weerapana E**, Bogoy M\*. Small-molecule inhibition of a depalmitoylase enhances Toxoplasma host-cell invasion. *Nature Chem. Biol.*, **2013**, *9*, 651-656.
59. Lee BC, Péterfi Z, Hoffmann FW, Moore RE, Kaya A, Avanesov A, Tarrago L, Zhou Y, **Weerapana E**, Fomenko DE, Hoffmann PR, Gladyshev VN\*. MsrB1 and MICALs regulate actin assembly and macrophage function via reversible stereoselective methionine oxidation. *Mol. Cell.*, **2013**, *51*, 397-404.
60. Pace NJ, **Weerapana E\***. Diverse functional roles of reactive cysteines. *ACS Chem. Biol.*, **2013**, *8*, 283-296.
61. Gu C, Shannon DA, Colby T, Wang Z, Shabab M, Kumari S, Villamor JG, McLaughlin CJ, **Weerapana E**, Kaiser M, Cravatt BF, van der Hoorn RA\*. Chemical proteomics with sulfonyl fluoride probes reveals selective labeling of functional tyrosines in glutathione transferases. *Chem. Biol.*, **2013**, *20*, 541-548.
62. Shannon DA, Gu C, McLaughlin CJ, Kaiser M, van der Hoorn RA, **Weerapana E\***. Sulfonyl fluoride analogues as activity-based probes for serine proteases. *ChemBioChem*, **2012**, *13*, 2327-2330.

63. Pace NJ, [Pimental DR](#), **Weerapana E\***. An inhibitor of glutathione S-transferase omega 1 that selectively targets apoptotic cells. *Angew. Chem. Int. Ed. Engl.* **2012**, *51*, 8365-8368.
64. Tarrago L, Kaya A, **Weerapana E**, Marino SM, Gladyshev VN\*. Methionine sulfoxide reductases preferentially reduce unfolded oxidized proteins and protect cells from oxidative protein unfolding. *J. Biol. Chem.*, **2012**, *287*, 24448-24459.

### **The Scripps Research Institute**

65. Wang C, **Weerapana E**, Blewett MM, Cravatt BF\*. A chemoproteomic platform to quantitatively map targets of lipid-derived electrophiles. *Nature Methods*, **2014**, *11*, 79-85.
66. Deng X, **Weerapana E**, Ulanovskaya O, Sun F, Liang H, Ji Q, Ye Y, Fu Y, Zhou L, Li J, Zhang H, Wang C, Alvarez S, Hicks LM, Lan L, Wu M, Cravatt BF, He C\*. Proteome-wide quantification and characterization of oxidation-sensitive cysteines in pathogenic bacteria. *Cell Host Microbe*. **2013**, *13*, 358-370.
67. Ramya TN, **Weerapana E**, Cravatt BF, Paulson JC\*. Glycoproteomics enabled by tagging sialic acid or galactose terminated glycans. *Glycobiology*, **2012**, *23*, 211-221.
68. Hall C, Reese M, **Weerapana E**, Child M, Bowyer P, Albrow V, Heraldson J, MacDonald P, Sandoval ED, Ward G, Cravatt BF, Boothroyd J, Bogoy M\*. A chemical genetic screen identifies Toxoplasma DJ-1 as a regulator of parasite secretion and invasion. *Proc. Natl. Acad. Sci. U.S.A.*, **2011**, *108*, 10568-10573.
69. Bachovchin DA, Zuhl AM, Speers AE, Wolfe MR, **Weerapana E**, Brown SJ, Rosen H, Cravatt BF\*. Discovery and optimization of sulfonyl acrylonitriles as selective, covalent inhibitors of protein phosphatase methylesterase-1. *J. Med. Chem.*, **2011**, *54*, 5229-5236.
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71. **Weerapana E**<sup>#</sup>, Wang C<sup>#</sup>, Simon GM, Richter F, Khare S, Dillon BDM, Bachovchin DA, Mowen K, Baker D, Cravatt BF. Quantitative reactivity profiling predicts functional cysteines in proteomes. *Nature*, **2010**, *468*, 790-795. <sup>#</sup>These authors contributed equally to this work.
72. Johnson DS\*, **Weerapana E**, Cravatt BF\*. Strategies for discovering and derisking covalent, irreversible enzyme inhibitors. *Fut. Med. Chem.*, **2010**, *2*, 949-964.
73. Wurdak H, Zhu S, Aimone L, Lairson LL, Watson J, Chopiuk G, Min KH, Demas J, Charette B, Halder R, **Weerapana E**, Cravatt BF, Cline HT, Peters EC, Zhang J, Walker JR, Wu C, Zhang J, Tuntland T, Cho CY, Shultz PG\*. A small molecule accelerates neuronal differentiation in the adult rat. *Proc. Natl. Acad. Sci. U.S.A.*, **2010**, *107*, 16542-16547

74. Ramya TNC, **Weerapana E**, Liao L, Zeng Y, Tateno H, Liao L, Yates J, Cravatt BF, Paulson JC\*. In situ trans ligands of CD22 identified by glycan-protein photocross-linking-enabled proteomics. *Mol. Cell. Proteomics*, **2010**, 9, 1339-1351.
75. Ahn K\*, Johnson DS, Mileni M, Beidler D, Long JZ, McKinney MK, **Weerapana E**, Sadagopan N, Liimatta M, Smith SE, Lazerwith S, Stiff C, Kamtekar S, Bhattacharya K, Zhang Y, Swaney S, Van Becelaere K, Stevens RC\*, Cravatt BF\*. Discovery and characterization of a highly selective FAAH inhibitor that reduces inflammatory pain. *Chem. Biol.*, **2009**, 16, 411-420.
76. **Weerapana E**, Simon GM, Cravatt BF\*. Disparate proteome reactivity profiles of carbon electrophiles. *Nature Chem. Biol.*, **2008**, 4, 405-407.
77. **Weerapana E**, Speers AE, Cravatt BF\*. Tandem orthogonal proteolysis-activity-based protein profiling (TOP-ABPP) – a general method for mapping sites of probe modification in proteomes. *Nature Protocols*, **2007**, 2, 1414-1425.
78. Hanson SR, Hsu TL, **Weerapana E**, Kishikawa K, Simon GM, Cravatt BF\*, Wong CH\*. Tailored glycoproteomics and glycan site mapping using saccharide-selective bioorthogonal probes. *J. Am. Chem. Soc.*, **2007**, 129, 7266-7267.

#### **Massachusetts Institute of Technology**

79. Chen MC, **Weerapana E**, Ciepichal E, Stupak J, Reid CW, Swiezewska E, Imperiali B\*. Polysisoprenyl specificity in the *Campylobacter jejuni* N-linked glycosylation pathway. *Biochemistry*, **2007**, 46, 14342-14348.
80. Glover KJ#, **Weerapana E**#, Chen MM, Imperiali B\*. Direct biochemical evidence for the utilization of UDP-bacillosamine by PglC, an essential glycosyl-1-phosphate transferase in the *Campylobacter jejuni* N-linked glycosylation pathway. *Biochemistry*, **2006**, 45, 5343-5350.  
#These authors contributed equally to this work.
81. **Weerapana E**, Imperiali B\*. Asparagine-linked protein glycosylation: From eukaryotic to prokaryotic systems. *Glycobiology*, **2006**, 16, 91R-101R.
82. Glover KJ#, **Weerapana E**#, Numao S, Imperiali B. Chemoenzymatic synthesis of glycopeptides with PglB, a bacterial oligosaccharyl transferase from *Campylobacter jejuni*. *Chem. Biol.*, **2005**, 12, 1311-1315. #These authors contributed equally to this work.
83. **Weerapana E**, Glover KJ, Imperiali B\*. Investigating bacterial N-linked glycosylation: synthesis and glycosyl acceptor activity of the undecaprenyl pyrophosphate-linked bacillosamine. *J. Am. Chem. Soc.*, **2005**, 127, 13766-13767.
84. Glover KJ, **Weerapana E**, Imperiali B\*. In vitro assembly of the undecaprenylpyrophosphate-linked heptasaccharide for prokaryotic N-linked glycosylation. *Proc. Natl. Acad. Sci. U.S.A.*, **2005**, 102, 14255-14259.
85. **Weerapana E**, Imperiali B\*. Peptides to peptidomimetics: towards the design and synthesis of bioavailable inhibitors of oligosaccharyl transferase. *Org. Biomol. Chem.*, **2003**, 1, 93-99.



**Invited Lectures**

1. NIH, Frontiers at the Chemistry & Biology Interface Symposium (FCBIS), Bethesda, MD (May 2019)
2. Janelia Conference on "Chemical Tools for Complex Biological Systems II", Ashburn, VA (April 2019)
3. Boston University, Beckman Scholars Invitation, Boston, MA (April 2019)
4. Tufts University, Medford, MA (April 2019)
5. UC Davis, 19th Annual R. Bryan Miller Symposium, Davis, CA (March 2019)
6. University of Connecticut, Storrs, CT (February 2019)
7. Brandeis University, Waltham, MA (February 2019)
8. Warp Drive Bio, Cambridge, MA (September 2018)
9. Boston University, Guest Lecture for "Special Topics in Organic Chemistry" Course, (September, 2018).
10. FASEB conference on Functional Disulfide Bonds in Health and Disease, Leesberg, VA (June 2018)
11. 2018 ASBMB Annual Meeting (Session on "Metabolomics and Lipidomics"), San Diego, CA (April 2018)
12. Holy Cross, Worcester, MA (April 2018)
13. Yale University, New Haven, CT (November 2017)
14. Southwestern Regional Meeting of the American Chemical Society, Lubbock, TX (October 2017); Symposium on Electrophilic Agents in Medicinal Chemistry
15. University of Wisconsin, Madison, WI (October 2017)
16. First Annual "Chemical Biology in the Hub" Symposium, Waltham, MA (September, 2017)
17. Cell Press LabLinks; Small Molecule Metabolites as Signaling Molecules, Cambridge, MA (September, 2017)
18. Twelfth International Symposium on Mass Spectrometry in the Health and Life Sciences: Molecular and Cellular Proteomics, San Francisco, CA (August 2017)
19. Janssen Research and Development, Spring House, PA (June 2017)
20. Canadian Chemistry Conference, Toronto, ON (May 2017)
21. University of Minnesota, Minneapolis, MN (April 2017)
22. University of Massachusetts, Amherst, MA (April 2017)
23. University of Southern California, Los Angeles, CA (April 2017)
24. ACS National Meeting ("Chemical Biology: Enabling Drug Discovery" symposium), San Francisco, CA (April 2017)
25. University of Houston, Houston, TX (March 2017)
26. Northeastern University, Boston, MA (January 2017)
27. Colby College, Waterville, ME (November 2016)
28. New York Academy of Sciences; Emerging Paradigms in Drug Discovery and Chemical Biology, New York, NY (October 2016)
29. University of Massachusetts, Dartmouth, MA (October 2016)
30. Purdue University, Lafayette, IN (September 2016)
31. GRC on Thiol-Based Redox Regulation & Signaling, Stowe, VT (August 2016)
32. Eli Lilly and Company, Indianapolis, IN (June 2016)
33. Memorial Sloan-Kettering Cancer Center, New York, NY (June 2016)
34. University of Illinois, Urbana-Champaign, IL (April 2016)
35. University of Connecticut, Storrs, CT (April 2016)
36. ACS National Meeting ("Click Chemistry in Carbohydrate, Materials Science and Biomedicine" symposium in Honor of Prof. Sharpless' 75th birthday), San Diego, CA (March 2016)
37. ACS National Meeting (Co-organizer of session on "Chemical Methods to Investigate Protein Posttranslational Modifications"), San Diego, CA (March 2016)
38. The Scripps Research Institute, La Jolla, CA (August 2015)

39. ACS National Meeting (Eli Lilly Award in Biological Chemistry Symposium in honor of Minkui Luo) Boston, MA (August 2015)
40. CHI Conference on "Chemical proteomics for Target Validation", Boston, MA (June 2015)
41. GRC on High Throughput Chemistry and Chemical Biology, New London, NH (June 2015)
42. Pfizer Gene Family Forum, Rye Brook, NY (June 2015)
43. Celgene, Bedford, MA (May 2015)
44. Scientific Meeting of the COST Action CM1004 (Synthetic Probes for Chemical Proteomics and Elucidation of Biosynthetic Pathways), Oxford University, Oxford, UK (April 2015)
45. Bridgewater State University, Bridgewater, MA (April 2015)
46. MIT, Cambridge, MA (April 2015)
47. 2015 ASBMB Annual Meeting (Session on "Mechanistic Impacts of Post-translational Modifications"), Boston, MA (March 2015)
48. Boston University Medical School, Boston, MA (March 2015)
49. Princeton University, Princeton, NJ (March 2015)
50. ACS National Meeting (ACS Chemical Biology Lectureship Symposium in honor of Kevan Shokat) Denver, CO (March 2015)
51. University of Washington, Seattle, WA (March 2015)
52. Oregon Health and Science University, Portland, OR (February 2015)
53. University of Michigan, Ann Arbor, MI (February 2015)
54. Northwestern University, Evanston, IL (January 2015)
55. University of Nebraska, Lincoln, NE (January 2015)
56. NIH/NCI, Frederick, MD (January 2015)
57. Johns Hopkins University, Baltimore, MD (January 2015)
58. Colorado State University, Fort Collins, CO (November 2014)
59. Merrimack College, North Andover, MA (October 2014)
60. GRC on Enzymes, Coenzymes and Metabolic Pathways, Waterville Valley, NH (July 2014)
61. University of Wisconsin-Madison, 37th Steenbock Symposium, Madison, WI (June 2014)
62. CHI Conference on "Chemical Biology for Target Validation", Boston, MA (May 2014)
63. Abbvie, North Chicago, IL (April 2014)
64. Clark University, Worcester, MA (25th Harry Allen Symposium) (April 2014)
65. Perkin-Elmer, Boston, MA (March 2014)
66. Wayne State University, Detroit, MI (March 2014)
67. Tufts University, Medford, MA (February 2014)
68. University of California, Berkeley, CA (February 2014)
69. AstraZeneca, Waltham, MA (December 2013)
70. Wesleyan University, Middletown, CT (November 2013)
71. The Scripps Research Institute, Jupiter, FL (September 2013)
72. GlaxoSmithKline, Waltham, MA (August 2013)
73. Novartis, Cambridge, MA (July 2013)
74. Bioorganic Gordon Conference, Andover, NH (June 2013)
75. Pacific Coast Protease Workshop, Palm Springs, CA (January 2013)
76. Bowdoin College, Brunswick, ME (October 2012)
77. GRC on Thiol-based Redox Regulation and Signaling, Lewiston, ME (Discussion Leader) (August 2012)
78. Worcester Polytechnic Institute, Worcester, MA (February 2012)
79. Pfizer, Cambridge, MA (November 2011)
80. ACS National Meeting (Young Investigator Symposium), Anaheim, CA (March 2011)

**Funding****Active Research Funding**

- 08/2015-07/2020  
NIH, 1R01GM118431-01A1, Role:PI  
*Title: Investigating cysteine-mediated protein activities in C. elegans*  
The goal of this project is to monitor cysteine-mediated protein activities implicated in insulin/IGF-1 signaling (IIS) and lifespan regulation in *C. elegans*. In particular, the focus will be a lipid-binding protein, LBP-3, which contains a redox-regulated cysteine residue. Effects of LBP-3 knockdown and changes in oxidation state on fatty-acid transport and IIS will be investigated.
- 04/2016-03/2020  
NIH, 1R01GM117004-01, Role:PI  
*Title: Investigating cysteine PTMs in living cells*  
The goal of this project is to develop chemical probes and mass-spectrometry methods to investigate cysteine oxidative modifications directly in living cells, with a focus on subcellular organelles such as the mitochondria. These tools will be applied to interrogate protein oxidation during EGF signaling in cells, and identify functionally relevant sites of cysteine oxidation important to EGF signaling.
- 06/2016 – 05/2021  
NIH, 1R01AI122923-01A1, Role: Collaborator (PI: MJ Gubbels, Boston College)  
*Title: The Ca<sup>2+</sup>-sensing machinery operating on exocytosis in Toxoplasma*  
The major goals of this project are to understand how the Ferlin proteins operate and control Toxoplasma secretion of micronemes and rhoptries.
- 07/2017 – 06/2019  
NIH, R21AI128136-01, Role: Collaborator (PI: MJ Gubbels, Boston College)  
*Title: Mapping the protein landscape of the Toxoplasma basal complex*  
The major goal of this project is to identify the protein composition of the basal complex

**Completed Research Funding**

- 02/2016-01/2019  
NIH, 1R03AI122042-01, Role: Multi-PI w/ MJ Gubbels, Boston College  
*Title: Proteomic mapping of differential secretion in Toxoplasma gondii*  
The goal of this proposal is to identify secreted proteins in various secretion-deficient mutants of *Toxoplasma gondii*
- 08/2017-05/2018  
NIH 1R01HL131740-01A1 Role: Collaborator (PI: Ahn, Wayne State University)  
*Title: Chemical Methods for Dissecting Protein Glutathionylation in Sarcomere*  
The major goal of this project is to identify glutathionylated cysteine residues in the sarcomere.
- 08/2014-01/2017  
NIH, 1R01GM110394, Role: Collaborator (PI: Paul Thompson; UMass Medical School)  
*Title: Identification of citrullinated biomarkers of inflammatory disease and cancer*

The goal of this project is to apply chemical proteomics to identify citrullinated protein targets in diseases such as rheumatoid arthritis, ulcerative colitis and cancer.

- 12/2011-08/2015  
The Medical Foundation, Role: PI  
Smith Family Awards Program for Excellence in Biomedical Research  
*Title: Activity-based proteomic approaches to investigate aging in C. elegans*  
The goal of this project is to apply activity-based profiling to identify dysregulated enzyme activities during the aging process of *C. elegans*.
- 01/2012-06/2015  
Damon Runyon Innovation Award, Role: PI  
Damon Runyon Cancer Research Foundation  
*Title: Targeting reactive cysteine residues for cancer therapy*  
The goal of this project is to develop a chemical-genetics platform to target proteins containing reactive and functional cysteine residues.
- 05/2012-01/2015  
Pfizer Collaborative Grant, Role: PI  
Pfizer, Inc.  
*Title: Activity-based proteomic approaches to investigate metabolic diseases*  
The goal of this project is to apply activity-based protein profiling to identify dysregulated protein activities in mouse and human models of metabolic disease.

## **Service**

### **Departmental/Institutional Service**

- 2010-2017      Chemistry Faculty Search Committee
- 2010-            Chemical Biology Seminar Committee
- 2011-2013      Chemistry Graduate Student Admissions Committee
- 2011-2013      Chemistry Graduate Studies Committee
- 2013-            Member of the Science Strategic Planning Committee for Boston College
- 2014-            Co-chair of the Boston College Biochemistry Major

### **External Service**

#### **Grant Reviewing**

- NIH - Synthetic and Biological Chemistry A (SBCA) Study Section (Standing Member; 2018-2022)
- NIH – Synthetic and Biological Chemistry A (SBCA) Study Section (Ad Hoc Member; October 2017)
- NIGMS – Ad Hoc member of Advisory Council (August 2016)
- NIH – Macromolecular Structure and Function A (MSFA) Study Section (Ad Hoc Member; February 2014)
- Research Corporation for Science Advancement (Reviewer for the Cottrell College Science Award 2013)
- Boston College Institute on Aging – Grant Reviewer 2014

**Journal Editorships**

- Editor; Cell Chemical Biology (July 2018-present)

**Editorial Advisory Board**

- Cancer Metabolomics (2012-14)
- Cell Chemical Biology (2015-)
- Molecular Biosystems (2015-)

**F1000**

- Contributing member of 'FACULTY OF 1000'; Macromolecular Chemistry Section (2012-2018)

**Guest Editorship**

- Current Opinion in Chemical Biology: Guest editor for special issue on "Omics" (w/ Daniel Nomura, UC Berkeley and Alan Saghatelian, Salk Institute)
- Molecular Biosystems: Guest editor for special issue on "Protein labeling" (w/ Lyn Jones, Pfizer)
- Current Topics in Microbiology and Immunology; Guest Editor for special issue on "Activity-based Protein Profiling" (w/ Ben Cravatt, TSRI and Ken Hsu, University of Virginia)

**Consulting**

- Seaside Therapeutics, Inc., Cambridge, MA (2010-2011)
- Celgene, Cambridge, MA (2015-2018)

**Career and Mentoring Panels**

- NIGMS New Faculty Workshop, June 2017
- MIT Department of Chemistry, January 2014; Career Panel on Academia
- Northeastern Section Younger Chemists Committee (NSYCC), April 2014; Panel on Academia and Teaching Careers.