Curriculum Vitae

Zhaohui Sunny Zhou

424 Hurtig Hall
Northeastern University
360 Huntington Avenue
Boston, MA 02115-5000

E-mail: z.zhou@northeastern.edu
Web: sunnyland.sites.northeastern.edu
linkedin.com/in/sunnyzhou

Research Interests

protein chemistry	bioanalytical chemistry	enzymology
protein engineering	protein pharmaceuticals	chemical biology

My laboratory, aka SunnyLand, applies protein chemistry, analysis and engineering to biology and medicine. One program is "Hybrid Modality Engineering of Proteins"—a platform to introduce non-canonical chemical moieties and/or scaffolds into peptides and proteins to confer novel functions (mode of action) otherwise unavailable via recombinant technology. One application is the conditional release and activation of therapeutics (e.g., prodrugs), such as by light (photomedicine). The second is to devise chemo-enzymatic methodologies to characterize protein modifications (PTMs), such as crosslinking, isoaspartic acid formation (asparagine deamidation), S-adenosyl-methionine (AdoMet or SAM)-dependent methylations, and moreover, unknown PTMs and analytical artifacts. In collaboration with biologists and clinicians alike, we also investigate their biological effects, and moreover, as critical attributes in protein pharmaceuticals. A third program area is the mechanistic studies of and inhibitor design for enzymes with intriguing mechanisms and biomedical significance.

Education

1997-2000	Research Fellow, University of Michigan, Ann Arbor, Michigan. Advisor: Professor Rowena G. Matthews
1991- 1997	Ph.D. in Bioorganic Chemistry. The Scripps Research Institute, California. Advisor: Professor Donald Hilvert (currently at the Federal Institute of Technology (ETH) Zurich, Hönggerberg, Switzerland)
1986 - 1990	B.S. in Organic Chemistry. Peking University, Beijing, China. Advisor: Professor Qing-Zhong Zhou.

Positions and Research Experiences

2007 - present	Professor, Department of Chemistry and Chemical Biology Faculty Fellow, Barnett Institute for Chemical and Biological Analysis Advisor and coordinator, Industry PhD program for full-time employees Affiliated Faculty, Bioengineering and Biology Northeastern University, Boston, Massachusetts
2019 - 2021	Visiting Professor of Dermatology, Massachusetts General Hospital (MGH) Visiting Scientist, Wellman Center for Photomedicine Harvard Medical School, Boston, Massachusetts (Prof. Tayyaba Hasan)

BPI Labs, LLC, EX1085
BPI Labs, LLC v. Eli Lilly and Company
IPR2025-01346

2000 - 2006	Associate Professor with tenure (2006) and Assistant Professor, Department of Chemistry; Associate Member, School of Molecular Biosciences; Graduate Faculty, Program in Pharmacology and Toxicology; Faculty, NIH Biotechnology Training Program on Protein Chemistry; Washington State University, Pullman, Washington.
1997 - 2000	Research Fellow in the laboratory of Professor Rowena G. Matthews in the Biophysics Research Division and the Department of Biological Chemistry, University of Michigan, Ann Arbor, Michigan. Biochemical and biophysical studies of metallo-enzymes.
1991 - 1997	Doctoral student with Professor Donald Hilvert in the Departments of Chemistry and Molecular Biology, The Skaggs Institute of Chemical Biology, The Scripps Research Institute, La Jolla, California. Catalytic antibodies for pericyclic reactions, cofactor-dependent oxidations and reductions; medium effects in enzyme catalysis.
1990 - 1991	Scientist. Natural product isolation, analysis and derivatization, e.g., polysaccharide (carbohydrate)-drug conjugates; and drug formulation. Research Associate with Dr. Qi-Pin Gao in Department of Medicinal Chemistry and Formulation, Academy of Traditional Chinese Medicine & Materia Medica, Changchun, Jilin, China.
1989 - 1990	Undergraduate student in the laboratory of Professor Qing-Zhong Zhou in the Department of Chemistry, Peking University, Beijing, China. Polymer chemistry and phase transfer catalysis.

Honors and Awards

Outstanding Alumni Award, 30 Alumni in 30 Years, Peking University Alumni Association of New England (PKUAA-NE), 2024
Awardee, Supervisor of the Year, The National Student Employment Association, 2024
Teacher Appreciation, Delta Zeta Sorority - Xi Upsilon Chapter, Northeastern, 2022
Finalist, nominated by students for Excellence in Teaching Award, Northeastern University, 2010, 2011
Barnett Fund for Innovative Research, Barnett Institute, Northeastern University, 2008
Young Faculty Performance Award, College of Sciences, Washington State Univ, 2005
Young Investigator Development Award, Academy of Traditional Chinese Medicine and Materia Medica, Changchun, Jilin, China, 1990 (declined due to study in USA)

Professional Activities

Co-founder and advisor, Alycorn Biosciences, 2023 to present
Co-founder and advisor, NIRa Biosciences (now part of Alys Pharmaceuticals) with series A venture capital (VC) investment, 2020 to present
Co-founder and chief scientific officer (CSO), Amethyst Isotopes, 2011 to 2014

Editorial Advisory Board, Bioconjugation Insights, 2025-present
Editorial Board, Antibody Therapeutics, by Chinese Antibody Society, 2018-present
Assistant Editor, mAbs, Taylor & Francis, 2017-present
Editorial Board, Molecules, MDPI (Multidisciplinary Digital Publishing Inst), 2016-present
Member, Harvard Business Review (HBR) Advisory Council, 2024-present

Advisory Board, Chinese-American BioMedical Association (CABA), 2015-present
Advisor, Wuhan Institute for Drug and Medical Device Control (FDA), China, 2016-8
Director, regulatory analysis training programs for Chinese FDA scientists, 2013-8
Instructor, Biopharmaceutical Analysis Training Laboratory (BATL), NU, 2016-present

Consultant for the following companies:
Therabene, 2025-present
TenSixty, 2025-present
Avid NewCo, Third Rock Ventures, 2024-present
Gilead, 2024-present
GV20 Therapeutics, 2023-present
Dragonfly Therapeutics, 2022-5
Checkmate Pharmaceuticals, 2021-2
Sperogenix Therapeutics, 2021
Sarepta, 2021-present
Genentech/Roche, 2017-8
Takeda, Cambridge, Massachusetts, 2016
Syros, Cambridge, Massachusetts, 2015-6
Cubist Pharmaceuticals, Lexington, Massachusetts, 2010-11
AbbVie (formerly Abbott), Worcester, Massachusetts, 2009-17
Nuvelo, San Carlos, California, 2005-2006

Expert witness, from 2003, over a dozen of cases on protein/peptide pharmaceuticals (e.g., antibodies, PEGylation and enzyme replacement therapy) and metabolite and nutraceuticals (e.g., SAM-e); inter partes review (IPR), depositions and testimony at trials (e.g., High Court of Justice, London, United Kingdom; United States Patent and Trademark Office (USPTO), United States District Court for the Eastern District of Virginia; United States District Court for the District of Delaware). Several clients and attorneys have asked me back to serve on related or new cases.

Guest Lecture, Honors Chemistry, Wellesley High School, 19 October 2015
Science Demonstration and Math, Wellesley Middle School, 2012
Science Demonstrations and Science Fair Judge, Washington State Univ Children's Center, Franklin Elementary School, and Montessori School, Pullman, Washington, 2002-6
Chapter review for Organic Chemistry (textbook), 4th and 6th edition, Paula Bruice

Pre-Health Advisory Committee, Northeastern University, 2007-present
Request for Proposal (RFP) Committee, Dept Chemistry & Chemical Biology, 2007-13
Patent Review Committee, Northeastern University, 2009

Graduate Admission Committee, Dept of Chemistry, 2009-13, 2015-6; Chair; 2011-3
College of Science Graduate Curriculum Committee, 2011-3
Council, College of Science, Northeastern University, 2013-6; Chair, 2014-6
Biochemistry Committee, Northeastern University, 2014-5
Tenure and Promotion Committee, College of Sciences, Northeastern, 2016-9
Search Committee, Analytical Chemistry Faculty, 2016-7
Coordinator, Industry PhD Program, Chemistry and College of Science, 2016-present
Review Committee, Goldwater Scholarship, Northeastern University, 2017-present
Mediation Committee (ad hoc member), Northeastern University, 2018
Chair, Search Committee for Chair of the Department of Chemistry, Northeastern, 2020
Search Committee, Associate and Assistant Director of the Barnett Institute, 2021
Full Professor Committee, College of Sciences, Northeastern, 2021
Judge, SPARK Fund, Center for Innovation (CRI), Northeastern, 2021

Professional Societies

American Association for Advancement of Science (AAAS)
American Chemical Society (ACS)
American Society for Mass Spectrometry (ASMS)
Chinese-American BioMedical Association (CABA), Advisory Board, 2015 to present
Chinese-American Chemistry Professors Association (CACPA), Board Member and Member of the Award Committee, 2007 to present
Chinese Antibody Society, founding advisor, 2016 - present
Wellesley Chinese American Network (WeCAN), co-founder, board member, 2016-8

Grant Proposal Review

2003: American Chemical Society (ACS), Petroleum Research Fund (PRF)
2004: National Inst Health (NIH), Panel Reviewer, Bioorganic & Natural Products (BNP);
National Science Foundation (NSF)
2005: American Chemical Society (ACS), Petroleum Research Fund (PRF)
2007: Herman Frasch Foundation (administrated by ACS), Panel Reviewer;
NIH, Panel Reviewer, Drug Discovery and Development SBIR/STTR (BCMB 11),
NSF, Panel Reviewers, Chemistry Research Instrumentation and Facilities: Multi-User Instrumentation (CRIF:MU) mass spectrometry and chromatography
2008: Michael Smith Foundation for Health Research, British Columbia, Canada;
NIH COBRE Center in Protein Structure and Function at the University of Kansas;
National Science Foundation (NSF), Division of Chemistry
2009: NIH, Panel Reviewer, Drug Discovery and Development SBIR/STTR (BCMB 11)
2010: North Carolina Biotechnology Center.
2011: Research Corporation; NIH, Panel Reviewer, Partnership for Biodefense;
NIH Panel, Chemical Approaches to Target Validation for Drug Resistant Pathogens
2012: NIH, Panel, ZRG1 MDCN-J (50) R: Counter Act U01;
NSF, Chemistry, Mail-in Reviewer
2013: National Science Centre (Narodowe Centrum Nauki), Poland;
Research Corporation
2014: NIH, Neurobiology of Learning and Memory (LAM);
Fellowships: Synthetic and Biological Chemistry F04A-W(20)L
2015: NIH, Synthetic and Biological Chemistry A Study Section [SBCA];
NIH, synapses, Cytoskeleton and Trafficking (SYN)
2016: NSF, Chemistry of Life Processes, Mail-in Reviewer;
Wellcome Trust, Mail-in Reviewer
French National Research Agency (ANR), Mail-in Reviewer
National Science Centre (Narodowe Centrum Nauki – NCN), Poland
2017: NIH, Synthetic and Biological Chemistry A Study Section [SBCA], ZRG1 BCMB-H
2019: Nanyang Technology University
NIH, Chemistry and Chemical Biology Fellowship, ZRG1 F04A-D(20)
American Heart Association, Fellowship Cardiovascular Development Basic Sci
2020: Wellcome Trust, Wellcome Technology Development Grant
Canada Research Coordinating Committee, New Frontiers in Research Fund
NIH, Chemistry and Chemical Biology Fellowship Study Section, ZRG1 F04A-D (20)
2021: Canada Research Coordinating Committee, New Frontiers in Research Fund

Manuscript Review

As editor (>90)

1. Antibody Therapeutics
2. mAbs
3. Molecules

As reviewer (192)

1. AAPS PharmSciTech
2. ACS Applied Bio Materials
3. ACS Chemical Biology
4. ACS Chemical Neuroscience
5. ACS Sustainable Chemistry and Engineering
6. Advanced Synthesis and Catalysis
7. Analytical and Bioanalytical Chemistry
8. Analytical Biochemistry
9. Analytical Chemistry
10. Antibody Therapeutics
11. Applied Microbiology
12. Archives of Pharmacal Research Atherosclerosis
13. Autoimmunity
14. Biochemistry
15. Biochimica et Biophysica Acta
16. Bioconjugate Chemistry
17. Biomacromolecules
18. Biomaterials
19. Bioorganic and Medicinal Chemistry
20. Bioorganic and Medicinal Chemistry Letters
21. Canadian Journal of Microbiology
22. Carbohydrate Research
23. Chemical Communication
24. Chemistry-A European Journal
25. Chemistry & Biology
26. Computational and Structural Biotechnology Journal
27. Current Radiopharmaceuticals
28. Electrophoresis
29. Epigenetics and Chromatin
30. European Journal of Medicinal Chemistry
31. European Journal of Pharmaceutics and Biopharmaceutics
32. Herald of Medicine 《医药导报》
33. HVAC&R Research (Am Soc of Heating, Refrigerating and Air-Conditioning Engineers)
34. Investigative Ophthalmology and Visual Science (IOVS)
35. Journal of the American Chemical Society
36. Journal of The American Society for Mass Spectrometry

37. Journal of Applied Microbiology
38. Journal of Biomolecular Structure & Dynamics
39. Journal of the Brazilian Chemical Society
40. Journal of Chromatography B
41. Journal of Medicinal Chemistry
42. Journal of Molecular Microbiology and Biotechnology
43. Journal of Organic Chemistry
44. Journal of Pharmaceutical Sciences
45. Journal of Physical Chemistry
46. Journal of Proteome Research
47. Journal of Sulfur Chemistry
48. Journal of Visualized Experiments (JoVE)
49. Langmuir
50. mAbs
51. Mass Spectrometry Reviews
52. MedChemComm
53. Medicinal Research Reviews
54. Metallomics
55. Methods
56. Microscopy Research and Technique
57. Mini-Reviews in Medicinal Chemistry
58. Molecular Biology Reports
59. Molecular BioSystems
60. Molecular Microbiology
61. Molecular Pharmaceutics
62. Nano Letters
63. Nature Chemical Biology
64. Nature Communications
65. Organic and Biomolecular Chemistry
66. Organic Letters
67. Peptides
68. Plant Cell
69. PLoS ONE
70. Rapid Communications in Mass Spectrometry
71. RCS Advances
72. Scientific Reports (Nature)
73. Soft Matter
74. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy
75. Phosphorus, Sulfur, and Silicon and the Related Elements
76. Theranostics
77. Trends in Analytical Chemistry
78. Trends in Biotechnology
79. Tuberculosis

Patent Applications and Licensing

Assays for S-Adenosyl-methionine-Dependent Methyltransferases. Zhaohui Sunny Zhou and Kathleen Dorgan, PCT/US2007/060930, Filing Date: January 23, 2006.
The assays have been licensed to and commercialized by G-Biosciences/Geno Technology, St. Louis, Missouri and Cayman Chemical, Ann Arbor, Michigan.
www.gbiosciences.com/SAM-Methyltransferase.aspx
www.caymanchem.com/product/700150

Methods for Detecting L-Isoaspartyl or D-Aspartyl Residue in Polypeptides. Zhaohui Sunny Zhou, Min Liu, Da Ren. PTC/US/2012/036772 (7 May 2012). Provisional filed 6 May 2012.

Compositions, Methods and Kits for the Detection, Identification and Isolation of Methyltransferase Substrates. Zhaohui Sunny Zhou, Wanlu Qu, Tianyi Bai. Application 61/619,113 (WO2013151975) April 2, 2013. Converted in 2014.

Se-Adenosyl-L-selenohomocysteine selenoxide as a modulator of methyltransferase and other enzyme activities. Zhaohui Sunny Zhou, Richard I. Duclos, Jr., Dillion C. Cleary, Kalli C. Catcott. US Provisional Patent Application No. 62/057,956. Filed Sept 30, 2014. Converted in September 2015. Application Number: 14/871099

Chemo-Enzymatic Derivatization of Peptides. Zhaohui Sunny Zhou, Kevin Moulton, ShanShan Liu. U.S. Application No. 62/325,043. Filed 20 April 2016.

Site-Specific Derivatization of Peptides and Protein. Zhaohui Sunny Zhou, ShanShan Liu. U.S. Application No. 62/379,440. Filed 25 August 2016.

Chemo-Enzymatic Site-Specific Modification of Proteins and Peptides to Form Photo-Cleavable Conjugates. Zhaohui Sunny Zhou, Kevin Moulton, ShanShan Liu. U.S. Application No. 62/508,999. Filed 19 May 2017

Derivatives of Exenatide via Site-Specific Bioconjugation. Zhaohui Sunny Zhou, ShanShan Liu. U.S. Application No. 62468509. Filed 8 March 2017.

Chemo-Enzymatic Site-Specific Modification of Peptides and Proteins to Form Cleavable Conjugates. Zhaohui Sunny Zhou, George O'Doherty, ShanShan Liu, Kevin Ryan Moulton, Lincoln Ombelets, Amissi Sadiki. INV-17072. Granted 28 September 2021. US Patent US11129790B2

Site-Specific Modification of Glycoproteins Through Transglutaminase-Mediated Conjugation. Zhaohui Sunny Zhou and Amissi Sadiki. INV-21035. PCT/US2022/028859. Filed 11 May 2022.

Benzoporphyrin analogs, conjugates, and methods of use thereof. Amissi Sadiki, Zhaohui Sunny Zhou, Shanshan Liu. 2024. WO2024216150

Photoactivation. DISC-2024/168. 2024

Modified viral capsids and uses thereof. Kunal Daud, Uditha DeAlwis, Zhaohui Sunny Zhou. Filed 2024

Publications

Google Scholar: scholar.google.com/citations?user=DkpPDoYAAAAJ&hl=en

Link for download

All publications from SunnyLand, including doctoral dissertations, can be downloaded from bit.ly/sunny-publications

Videos

Combine Therapeutic Agents with Laser to Treat Scars 2023-02-11 youtu.be/nwssbcLCQk8

Deamidation of AAV (analytical artifacts) 2021-08-14 youtu.be/7EiRvAVrr4o

Bioprocessing Summit impurities 2020-08-23 youtu.be/8KJKABm2-oQ

Publications as Principal Investigator

Expression of Polyprotein and 3D Polymerase Protein in Sf9 Cells and Immunogenicity against Enterovirus A71B5 (Thailand Strain), by Issaro, Nipatha; Kongkaew, Aphisak; Jittmittraphap, Akanitt; Leaungwutiwong, Pornsawan; Nimlamool, Wutigri; Na Takuathung, Mingkwan; Koid, Andrea; Sunny Zhou, Zhaohui. *Submitted*.

Pan-Specific Dual N-terminal Tagging of Crosslinked Proteins: Affinity Capture and Quantification. Moulton, Kevin; Sadiki, Amissi; Tran, Tina; Micheloni, Emily; Zhaohui Sunny Zhou. *Submitted*.

Molecular Interaction Mechanism of Human Monoacylglycerol Lipase with a Novel Sulfonyl Fluoride Probe, AM3506. Mahmoud L. Nasr, Michael J. Johnson, Brent Kochert, Nikolai Zvonok, David R. Janero, Christina Miyabe, Xiaomeng Shi, Shakiru O. Alapafuja, Spyros P. Nikas, Vidyanand G. Shukla, Zhaohui Sunny Zhou, Thomas E. Wales, John R. Engen, and Alexandros Makriyannis. *Submitted*.

Chapter 213: Peptidyl-Asp metalloendopeptidase. *Handbook of Proteolytic Enzymes (Fourth Edition)*, 2025, 1377-1382. Shujia Dai, David H. Lee, Nathaniel T. Kenton, Zhaohui Sunny Zhou. doi.org/10.1016/B978-0-443-28849-4.00214-9 publisher link

First Elucidation of Proteoforms of Challenging Host Cell Proteins (HCPs) in Biomanufacturing, Enabled by Affinity Enrichment: Chinese Hamster Ovary (CHO) Phospholipase B-Like 2 (PLBL2) Captured from a Monoclonal Antibody. Michael Dolan, Leo (Lei) Wang, Yan Wang, Christopher Barton, Sheldon F. Oppenheim, Zhaohui Sunny Zhou. *Authorea* May 28, 2025 (preprint, under review)
DOI: 10.22541/au.174845028.81862983/v1

Site-Specific Immobilization of Antibodies as a Platform Approach to Enable the Targeted Capture and Effective Removal of "Problematic" Host Cell Proteins (HCPs) from Complex Bioprocess Streams, Even at Sub-ppm Levels: Chinese Hamster Ovary (CHO)

Phospholipase B-Like 2 (PLBL2). Michael E. Dolan, Alexander Tedeschi, Sheldon F. Oppenheim, Zhaohui Sunny Zhou. *Authorea* December 9, 2024 (preprint, under review) DOI: 10.22541/au.173372831.15992718/v1

Agonistic anti-NKG2D antibody structure reveals unique stoichiometry and epitope compared to natural ligands. Daniel Fallon, Ching-Shin Huang, Jingya Ma, Christopher Morgan, Zhaohui Sunny Zhou. *mAbs* 2024, 16 (1), 2433121. doi: 10.1080/19420862.2024.2433121 PuMed 39582357

First Site-Specific Conjugation Method for Native Goat IgG Antibodies via Glycan Remodeling at the Conserved Fc Region. Dolan, Michael; Sadiki, Amissi; Oppenheim, Sheldon; Zhaohui Sunny Zhou. *Antibody Therapeutics* 2024, 7 (3), 233–248. DOI 10.1093/abt/tbae014 PubMed 39262442

Site-specific Conjugation of Native Antibody: Transglutaminase-Mediated Modification of a Conserved Glutamine While Maintaining the Primary Sequence and Core Fc Glycan via Trimming with an Endoglycosidase. Amissi Sadiki, Shanshan Liu, Shefali R. Vaidya, Eric M. Kercher, Ryan T. Lang, James McIsaac, Bryan Q. Spring, Jared R. Auclair and Zhaohui Sunny Zhou. *Bioconjugate Chemistry* 2024, 35 (4), 465–471. pubs.acs.org/doi/10.1021/acs.bioconjchem.4c00013 PubMed 38499390

* Highlighted as cover art: link image

Natural isoaspartyl protein modification of ZAP70 alters T cell responses in lupus. Mei-Ling Yang, TuKiet T. Lam, Jean Kanyo, Insoo Kang, Zhaohui Sunny Zhou, Steven G. Clarke, and Mark J. Mamula. *Autoimmunity* 2023, 56, 2282945. PubMed 37994408 doi.org/10.1080/08916934.2023.2282945

重组人胰岛素注射液中异天冬氨酸含量检测. 李恒, 晏菊姣, 范晓磊, 宋德芳, 吴健鸿, 周朝晖 《中国药业》Determination of Isoaspartic Acid in Recombinant Human Insulin Injection. Li Heng，Yan Ju-jiao, Fan Xiao-lei, Song De-Fang, Wu Jian-hong, Zhaohui Sunny Zhou. *China Pharmaceuticals, 2022, 31(9), 90-93*. publisher link

The emergence of AntibodyPlus: the future trend of antibody-based therapeutics. Yong Zhu, Shawn Shouye Wang, Zhaohui Sunny Zhou, Mitchell Ho. *Antibody Therapeutics*, 2022, 5, 280-287; PubMed 36299417 doi.org/10.1093/abt/tbac024

Chemoenzymatic labeling of DNA methylation patterns for single-molecule epigenetic mapping. Tslil Gabrieli, Yael Michaeli, Sigal Avraham, Dmitry Torchinsky, Matyas Juhasz, Ceyda Coruh, Nissim Arbib, Zhaohui Sunny Zhou, Julie A. Law, Elmar Weinhold, Yuval Ebenstein. *Nucleic Acids Research*, 2022, 50, e92; PubMed 35657088 doi.org/10.1093/nar/gkac460
bioRxiv, 24 February 2021. doi: https://doi.org/10.1101/2021.02.24.432628

高效液相色谱法测定混合重组人胰岛素注射液中异天冬氨酸的含量. 晏菊姣, 王婧, 张一唱, 喻悦, 周朝晖, 李恒. 《医药导报》HPLC Quantification of Isoaspatic Acid in the Mixed Injectable Recombinant Human Insulin. Jujiao Yan, Jing Wang, Yichang Zhang, Yue Yu, Zhaohui Sunny Zhou, Heng Li. *Herald of Medicine,* 2022, 41, 231-234. DOI: 10.3870/j.issn.1004-0781.2022.02.017

A Mass Spectrometric Characterization of Light-Induced Modifications in Therapeutic Proteins. Zhongqi Zhang, Sih-Yao Chow, Ronandro De Guzman, Nathan H. Joh, Marisa K. Joubert, Jason Richardson, Bhavana Shah, Mats Wikström, Zhaohui Sunny Zhou, Jette Wypych. *Journal of Pharmaceutical Sciences*, 2022, 111, 1556-1564. PubMed 35167884 doi.org/10.1016/j.xphs.2022.02.002

Light-controllable binary switch activation of CAR T cells. Aya Kobayashi, Alberto Nobili, Steven C. Neier, Amissi Sadiki, Robert Distel, Zhaohui Sunny Zhou and Carl D. Novina. *ChemMedChem,* 2022, 17, e202100722. PubMed 35146940 doi: 10.1002/cmdc.202100722

* Cover story and art: chemistry-europe.onlinelibrary.wiley.com/doi/10.1002/cmdc.202200309
* Very important paper (VIP)

Polyreactivity and Polyspecificity in Therapeutic Antibody Development: Significant Risks for Failure in Preclinical and Clinical Development Campaigns. Orla Cunningham, Martin Scott, Zhaohui Sunny Zhou and William J.J. Finlay. *mAbs*, 2021, 13, 13, 1999195. PubMed 34780320 doi:10.1080/19420862.2021.1999195

Rapid Highly-Efficient Digestion and Peptide Mapping of Adeno-Associated Viruses. Estee Naggar Toole, Craig Dufresne, Somak Ray, Alexander Boris Schwann, Amissi Sadiki, Zhaohui Sunny Zhou, Ken Cook, and Alexander R. Ivanov. *Analytical Chemistry*, 2021, 93, 10403-10410. PubMed 34850630 doi: 10.1021/acs.analchem.1c04871

Site-specific Conjugation of Native Antibody. Amissi Sadiki, Shefali R. Vaidya, Mina Abdollahi, Gunjan Bhardwaj, Michael E. Dolan, Harpreet Turna, Varnika Arora, Athul Sanjeev, Timothy D. Robinson, Andrea Koid, Aashka Amin, and Zhaohui Sunny Zhou. *Antibody Therapeutics*, 2020, 3, 271-284. (Invited Review) PubMed 33644685 doi:10.1093/abt/tbaa027

Site-specific Bioconjugation and Convergent Click Chemistry Enhances Antibody–Chromophore Conjugate Binding Efficiency. Amissi Sadiki, Eric M. Kercher, Haibin Lu, Ryan T. Lang, Bryan Q. Spring, Zhaohui Sunny Zhou. *Photochemistry and Photobiology*, 2020, 96, 596-603. PubMed 32080860 doi: 10.1111/php.13231

Site-specific reversible protein modification: transglutaminase-catalyzed glutamine conjugation and bioorthogonal light-mediated removal. Kevin R. Moulton, Amissi Sadiki, Bilyana N. Koleva, Lincoln J. Ombelets, Tina H. Tran, Shanshan Liu, Bryan Wang, Hongyan Chen, Emily Micheloni, Penny J. Beuning, George A. O'Doherty, and Zhaohui

Sunny Zhou. *Bioconjugate Chemistry,* 2019, 30, 1617-21. PubMed 30945848 doi: 10.1021/acs.bioconjchem.9b00145

* Front cover art and story: pubs.acs.org/toc/bcches/30/6
* Selected for a thematic issue and also cover story: Bioorthogonal Chemistry and Bioconjugation: Synergistic Tools for Biology and Biomedicine. *Bioconjugate Chemistry,* 2021, 32, 8, 1409–1410. doi.org/10.1021/acs.bioconjchem.1c00355
* https://pubs.acs.org/page/bcches/vi/Bioorthogonal-Chemistry-and-Bioconjugation

Overview of Determination Methods of Deamination for Biotech Drugs. Heng Li, Yannan He, Jisheng Ma, ShanShan Liu, Zhaohui Sunny Zhou. *Herald of Medicine*, 2019, 38(2), 147-152. Review. Language: Chinese with English Abstract [publication number 1806016] 生物技术药物中脱酰胺化检测方法概述. 李恒, 何雁南, 马吉胜, 刘姗姗, 周朝晖. 《医药导报》2019, 38(2), 147-152. doi: 10.3870/j.issn.1004-0781.2019.02.002

Detection of Alkynes via Click Chemistry with A Brominated Coumarin Azide by Simultaneous Fluorescence and Isotopic Signatures in Mass Spectrometry. Lihua Yang, Chris Chumsae, Jenifer B. Kaplan, Kevin Ryan Moulton, Dongdong Wang, David H. Lee, Zhaohui Sunny Zhou. *Bioconjugate Chemistry*, 2017, 28, 2302-9. PubMed 28825803 doi: 10.1021/acs.bioconjchem.7b00354

Identifying Unknown Enzyme-Substrate Pairs from the Cellular Milieu with Native Mass Spectrometry. Kalli C. Catcott, Jing Yan, Wanlu Qu,Vicki H. Wysocki, Zhaohui Sunny Zhou. *ChemBiochem*, 2017, 18, 613. PubMed 28140508 doi: 10.1002/cbic.201600634

* Cover story for issue 7, Catch me if you can
* Designated as Very Important Paper (VIP)

Comparison of Protein N-Homocysteinylation in Rat Plasma under Elevated Homocysteine Using A Specific Chemical Labeling Method. Tianzhu Zang, Ligi Paul Pottenplackel, Diane E. Handy, Joseph Loscalzo, Shujia Dai, Richard Deth, Zhaohui Sunny Zhou, Jisheng Ma. *Molecules*, 2016, 21, 1195. PubMed 27617989 doi:10.3390/molecules21091195

Capturing Unknown Substrates via in Situ Formation of Tightly Bound Bisubstrate Adducts: S-Adenosyl-vinthionine as a Functional Probe for AdoMet-Dependent Methyltransferases. Wanlu Qu, Kalli C. Catcott, Kun Zhang, Shanshan Liu, Jason J. Guo, Jisheng Ma, Michael Pablo, James Glick, Yuan Xiu, Nathaniel Kenton, Xiaoyu Ma, Richard I. Duclos, Jr, and Zhaohui Sunny Zhou. *Journal of the American Chemical Society,* 2016, 138, 2877-80. PubMed 26901520 doi:10.1021/jacs.5b05950

Mildly Acidic Conditions Eliminate Deamidation Artifact during Proteolysis: Digestion with Endoprotease Glu-C at pH 4.5. Shanshan Liu, Kevin Ryan Moulton, Jared Robert Auclair, Zhaohui Sunny Zhou. *Amino Acids,* 2016, 48, 1059-67. PubMed 26748652 doi:10.1007/s00726-015-2166-z

When Good Intentions Go Awry: Modification of a Recombinant Monoclonal Antibody in Chemically Defined Cell Culture by Xylosone, an Oxidative Product of Ascorbic Acid. Chris Chumsae, Patrick Hossler, Haly Raharimampionona, Yu Zhou, Sean McDermott, Chris Racicot, Czeslaw Radziejewski, Zhaohui Sunny Zhou. *Analytical Chemistry*, 2015, 87, 7529-7534. PubMed 26151084 doi: 10.1021/acs.analchem.5b00801

Synthesis and Characterization of Se-Adenosyl-L-Selenohomocysteine Selenoxide. Richard I. Duclos, Jr., Dillon C. Cleary, Kalli C. Catcott, and Zhaohui Sunny Zhou. *Journal of Sulfur Chemistry*, 2015, 36, 135-44. PubMed 26005494 doi:10.1080/17415993.2014.979173

Discovery of a Chemical Modification by Citric Acid in a Recombinant Monoclonal Antibody. Chris Chumsae, Liqiang Lisa Zhou, Yang Shen, Jessica Wohlgemuth, Emma Fung, Randall Burton, Czeslaw Radziejewski, Zhaohui Sunny Zhou. *Analytical Chemistry*, 2014, 86, 8932–8936. PubMed 24738698 doi: 10.1021/ac502179m

Detection and Quantitation of Succinimide in Intact Protein via Hydrazine Trapping and Chemical Derivatization. Joshua J. Klaene, Wenqin Ni, Joshua F. Alfaro, Zhaohui Sunny Zhou. *Journal of Pharmaceutical Science,* 2014, 103, 3033–3042. PubMed 25043726 doi: 10.1002/jps.24074

Discovery and Characterization of a Novel Photo-Oxidative Histidine-Histidine Crosslink in IgG1 Antibody Utilizing 18O-labeling and Mass Spectrometry. Min Liu, Zhongqi Zhang, Janet Cheetham, Da Ren, Zhaohui Sunny Zhou. *Analytical Chemistry*, 2014, 86, 4940-8. PubMed 24738698 doi: 10.1021/ac500334k

* Highlighted *Staying Current: Formulation of Biopharmaceuticals, 2014, August*

Decreased glutathione and elevated hair mercury levels are associated with nutritional deficiency-based autism in Oman. Nathaniel W. Hodgson, Mostafa I. Waly, Yahya M. Al-Farsi, Marwan M. Al-Sharbati, Omar Al-Farsi, Tianzhu Zang, Zhaohui Sunny Zhou, Richard C. Deth. *Experimental Biology and Medicine,* 2014, 239, 697-706. PubMed 24676906 doi: 10.1177/1535370214527900

Arginine Modifications by Methylglyoxal: Discovery in a Recombinant Monoclonal Antibody and Contribution to Acidic Species. Chris Chumsae, Kathreen Gifford, Wei Lian, Hongcheng Liu, Czeslaw H. Radziejewski, Zhaohui Sunny Zhou. *Analytical Chemistry*, 2013, 85, 11401-9. PubMed 24168114 dx.doi.org/10.1021/ac402384y

Discovery of Undefined Protein Crosslinking Chemistry: a Comprehensive Methodology Utilizing ^{18}O-Labeling and Mass Spectrometry. Min Liu, Zhongqi Zhang, Tianzhu Zang, Chris Spahr, Janet Cheetham, Da Ren, and Zhaohui Sunny Zhou. *Analytical Chemistry*, 2013, 85, 5900-8. PubMed 23634697 dx.doi.org/10.1021/ac400666p

An Integrated Proteomic Analysis of Major Isoaspartyl-Containing Proteins in the Urine of Wild Type and Protein L-Isoaspartate O-Methyltransferase-Deficient Mice. Shujia Dai,

Wenqin Ni, Alexander N. Patananan, Steven Gerard Clarke, Barry L. Karger, Zhaohui Sunny Zhou. *Analytical Chemistry*, 2013, 85, 2423–30. PubMed 23327623 dx.doi.org/10.1021/ac303428h

Chapter 287: Peptidyl-Asp Metalloendopeptidase. Handbook of Proteolytic Enzymes, 3rd Ed; 2013, Volume 1, Pages 1281 – 5. Edited by Neil D. Rawlings and Guy Salvesen, Oxford: Academic Press. Shujia Dai, David H. Lee, Nathaniel T. Kenton, Zhaohui Sunny Zhou (invited review, book chapter) dx.doi.org/10.1016/B978-0-12-382219-2.00288-X

Substrate-Induced Control of Product Formation by Protein Arginine Methyltransferase 1 (PRMT1). Shanying Gui, Whitney L. Wooderchak-Donahue, Tianzhu Zang, Dong Chen, Michael P. Daly, Zhaohui Sunny Zhou, Joan M. Hevel. *Biochemistry*, 2013, *52* (1), 199–209. PubMed 23214442 pubs.acs.org/doi/abs/10.1021/bi301283t

Chemical Fingerprinting by RP-RRLC-DAD and Principal Component Analysis of *Ziziphora clinopodioides* from Different Locations. Shuge Tian, Qian Yu, Lude Xin, Zhaohui Sunny Zhou and Halmuart Upur. *Natural Product Communications, 2012, 7 (9), 1181-4.* PubMed 23074902

Protein Isoaspartate Methyltransferase-Mediated 18O-Labeling of Isoaspartic Acid for Mass Spectrometry Analysis. Min Liu, Janet Cheetham, Nina Cauchon, Judy Ostovic, Wenqin Ni, Da Ren, Zhaohui Sunny Zhou. *Analytical Chemistry,* 2012, 84, 1056–1062. PubMed 22132761 pubs.acs.org/doi/abs/10.1021/ac202652z

Zoospore interspecific signaling promotes plant infection by Phytophthora. Ping Kong, Brett M Tyler, Patricia A Richardson, Bobby W. K. Lee, Zhaohui S Zhou and Chuanxue Hong. *BMC Microbiology,* 2010, 10, 313. PubMed 21138563 doi:10.1186/1471-2180-10-31
* Highly accessed article on BioMed Central

Substrates of the *Arabidopsis thaliana* Protein Isoaspartyl Methyltransferase1 identified using phage display and biopanning. Tingsu Chen, Nihar Nayak, Susmita Maitra Majee, Jonathan Lowenson, Kim R. Schafermeyer, Alyssa C. Eliopoulos, Taylor D. Lloyd, Randy Dinkins, Sharyn E. Perry, Nancy R. Forsthoefel, Steven G. Clarke, Daniel M. Vernon, Zhaohui Sunny Zhou, Tomas Rejtar, and Allan Bruce Downie. *J Biol Chem,* 2010, 285, 37281-37292. PubMed 20870712 doi:10.1074/jbc.M110.15700

Analysis of Isoaspartic Acid by Selective Proteolysis with Asp-N and Electron Transfer Dissociation Mass Spectrometry. Wenqin Ni, Shujia Dai, Barry L. Karger and Zhaohui Sunny Zhou. *Anal Chem*, 2010, 82, 7485–7491. PubMed 20712325 pubs.acs.org/doi/abs/10.1021/ac101806e

Structure elucidation of highly polar basic degradants by on-line hydrogen/deuterium exchange hydrophilic interaction chromatography coupled to tandem mass spectrometry.

Min Liu, Mike Ronk, Da Ren, Judy Ostovic, Nina Cauchon, Zhaohui Sunny Zhou and Janet Cheetham. *J Chromatogr A,* 2010, 1217, 3598-3611. PubMed 20417519 Publisher Link

Enzyme-Catalyzed Transfer of a Ketone Group from an S-Adenosyl-Methionine Analog: A Tool for the Functional Analysis of Methyltransferases. Bobby W.K. Lee, He G. Sun, Tianzhu Zang, ByungJu Kim, Joshua F. Alfaro, and Zhaohui Sunny Zhou. *J Am Chem Soc*, 2010, 132, 3642-3. PubMed 20196537 pubs.acs.org/doi/abs/10.1021/ja908995p

* Highlighted in *JACS Select* (issue 12; *J Am Chem Soc*, 2011, 133, 13207–13212) collection focused on Chemical Mechanisms in Biochemical Reactions. Professor Peter J. Stang, Editor-in-Chief, commented, "Your Communication was selected because of its high scientific quality and broad appeal." pubs.acs.org/JACSbeta/jvi/issue12.html

* Highlighted in Nachrichten aus der Chemie, 2010, 58 (5), 518; Official journal of the German Chemical Society (Gesellschaft Deutscher Chemiker); Equivalent of Chemical and Engineering News of the American Chemical Society.

Desulfurization of cysteine-containing peptides resulting from sample preparation for protein characterization by mass spectrometry. Zhouxi Wang, Tomas Rejtar, Zhaohui Sunny Zhou and Barry L. Karger. *Rapid Commun Mass Spectrom*, 2010, 24, 267-275. PubMed 20049891 onlinelibrary.wiley.com/doi/10.1002/rcm.4383/abstract

Zoosporic plant pathogensproduce bacterial autoinducer-2 that affects Vibrio harveyi quorum sensing. Ping Kong, Bobby W.K. Lee, Zhaohui Sunny Zhou, and Chuanxue Hong, *FEMS Microbiol Lett* 2010, 303, 55-60. PubMed 20002192 Publisher Link

Chemical Methods for the Detection of Protein N-Homocysteinylation via Selective Reactions with Aldehydes. Tianzhu Zang, Shujia Dai, Dajun Chen, Bobby W. K. Lee, Suli Liu, Barry L. Karger, and Zhaohui Sunny Zhou. *Anal. Chem*. 2009, 81, 9065–9071. PubMed 19874060 Publisher Link

A Naturally Occurring Brominated Furanone Covalently Modifies and Inactivates LuxS. Tianzhu Zang, Bobby W.K. Lee, Lisa M. Cannon, Kathryn A. Ritter, Shujia Dai, Dacheng Ren, Thomas K. Wood, and Zhaohui Sunny Zhou. *Bioorg Med Chem. Lett*. 2009, 21, 6200-6204. PubMed 19775890 Publisher Link

* Highlighted in Nachrichten aus der Chemie, 2015, 63(12), 1163-7. Official journal of the German Chemical Society (Gesellschaft Deutscher Chemiker); Equivalent of Chemical and Engineering News of the American Chemical Society. "Wie Bakterien uns mit Naturstoffen krank machen? (How bacteria make us sick with natural products?)"

Synthetic Strategies Toward Carbocyclic Purine-Pyrimidine Hybrid Nucleosides. Joshua M. Sadler, Sylvester L. Mosley, Kathleen M. Dorgan, Zhaohui Sunny Zhou, and Katherine L. Seley-Radtke. *Bioorg Med Chem*. 2009, 17, 5520-5. PubMed 19592260 Publisher Link

PRMT1 Demonstrates Primary Amino Acid Sequence Selectivity: Discrimination of Substrates and Altered Product Formation. Whitney L. Wooderchak, Tianzhu Zang,

Zhaohui Sunny Zhou, Marcela Acuña, Stanley M. Tahara, Joan M. Hevel, *Biochemistry,* 2008, 47, 9456-66. PubMed 18700728 pubs.acs.org/doi/abs/10.1021/bi800984s

Methyltransferases Assays. Whitney L. Wooderchak, Zhaohui Sunny Zhou, Joan M. Hevel, *Curr. Protoc. Toxicol.* 2008, 38:4.26.1-4.26.12. Publisher Link

Chemo-enzymatic Detection of Protein Isoaspartate using Protein Isoaspartate Methyltransferase and Hydrazine Trapping. Joshua F. Alfaro, Laura A. Gillies, He G. Sun, Shujia Dai, Tianzhu Zang, Joshua J. Klaene, Byung Ju Kim, Jonathan D. Lowenson, Steven G. Clarke, Barry L. Karger, and Zhaohui Sunny Zhou, *Anal. Chem.* 2008, 80, 3882-9. PubMed 18419136 pubs.acs.org/doi/abs/10.1021/ac800251q

Colorimetric activity measurement of a recombinant putrescine N-methyltransferase from *Datura stramonium L.* Stefan Biastoff, Michael Teuber, Zhaohui Sunny Zhou, and Birgit Dräger, *Planta Medica* 2006, 72, 1136-41. PubMed 16924584 www.thieme-connect.com/DOI/DOI?10.1055/s-2006-947191

Carbocyclic Pyrimidine Nucleosides as Inhibitors of S-Adenosylhomocysteine Hydrolase. Sylvester L. Mosley, Brian A. Bakke, Joshua M. Sadler, Naresh K. Sunkara, Kathleen M. Dorgan, Zhaohui Sunny Zhou, and Katherine L. Seley-Radtke, *Bioorg. Med. Chem.* 2006, 14, 7967-7971. PubMed 16904326 www.sciencedirect.com/science/article/pii/S0968089606006067

An Enzyme-Coupled Continuous Spectrophotometric Assay For S-Adenosylmethionine-Dependent Methyltransferases. Kathleen M. Dorgan, Whitney L. Wooderchak, DonRaphael P. Wynn, Erin L. Karschner, Joshua F. Alfaro, Yinqiu Cui, Zhaohui Sunny Zhou, and Joan M. Hevel, *Anal. Biochem.* 2006, 350, 249-255. PubMed 16460659 www.sciencedirect.com/science/article/pii/S0003269706000078

Potential Beneficial Metabolic Interactions Between Tamoxifen and Isoflavones via Cytochrome P450-mediated Pathways in Female Rat Liver Microsomes. Jun Chen, Steven C. Halls, Joshua F. Alfaro, Zhaohui Zhou, and Min Hu, *Pharm. Res.* 2004, 21, 2095-2104. PubMed 15587933 link.springer.com/article/10.1023%2FB%3APHAM.0000048202.92930.61

Synthesis of LuxS Inhibitors Targeting Bacterial Cell-Cell Communication. Joshua F. Alfaro, Tiao Zhang, DonRaphael P. Wynn, Erin L. Karschner, and Zhaohui Sunny Zhou, *Org. Lett.* 2004, *6*, 3043-6. PubMed 15330583 pubs.acs.org/doi/abs/10.1021/ol049182i

An Enzyme-Coupled Colorimetric Assay for S-Adenosylmethionine-Dependent Methyltransferases. Cheryl L. Hendricks, Jeannine R. Ross, Eran Pichersky, Joseph P. Noel and Zhaohui Sunny Zhou, *Anal. Biochem.* 2004, *326*, 100-105. PubMed 14769341 www.sciencedirect.com/science/article/pii/S0003269703008236

Rapid Screening for S-Adenosylmethionine-Dependent Methylation Products by Enzyme-Transferred Isotope Patterns Analysis. Wei Wan, Gang Zhao, Khalid Al-Saad, William F. Siems, and Zhaohui Sunny Zhou, *Rapid Comm. Mass Spectrom.* 2004, *18*, 319-324. PubMed 14755618 onlinelibrary.wiley.com/doi/10.1002/rcm.1335/abstract

Chemical Synthesis of S-Ribosyl-L-Homocysteine and Activity Assay as a LuxS Substrate. Gang Zhao, Shahrzad Mansouri, Joshua F. Alfaro, Wei Wan, Bonnie L. Bassler, Kenneth A. Cornell, and Zhaohui Sunny Zhou, *Bioorg. Med. Chem. Lett.* 2003, *13*, 3897-3900. PubMed 14592470 www.sciencedirect.com/science/article/pii/S0960894X03009697

A Stereospecific Colorimetric Assay for (*S,S*)-Adenosylmethionine Quantification Based on Thiopurine Methyltransferase-Catalyzed Thiol Methylation. Lisa M. Cannon, Felice N. Butler, Wei Wan, and Zhaohui S. Zhou, *Anal. Biochem.* 2002, *308*, 358-363. PubMed 12419350 www.sciencedirect.com/science/article/pii/S0003269702002671

Vinyl Sulfonium as Novel Proteolytic Enzyme Inhibitor. Gang Zhao, and Zhaohui S. Zhou, *Bioorg. Med. Chem. Lett.* 2001, *11*, 2331-2335. PubMed 11527725 www.sciencedirect.com/science/article/pii/S0960894X01004401

Current Developments in Biological Methylations. Zhaohui S. Zhou, Gang Zhao, and Wei Wan, *Front. Biotechnol. Pharm.* 2001, *2*, 256-274. (Invited review)

Publications as postdoc and graduate student

Cobalamin-dependent and Cobalamin-independent Methionine Synthases: Are there Two Solutions to the Same Chemical Problem? Rowena G. Matthews, April E. Smith, **Zhaohui S. Zhou**, Rebecca Taurog, Vahe Bandarian, John C. Evans, and Martha Ludwig. *Helv. Chim. Acta* 2003, 86, 3939-3954. PubMed 8304207 onlinelibrary.wiley.com/doi/10.1002/hlca.200390329/abstract

Probing Ligand and Structural Changes at the Zinc Site Upon Homocysteine Binding in Cobalamin-independent and Cobalamin-dependent Methionine Synthase of Escherichia coli by X-ray Absorption Spectroscopy. Katrina Peariso, **Zhaohui S. Zhou**, April E. Smith, Rowena G. Matthews, and James E. Penner-Hahn. *Biochemistry*, 2001, 40, 987-993. PubMed 11170420 pubs.acs.org/doi/abs/10.1021/bi001711c

L-Selenohomocysteine: One-Step Synthesis from L-Selenomethionine and Kinetic Analysis as Substrate for Methionine Synthases. **Zhaohui S. Zhou**, April E. Smith, and Rowena G. Matthews. *Bioorg. Med. Chem. Lett.* 2000, 10, 2471-2475. PubMed 11078203 www.sciencedirect.com/science/article/pii/S0960894X00004984

Identification of the Zinc Ligands in Cobalamin-Independent Methionine Synthase (MetE) from Escherichia coli. **Zhaohui S. Zhou**, Katrina Peariso, James E. Penner-Hahn, and Rowena G. Matthews. *Biochemistry*, 1999, 38, 15915-15926. PubMed 10625458 pubs.acs.org/doi/abs/10.1021/bi992062b

Antibody-Catalyzed Allylic Sulfoxide-Sulfenate Rearrangement. **Zhaohui S. Zhou**, Alexander Flohr, and Donald Hilvert. *J. Org. Chem.* 1999, 64, 8334-8341. PubMed 11674756 pubs.acs.org/doi/abs/10.1021/jo991299a

Antibody-Catalyzed Selenoxide Elimination. **Zhaohui S. Zhou**, Ning Jiang, and Donald Hilvert. *J. Am. Chem. Soc.* 1997, 119, 3623-3624. pubs.acs.org/doi/abs/10.1021/ja963748j

Doctoral Thesis

Catalytic Antibodies for Pericyclic Reactions and Cofactor-Dependent Oxidations and Reductions. January 6, 1997, The Scripps Research Institute, La Jolla, California. PDF https://drive.google.com/file/d/1cwxSsiObQbvbxBFnMloiHn1VhksfWsta/view

Invited Lectures

5th Applied Biocatalysis and Enzyme Engineering Summit, Boston, 12-13 November 2025
Keynote speaker, America Chemical Society (ACS), Northeastern Regional Discussion (NERD), Worcester State University (Worcester, MA), 1 Nov 2025
3rd ADC Process Development Summit, Boston, 21-23 October 2025
University of Maryland, College Park, 16 Oct 2025
RNA track at CHI's Bioprocessing Summit, Boston, Omni Boston Hotel, August 18-21, 2025
2nd ADC Payload Summit, workshop and talk, Boston, May 6-8, 2025.
Antibody-drug conjugates (ADCs), Sino-American Pharmaceutical Professionals Association – New England/Boston (SAPA-NE), Lilly Seaport Center, Boston, 29 March 2025
Gilead, virtual, 6 March 2025

ModeX Therapeutics, Weston, Massachusetts, 10 October 2024
ADC Discovery & Development US Congress, San Diego, CA, 3 to 4 October 2024 (canceled)
2nd ADC Process Development Summit, Boston, September 17-19, 2024
16 Annual Bioprocessing Summit, 19-22 August 2024, Boston (two talks)
1. Cell Therapy CMC and Analysis; 2. Host cell proteins (HCPs)
ADC Payloads Summit, 21-23 May 2024, Boston
Cell Gene Therapy Manufacturing & Commercialisation Digital Week, 6 May 2024 (canceled)
14th World ADC (Antibody Drug Conjugates), workshop and talk, London, 12-15 March 2024
Department of Chemistry, University of California, Davis, 5 March 2024 (canceled)
Gilead, Foster City, California, 29 Feb 2024 (canceled)
Amgen, South San Francisco, 28 Feb 2024
Keynote speaker, Advancing Manufacture of Cell and Gene Therapies VIII, ECI, Coronado Bay, San Diego, California, 4-8 Feb 2024
Transplantation Research Center (TRC), Mass General, Harvard Medical School, 24 Jan 2024

BioSeedin and BeiGene, webinar, 28 December 2023
BSAF (Bay State Analytical Forum), inaugural talk, 19 October 2023
ADC Linker and Conjugation Summit, workshop and talk, Boston, 22-24 August 2023
15th Annual Bioprocessing Summit, Boston, 14-15 August 2023
Belmont High School, Asian Culture Club, 17 February 2023
Scar Treatment, Lasers in Surgery and Medicine, virtual, 11 Feb 2023 youtu.be/nwssbcLCQk8

Janssen, Johnson & Johnson, virtual, 30 November 2022
Northwestern Polytechnical University (Xi'an, China), virtual, 19 November 2022
Beijing Union University, virtual, 19 November 2022
Dragonfly Therapeutics, Waltham, MA, 14 November 2022
Keynote speaker, 19th Symposium on the Practical Applications of Mass Spectrometry in the Biotechnology Industry (CASSS), Long Beach, California, September 28-30, 2022
Elektrofi, 9 September 2022
University of Massachusetts at Dartmouth, Dept Chemistry and Biochemistry, 7 Sept 2022
MAM (Multi-Attribute Method) Consortium, virtual, 21 July 2022
School of Pharmacy, Jilin University, China, virtual, 22 February 2022

Sarepta, virtual, 1 February 2022
Sperogenix Therapeutics, virtual, 21 January 2022

Beijing Union University, virtual, 11 December 2021
Science Bites, College of Science, Northeastern University, Boston, 27 October 2021
AntibodyPlus, moderator, 5th Annual Conference, Chinese Antibody Society, 15 October 2021
Keynote Speaker, Bioprocessing Summit, Boston, 16 Aug 2021. Video: youtu.be/7EiRvAVrr4o
CuriRx, Wilmington, Massachusetts, 11 August 2021
DynamiCure Biotechnology, virtual, 15 March 2021
PepTalk, virtual, 19 January 2021
Tango Therapeutics, virtual, Cambridge, Massachusetts; 15 January 2021

Nanyang Technological University (NTU), Singapore, virtual, 9 October 2020
Bioprocessing Summit, Detection, Characterization and Control of Impurities in Biologics, Boston, MA, virtual, August 27-28, 2020. Video: youtu.be/8KJKABm2-oQ
Wellman Center for Photomedicine, Massachusetts General Hospital, Harvard Medical School, virtual, 12 May 2020
University of Massachusetts Lowell, Department of Chemistry, 28 Feb 2020
Department of Pharmaceutical Sciences, Northeastern University, Boston, 6 Feb 2020

Session Chair, 3rd Annual Conference, Chinese Antibody Society, Cambridge, MA, 7 April 2019
Biotherapeutics Analytical Summit, Alexandria, VA, 6-8 March 2019

Waters, Milford, MA, 19 Oct 2018
ICH-Q8 Through ICH-Q11 Training Workshop, Beijing, China, 15-17 Sept 2018
APEC Biotherapeutics Center of Excellence (CoE) Training Workshop, 10-14 Sept 2018
GlaxoSmithKline (GSK), Philadelphia, 27 June 2018
Wuhan Institute for Drug and Medical Device Control, Wuhan, China, 25 May 2016
Nanyang Technological University (NTU), Singapore, 23 May 2018
7th Annual Cell Line Development and Engineering Asia, Shanghai, 15-17 May 2018
Amgen Asia Research and Development Center, Shanghai, 15 May 2018
American Society for Photobiology Biennial Meeting, Tampa, Florida, 12-15 May 2018
PEGS - the essential protein engineering summit, Boston, April 30 - May 4, 2018
Biotherapeutics Analytical Summit, Baltimore, March 12-16, 2018

Bioprocessing Technology Institute, A*STAR, Singapore, 23 October 2017
Health Sciences Authority (HSA), Singapore, 20 October 2017
APEC Biotherapeutics Center of Excellence (CoE) Training Workshop, 11-15 Sept 2017
College of Pharmacy, WenZhou Medical University, 1 August 2017
Pfizer, Cambridge, Massachusetts, 8 May 2017

Wuhan Institute for Drug and Medical Device Control, Wuhan, China, 14 Dec 2016
Bristol-Myers Squibb (BMS), Davens, MA, 2 Dec 2016
APEC Biotherapeutics Center of Excellence (CoE) Pilot Training, 7 Nov 2016
Boston College, Chemistry, 1 Nov 2016

Horvath Medal Award Symposium, Yale, 26 Oct 2016
Johns Hopkins School of Medicine, Pharmacology, 5 Oct 2016
APEC Biotherapeutics Center of Excellence (CoE) Pilot Training, Sept 13-16, 2016
Workshop on antibody-drug conjugates (ADC), Takeda, Cambridge, MA, 2 June 2016
Workshop on antibody-drug conjugates (ADC), Takeda, Cambridge, MA, 27 April 2016
Genentech, South San Francisco, California, 4 March 2016
Epigenetic Enzymes in Drug Discovery Conference, San Diego, March 1-2, 2016
UC-Irvine, 29 February 2016
Sanibel Conference, Characterization of Protein Therapeutics by Mass Spectrometry
Am Soc Mass Spec, Clearwater, Florida, 21-24 January 2016

11th International Congress of Corneal Cross-Linking (CXL), Boston, 5 December 2015
New Drug Development Summit, sFDA and Biolake, Wuhan, China, 27 November 2015
Wuhan Institute for Drug and Medical Device Control, Wuhan, China, 26 November 2015
Protein Biophysics Structure and Function (PBSF), Northeastern Univ, 6 November 2015
Syros, Cambridge, Massachusetts, 5 November 2015
Yunnan Baiyao, Kunming, China, 5 July 2015
Overseas Chinese Entrepreneurship Development Fair, Wuhan, July 1-3, 2015
Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, 26 June 2015
Epigenomics & Novel Therapeutic Targets Conference, Boston, May 21-22, 2015
Dept of Biological Chemistry, University of Michigan, Ann Arbor, 24 March 2015

MASSEP, Boston, 20 Nov 2014
Hubei Institute for Food and Drug Control (sFDA), Wuhan, China, 13 Nov 2014
Chinese Society of Biotechnology Annual Conference, Wenzhou, China, Nov 8-10, 2014
Beijing University of Chemical Technology, Beijing, 4 Nov 2014
College of Pharmacy, Tianjin University, Tianjin, China, 3 Nov 2014
ETH Hönggerberg, Zürich, Switzerland, June 28, 2014
Krull Family Lecture, Chemistry and Chemical Biology, Northeastern Univ, April 29, 2014
Department of Chemistry, MIT, Cambridge, MA, February 10, 2014

Targeting Histone Methyltransferases, Boston, MA, September 24-25, 2013
Dept of Pharmaceutical Chemistry, University of Kansas, Lawrence, Sept 17, 2013
WuXi AppTec, Shanghai, China, Aug 30, 2013
Key Laboratory of Anal Chem for Biology and Medicine, Wuhan University, Aug 28, 2013
Hubei Institute for Food and Drug Control (sFDA), Wuhan, China, Aug 27, 2013
Amgen, Thousand Oaks, California, July 23, 2013
Dept Chemistry and Biochemistry, UC-Santa Barbara, July 22, 2013
3rd Epigenetics in Drug Discovery Conference, Boston, MA, May 8-10, 2013
Keynote speaker, Northeast Bioengineering Conference, Syracuse, New York, April 6, 2013
Department of Chemistry, Georgia State University, Atlanta, March 8, 2013
Dept Chemistry & Biochemistry, Florida International University, Miami, Feb 8, 2013

Dept Chemistry & Biochemistry, Boise State University, Boise, Idaho, Dec 14, 2012
Trainer, Protein Drug Analysis, CABA Regulatory Training Program, Boston, Sept 27, 2012

Gordon Conference, Enzymes, Coenzyme Metab Path, Waterville Valley, NH, July 15, 2012
Methods in Protein Structure Analysis (MPSA), Ottawa, Canada, June 26-28, 2012.
Northern Essex Community College, Dept of Natural Sciences, Haverhill, MA, April 5, 2012
Novartis, Cambridge, April 3, 2012
Department of Chemistry, Brandeis University, April 2, 2012
Biosimilars and Biobetters, Baltimore, MD, March 19-20, 2012

Department of Chemistry, Shanghai Normal University, 18 December 2011
College of Pharmacy, Tianjin University, Tianjin, China, 15 December 2011
College of Life Sciences, Jilin University, Changchun, China, 8 December 2011
Jilin Agricultural University, Changchun, August 29, 2011
Trainer, Protein-Based Drug Analysis, CABA 2011 Regulatory Training Program, Boston.
Dept of Chemistry and Biochemistry, University of California, Los Angeles, March 4, 2011
Amgen, Thousand Oaks, March 2, 2011
Chungnam National University, Korea, February, 2011
Yonsei Proteome Research Center, Yonsei University, Korea, February, 2011

College of Pharmacy, Nankai University, Tianjin, December 22, 2010
Beijing University of Chemical Technology, Beijing, December 20, 2010
Northern Essex Community College, Dept of Natural Sciences, Haverhill, MA, Oct. 25, 2010
HPLC 2010, Boston, Massachusetts, June 19-24, 2010
Lecturer, Short Course: State of the Art Protein Analysis and Regulatory Science sponsored by the Barnett Institute at Northeastern University, June 7 to 10, 2010
AnaSpec, Fremont, California, March 24, 2010
Am Chem Soc, 239 National Meeting, Biochemical Tech Div, San Francisco, Mar 21, 2010
Selected for webinar presentation, May 28, 2010
Organix Inc, Woburn, Massachusetts, March 11, 2010

College of Pharmacy, Tianjin University, Tianjin, China, Aug. 14, 2009
College of Sciences, Beijing University of Chemical Technology, Aug. 5, 2009
Martin Luther University of Halle-Wittenberg, Germany, June 25, 2009
7th Int Conference on Homocysteine Metabolism, Prague, Czech, June 21-25, 2009
Abbott Bioresearch Center (ABC), Worcester, Massachusetts, April 17, 2009
Pharmaceutical Science, Northeastern University, Boston, Massachusetts, April 2, 2009.
Chemical Biology Program, University of Maryland at Baltimore County, Mach 4, 2009
Biology Department, Northeastern University, Boston, Massachusetts, Jan. 26, 2009.

Millipore Bioscience Division, Danvers, Massachusetts, July 30, 2008.
Northeastern Regional Meeting of Am Chem Soc, Burlington, Vermont, June 29, 2008.
FASEB Conference on Biological Methylation, Carefree, Arizona, June 1 to 6, 2008.
GOT Summit (Getting Optimized Tools for Diagnostics), Boston, , May 19-20, 2008.
American Chemical Society 234th National Meeting, Boston, Aug. 19 to 23, 2007.

Second Sino-US Chemistry Professors Conference, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, July 7-9, 2006.

Session Chair and Speaker, Small Molecule Methylation, FASEB Summer Research Conference on Biological Methylation, Saxtons River, Vermont, June 24-29, 2006.
Medicinal Chem and Natural Products, Univ North Carolina, Chapel Hill, March 29, 2006.
College of Pharmacy, Oregon State University, Corvallis, Oregon, March 13, 2006.
Department of Chemistry, Portland State University, Portland, Oregon, March 10, 2006.
Department of Chemistry, University of Nevada at Reno, Nevada, February 24, 2006.
Barnett Inst and Dept of Chem and Chem Biol, Northeastern Univ, Boston, Feb. 9, 2006.
Department of Medicinal Chemistry, Pharmacy, Univ of Utah, Salt Lake City, Jan 30, 2006.

Key Laboratory for Molecular Enzymology and Engineering of Ministry of Education, Jilin University, Changchun, China, January 4, 2005.
Shanghai Institute of Organic Chemistry, Shanghai, China, December 27, 2004.
College of Chemistry, Peking University, Beijing, China, December 24, 2004.
Department of Biochemistry, Emory University, Oct. 21, 2004.
Department of Chemistry, Boise State University, Boise, Idaho, October 15, 2004.
FASEB Sum Res Conf Biological Methylation, Saxtons River, Vermont, July 14, 2004.
Key Laboratory for Molecular Enzymology and Engineering and College of Life Science, Jilin University, Changchun, China, January 8, 2004.

Pharmaceutical Sciences, Washington State Univ, Pullman, Washington, Dec. 6, 2002.
Department of Chemistry, Washington State University, Pullman, March 28, 2000
Department of Chemistry, West Virginia University, Morgantown, 2000.
Department of Chemistry, Florida International University, Miami, 2000.

Gordon Graduate Res Seminar on Bioinorganic Chem, Ventura, California, 28 Jan 1999.

Research Funding

Federal

Department of Defense (DOD)
National Institutes of Health (NIH)
National Institute of Allergy and Infectious Diseases (NIAID)
National Institute of General Medical Sciences (NIGMS)
National Science Foundation (NSF)

Foundation

American Heart Association
Amgen Medical Education Foundation
Andre Danesh Artificial Blood Institute
Autism Research Institute
Herman Frasch Foundation, administrated by American Chemical Society

Industrial

Amgen
Bristol-Myers Squibb (BMS)
Colgate Palmolive Company
Ischemia Technologies
NIRa Biosciences
Novartis Institutes for BioMedical Research (NIBR), Cambridge, Massachusetts
Nuvelo
Takeda

International

Food and Drug Administration (FDA) of China (training program)

Internal

Northeastern University, Provost Office, Center for Research Innovation (CRI)
Washington State University (WSU), Student Support for Research from
Honors College, College of Sciences, School of Pharmacy, Biotechnology Program

Donation

Abbott AbbVie
Bristol-Myers Squibb (BMS)
Boehringer Ingelheim
Dragonfly
Genentech/Roche
Genzyme/Sanofi
IBM

Teaching at Northeastern University

Awardee, Supervisor of the Year, The National Student Employment Association, 2024
Teacher Appreciation, Delta Zeta Sorority - Xi Upsilon Chapter, Northeastern, 2022
Finalist, nominated by students for Excellence in Teaching Award, Northeastern University 2010, 2011

Chemistry and Design of Protein Pharmaceuticals (CHEM 5625, new course I developed)
Enzymes: Chemistry and Chemical Bioology (CHEM 5460, new course I developed)
Protein Chemistry (CHEM 5620)
Protein Principles in Biotechnology (BIOT 5621)
Mechanistic and Physical Organic Chemistry (CHEM 5627)
Principles of Chemical Biology (CHEM 5621, advanced undergraduates and graduates)
Advanced Topics in Organic Chemistry (CHM G310, Protein Chemistry, undergraduates and graduates)
Bioorganic Chemistry (CHM G376, advanced undergraduates and graduates)
Organic Chemistry I for Chemistry Majors (CHM U315, undergraduate)
Organic Chemistry Laboratory I for Majors (CHM U316, undergraduate)
Organic Chemistry II for Chemistry Majors (CHM U317, undergraduate)
Organic Chemistry Laboratory II for Majors (CHM U318, undergraduate)
Organic Chemistry II (CHEM 2313, undergraduate)

Organic Chemistry III (CHEM 4456, undergraduate, guest lectures)
Biopolymeric Materials (CHEM 5640, graduate, guest lecture)

Instructor, Biopharmaceutical Analysis Training Laboratory (BATL), Northeastern University, 2016-present

Teaching at Washington State University

Organic Reaction and Mechanism (Chem 540, advance undergraduate and graduate)
Enzyme Catalysis and Inhibition (Chem 529, advance undergraduate and graduate)
Protein Chemistry (Chem 543, advance undergraduate and graduate)
Proteins and Enzymes (MBioS 567, graduate course, guest lecturer on catalytic antibody)
Principles of Pharmacology (P/T 506), graduate course, guest lecturer on drug discovery)
Advanced Topics in Organic Chemistry (Chem 544, graduate research)
Seminar in Organic Chemistry (Chem 594, graduate students seminar)
Organic Chemistry I (Chem 340 and Chem 345, undergraduate)
Organic Chemistry Laboratory I (Chem 341 and Chem 345, undergraduate)