Dr. Wenshe R. Liu
Gradipore Chair in Chemistry and Professor
Chair of the Biological Chemistry Division in the Chemistry Department
Director of the Texas A&M Chemistry Mass Spectrometry Facility
Member of Professional Program in Biotechnology
Member of Interdisciplinary Faculty of Toxicology
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Department of Chemistry
Texas A&M University
MS 3255
College Station, TX 77843

Education:

Scripps Research Institute, CA	2005-2007	Postdoc in Chemical Biology
UC-Davis, CA	2000-2005	Ph.D. in Chemistry
Beijing University, China	1996-2000	B.S. in Chemistry

Awards and Honors:

2017	ACS Chemical Biology Most Prolific Author
2016	CAPA Distinguished Professor Award
2012	NSF CAREER Award
2010	*Molecular BioSystems* Emerging Investigator
2004	UCDavis Summer Research Award
2003	UCDavis Travel Award
2000-2004	UC Biotechnology Research Training Fellow
1999	Outstanding Student Leader Award
1998	Canon Undergraduate Award
1997	Huikai Undergraduate Award
1996-2000	Geru Zen Fellowship

Professional Affiliations:
2003-current American Chemical Society
2007-current Chinese-American Chemistry Professor Association (CAPA)

Research Experience:

Texas A&M University **09/2018 – current**
Position: Gradipore Chair in Chemistry and Professor
Texas A&M University **09/2016 – 08/2018**
Position: Emile and Marta Schweikert Professor of Chemistry
Texas A&M University **09/2014 – 08/2016**
Position: Emile and Marta Schweikert Associate Professor of Chemistry
Texas A&M University **09/2013 – 08/2014**
Position: Associate Professor of Chemistry
Texas A&M University **08/2007 – 08/2013**
Position: Assistant Professor of Chemistry
Research focus: 1) Engineering pyrrolysyl-tRNA synthetase and its cognate $tRNA^{Pyl}$ for the synthesis of proteins with posttranslational modifications and apply these tools to studying

epigenetic roles of posttranslational modifications and their related writer and eraser enzymes in cell differentiation and cancer development; 2) Engineering pyrrolysyl-tRNA synthetase and its cognate $tRNA^{Pyl}$ for the synthesis of proteins with active chemical functionalities for protein bioconjugation and applying the developed methods to the synthesis of antibody-drug conjugates and protein imaging in cells; 3) Use bacteria phage to construct peptide-small molecule conjugate libraries for anti-cancer drug identifications.

Scripps Research Institute **07/2005 – 07/2007**
Position: Postdoctoral Researcher
Advisor: Dr. Peter G. Schultz
Research focus: 1) Using evolved *E. coli* tyrosyl-tRNA synthetase mutants coupled with an amber suppressing $tRNA^{Tyr}$ for the genetic incorporation of unnatural amino acids into proteins by means of amber suppression in mammalian cells; 2) Structurally characterize evolved *M. jannaschii* and *E. coli* tyrosyl-tRNA synthetases that were used for genetic incorporation of unnatural amino acids in bacteria and yeast.

University of California-Davis **09/2000 - 06/2005**
Position: Graduate Researcher
Advisor: Dr. Michael D. Toney
Research focus: Structural and mechanistic characterization pyridoxyl-5'-phosphate dependent enzymes.

Peer Reviewed Publications

As an independent principal investigator

1. Weinert B.T., Narita T., Satpathy S., Srinivasan B., Hansen B.K., Schölz C., Hamilton W., Zucconi B.E., Wang W.W., **Liu W.R.**, Brickman J., Kesicki E.A., Lai A., Bromberg K.D., Cole P.A., Choudhary C.*, "Time-Resolved Analysis Reveals Rapid Dynamics and Broad Scope of the CBP/P300 acetylome", *Cell*, in press.
2. Kakkar N., Perez J.G., Liu W.R., Jewett M.C., and van der Donk W.A.*, "Incorporation of Nonproteinogenic Amino Acids in Class I and II Lantibiotics", *ACS Chem. Biol.*, **2018**, DOI: 10.1021/acschembio.7b01024.
3. Huang J., Mousley C. J., Dacquay L., Maitra N., Drin G., He C., Ridgway N.D., Tripathi A., Kennedy M., Kennedy B.K., **Liu. W.R.**, Baetz K., Polymenis M., and Bankaitis V.A.*, "A Lipid Transfer Protein Signaling Axis Exerts Dual Control of Cell-Cycle and Membrane Tranfficking Systems", *Dev. Cell*, **2018**, 44(3):378-391.
4. Tharp J.M. and **Liu W.R.***, "Using Amber and Ochre Nonsense Codons to Code Two Different Noncanonical Amino Acids in One Protein Gene", *Methods Mol. Biol.*, **2018**, 1728:147-154.
5. Sharma V., Zeng Y., Wang W.W., Wiao Y., Kurra Y., and Liu W.R., "Evolving the N-terminal Doman of Pyrrolysyl-tRNA Synthetase for Improved Incorporation of Noncanonical Amino Acids", *ChemBioChem*, **2018**, 19(1):26-30.
6. Tharp J.M., Ehnbom A., and **Liu W.R**.*, "$tRNA^{Pyl}$: Structure, Function, and Applications", *tRNA Biol.*, **2017**, DOI: 10.1080/15476286.2017.1356561.
7. Tharp J.M and Liu W.R., "Genetic Code Expansion: Synthetases Pick Up the PACE", *Nat. Chem. Biol.* **2017**, 13(12):1205-1206.

8. Wang Z.A., Hsu W., and **Liu W.R.***, "Role of SIRT1 in Epigenetics", Handbook of Nutrition, Diet, and Epigenetics, 1-19 (**2017**).
9. Wang Z.A. and **Liu W.R.***, "Proteins with Site-specific Lysine Methylation", *Chem. EUR. J.*, **2017**, 23(49):11732-11737.
10. Tian Y., de Vera Jacinto M.P., Yu Z., Jun Q., **Liu W.R.**, and Lin Q.*, "Genetically Encoded 2-Aryl-5-carboxytetrazoles for Site-selective Protein Photo-cross-linking", *J. Am. Chem. Soc.*, **2017**, 139(17):6078-6081.
11. Zhu M., Harshbarger W.D., Robles O., Krysiak J., Hull K.G., Cho W., Richardson R.D., Yang Y., Garcia A., Spiegelman L., Ramirez B., Wilson C.T., Yau J.A., Moore J.T., Walker C.B., Sacchettini J.C., **Liu W.R.**, Siber S.A, Smith J.W., and Romo D.*, "A Strategy for Dual Inhibition of the Proteasome and Fatty Acid Synthease with Belactosin C-Orlistat Hybrids", *Bioorg. Med. Chem.* **2017**, 25(11):2901-2916.
12. Wang Z.A., Kurra Y., Wang X., Zeng Y., Lee Y.J., Sharma V., Lin H., Dai S.Y., and **Liu W.R.***, "A Versatile Approach for Site-Specific Lysine Acylation in Proteins", *Angew. Chem. Int. Ed.*, **2017**, 56(6):1643-1647.
13. Wang Z.A., Zeng Y., Kurra Y., Wang X., Tharp J.M., Vatansever E.C., Hsu W.W., Dai S., Fang X.*, and **Liu W.R.***, "A Genetically Encoded Allysine for the Synthesis of Proteins with Site-specific Lysine Dimethylation", *Angew. Chem. Int. Ed.*, **2017**, 56(1):212-216.
14. Sharma V., Wang Y.-S., and **Liu W.R.***, "Probing the Catalytic Charge-Relay System in Alanine Racemase with Genetically Encoded Histidine Mimetics", *ACS Chem. Biol.* **2016**, 11(12):3305-3309.
15. Lee Y.-J., Schmidt M.J., Tharp J.M., Weber A., Koenig A. L., Zhang H., Gao J., Waters M.L., Summerer D.*, and **Liu W.R.***, "Genetically Encoded Fluorophenylalanines Enable Insights into the Recognition of Lysine Trimethylation by an Epigenetic Reader", *Chem. Commun.*, **2016**, 52(85): 12606-12609.
16. Wang, W.W., Zeng, Y., Wu B., Deiters A., and **Liu W.R.***, "A Chemical Biology Approach to Reveal Sirt6-targeted Histone H3 sites in nucleosomes", *ACS Chem. Biol.*, **2016**, 11(7): 1973-1981.
17. Tharp, J.M. and **Liu, W.R.***, "The "pi-Clamp" Offers a Novel Strategy for Site-selective Protein Modification", *ChemBioChem* **2016**, 17(10): 883-885.
18. Hsu, W. W., Wu, B., and **Liu, W.R.***, "Sirtuins 1 and 2 are Universal Histone Deacetylases", *ACS Chem. Biol.* **2016**, 11(3):792-799.
19. Lee, Y.-J., Kurra, Y., and **Liu, W.R.***, "Phospha-Michael addition as a new click reaction for protein functionalization", *Chembiochem* **2016**, 17(6):456-461.
20. He T., Gershenson A., Eyles S.J., Lee Y.J., **Liu W.R.**, Wang J., Gao J., & Roberts M.F., "Florinated aromatic amino acids distinguish cation-pi interactions from membrane insertion", *J. Biol. Chem.* **2015**, 290(31): 19334-19342.
21. Bindman N.A., Bobeica S.C., **Liu W.R.*** & van der Donk W.A.*, "Facile removal of leader peptides from lanthipeptides by incorporation of a hydroxy acid", *J. Am. Chem. Soc.* **2015**, 137(22): 6975-6978.
22. Xin X, **Liu W.R.** & Sun L.*, "Improving the Bioactivity of rHirudin with Boronophenylalanine Site-specific Modification", *Mol. Med. Rep.*, **2015**, 11(5):3774-3779.

23. Guan D., Kurra Y., **Liu W.R.*** & Chen Z.*, "A Click Chemistry Approach to Site-specific Immobilization of a Small Laccase Enables Efficient Direct Electron Transfer in a Biocathode", *Chem. Commun.*, **2015**, 51: 2522-2525.
24. Piscotta F., Tharp J.M., **Liu W.R.*** & Link J.A.*, "Expanding the Chemical Diversity of Lasso Peptide MccJ25 with Genetically Encoded Noncanonical Amino Acids", *Chem. Commun.,* **2015**, 51:409-412.
25. Lee Y.-J., Kurra Y., Yang Y., Torres-Kolbus J., Deiters A. & **Liu W.R.***, "Genetically Encoded Terminal Olefins for Live Cell Labeling with Tetrazine Dyes", *Chem. Commun.*, **2014**, 50: 13085-13088.
26. Kurra Y., Odoi K.A., Lee Y.-J., Lu T., Wheeler S.E., Torres-Kolbus J., Deiters A. & **Liu W.R.***, "Two Rapid Catalyst-free Click Reactions for *In Vivo* Protein Labeling of Genetically Encoded Strained Alkene/alkyne Functionalities", *Bioconjug. Chem.* **2014**, 25: 1730-1738.
27. Zeng Y., Wang W. & **Liu W.R.***, "Toward Reassigning the Rare AGG Codon in *Escherichia coli*", *ChemBioChem*, **2014**, 15:1750-1754.
28. Tuley A., Lee Y.-J., Wu B., Wang Z.U. & **Liu W.R.***, "A Genetically Encoded Aldehyde for Rapid Protein Labeling", *Chem. Commun.*, **2014**, 50:7424-7426.
29. Wan W., Tharp M.J. & **Liu W.R.***, "Pyrrolysyl-tRNA synthetase: an ordinary enzyme but an outstanding genetic code expansion tool", *Biochem. Biophys. Acta*, **2014**, 1844:1059-1070.
30. Tharp J.M., Wang Y.-S., Lee Y.-J. & **Liu W.R.***, "The Genetic Incorporation of Seven *Ortho*-substituted Phenylalanine Derivatives", *ACS Chem. Biol.*, **2014**, 9:884-890.
31. **Liu W.R.***, "Reports from the chemical Biology of Texas Symposium at the 69th Southwest Regional Meeting of the American Chemical Society", *ACS Chem. Biol.*, **2014**, 9: 319-322.
32. Wang X.S., Lee Y.-J., & **Liu W.R.***, "The Nitrilimine-Alkene Cycloaddition is an Ultra Rapid Click Reaction", *Chem. Commun.* **2014**, 50: 3176-3179.
33. Tuley A., Wang Y.-S., Fang X., Kurra Y., Reznom Y.H. & **Liu W.R.***, "The Genetic Incorporation of Thirteen Novel Non-canonical Amino Acids", *Chem. Commun.* **2014**, 50: 2673-2675.
34. Wang X.A., Kurra Y., Huang Y., Lee Y.-J. & **Liu W.R.***, "E1-catalyzed Ubiquitin C-terminal Amidation for the Facile Synthesis of Deubiquitinase Substrates", *ChemBioChem* **2014**, 15:37-41.
35. Hladilkova J., Heyda J., Rembert K.B., Okur H.I., Kurra Y., **Liu W.R.**, Hilty C., Cremer P.S.* & Jungwirth P.*, "Effects of End-group Termindation on Salting-out Constants for Triglycine", *J. Phys. Chem. Lett.*, **2013**, 4:4069-4073.
36. Paterova J., Rembert K., Heyda J., Kurra Y., Okur H., **Liu W.R.**, Hilty C., Cremer P.S.* & Jungwirth P.*, "Reversal of the Hofmeister Series: Specific Ion Effects on Peptides", *J. Phys. Chem. B*, **2013**, 117:8150-8158.
37. Lee Y.-J., Wu B., Raymond J.E., Zeng Y., Fang X., Wooley K.L. & **Liu W.R.**, "A Genetically Encoded Acrylamide Functionality", *ACS Chem. Biol.* **2013**, 8:1664-1670 .
38. Odoi K.A., Huang Y., Rezenom Y.H. & **Liu W.R.***, "Nonsense and Sense Suppression Abilities of Original and Derivative *Methanosarcina mazei* Pyrrolysyl-tRNA Synthetase-$tRNA^{Pyl}$ Pairs in the *Escherichia coli* BL21(DE3) Cell Strain ", *PLOS One*, **2013**, 8:e57035.

39. Wang Y.-S., Fang X., Chen H.-Y., Wu B., Wang Z.U., Hilty C.B., & **Liu W.R.***, "Genetic Incorporation of Twelve *meta*-Substituted Phenylalanine Derivatives Using a Single Pyrrolysyl-tRNA Synthetase Mutant", *ACS Chem. Biol.*, **2013**, 8: 405-415.

40. O'Donoghue P, Prat L., Heinemann I., Ling J., Odoi K.A., **Liu W.R.*** & Soll D.*, "Near-cognate Suppression of Amber, Opal, and Quadruplet Codons Compete with Aminoacyl-tRNA^{Pyl} for Genetic Code Expansion", *FEBS Lett.*, **2012** 586:3931-3937 (*co-corresponding authors).

41. Wan W, Wang Y.-S., & **Liu W.R.***, "Genetically Encoding Bioorthogonal Functional Groups for Site-selective Protein Labeling", *Organic Chem. Curr. Res.*, **2012**, 1:e111, DOI: 10.4172/2161-0401.1000e111

42. Wang Z.U., Wang Y.-S., Pai P.-J., Russell W.K., Russell D.H. & **Liu. W.R.***, "A Facile Method to Synthesize Histones with Posttranslational Modification Mimics", *Biochemistry*, **2012**, 51:5232-5234.

43. Wu B., Wang Z., Huang Y. & **Liu W.R.***, "Catalyst-Free and Site-Specific One-Pot Dual Labeling of a Protein Directed by Two Genetically Incorporated Noncanonical Amino Acids", *ChemBioChem,* **2012**, 13: 1405-1408.

44. Wang Y.-S., Fang X., Wallace A.L., Wu B. & **Liu W.R.***, "A Rationally Designed Pyrrolysyl-tRNA Synthetase Mutant Has a Broad Substrate Specificity", *J. Am. Chem. Soc.*, **2012**, 134: 2950-2953.

45. Weinert B.T., Wagner S.A., Horn H., Henriksen P., **Liu. W.R.**, Olsen J.V., Jensen L.J. & Choudhary C.*, "Proteome-wide Mapping of the Drosophila Acetylome Demonstrates a High Degree of Conservation of Lysine Acetylation", *Sci. Signal*, **2011**, 4: ra48.

46. Wang Y.-S., Russell W.K., Wang Z., Wan W., Dodd L.E., Pai P.-J., Russell D.H., & **Liu W.R.***, "The *De Novo* Engineering of Pyrrolysyl-tRNA Synthetase for Genetic Incorporation of L-phenylalanine and Its Derivatives", *Mol. BioSyst.*, **2011**, 7: 714-717.

47. **Liu W.R.***, Wang Y.-S. & Wan W., "Synthesis of Proteins with Defined Posttranslational Modifications Using the Genetic Noncanonical Amino Acid Incorporation Approach", *Mol. BioSyst.*, **2011**, 7: 38-47.

48. Wang Y.-S., Wu B., Wang Z., Huang Y., Wan W., Russell W.K., Pai P.-J., Moe Y.N., Russell D.H. & **Liu W.R.***, "A Genetically Encoded Photocaged *N*$^{\varepsilon}$-methyl-L-lysine" *Mol. Biosyst.*, **2010**, 6: 1557-1560. This was an invited submission and featured on *Molecular BioSystems 2010 Emerging Investigators Issue*.

49. Wan W., Huang Y., Wang Z., Russell W.K., Pai P.-J., Russell D.H. & **Liu W.R.***, "A Facile System for Genetic Incorporation of Two Different Noncanonical Amino Acids into One Protein in *Escherichia coli*", *Angew. Chem. Int. Ed.*, **2010**, 49: 3211-3214.

50. Huang Y., Russell W.K., Wan W., Pai P.-J., Russell D.H. & **Liu W.***, "A convenient Method for Genetic Incorporation of Multiple Noncanonical Amino Acids into One Protein in *Escherichia coli*". *Mol. BioSyst.* **2010**, 6: 683-686.

51. Huang Y., Wan W., Russell W.K., Pai P.-J., Wang Z., Russell D.H. & **Liu W.***, "Genetic Incorporation of An Aliphatic Keto-containing Amino Acid into Proteins for Their Site-specific Modification". *Bioorg. Med. Chem. Lett.* **2010**, 3: 878-880

Before becoming an independent investigator

52. Brustad E., Bushey M.L., Lee J.W., Groff D., **Liu W.** & Schultz P.G.* "A Genetically Encoded Boronate Containing Amino Acid" *Angew. Chem. Int. Ed. Engl.*, **2008**, 47: 8220-8223

53. Graziano, J.J., Liu, W., Perera R., Geierstanger, B.H., Lesley, S.A., & Schultz, P.G. "Selecting Folded Proteins from a Library of Secondary Structural Elements", *J. Am. Chem. Soc.*, **2008**, 130: 176-185

54. Tippmann, E.M.[+], **Liu, W.**[+], Summerer, D., Geierstanger, B., Mack, A.V., & Schultz, P.G.*, "A Genetic Encoded Diazirine Photocrosslinker in *Escherichia coli*", *ChemBioChem,* **2007**, 8: 2210-2214 ([+]equally contributing authors)

55. Liu C.C., Braustad E., **Liu W.*** & Schultz P.G.*, "Crystal Structure of a Biosynthetic Sulfo-hirudin Complexed with Thrombin", *J. Am. Chem. Soc.,* **2007**, 129: 10648-10649 (*corresponding authors in this paper)

56. **Liu, W.**, Brock, A., Chen, S., Chen, S. & Schultz P.G.*, "The Genetic Incorporation of Unnatural Amino Acids into Proteins in Mammalian Cells", *Nat. Methods.* **2007**, 4: 239-44

57. Xie, J., **Liu, W.**, & Schultz, P.G.* "A Genetic Encoded Bidentate, Metal Ion Binding Amino Acid", *Angew. Chem. Int. Ed.*, **2007**, 46: 9239-9242,

58. **Liu, W.**, Alfonta, L., Mack, A.V. & Schultz, P.G.* "Structural Basis for the Recognition of p-Benzoyl-L-phenylalanyl by Evolved Aminoacyl-tRNA Synthetases", *Angew. Chem. Int. Ed.,* **2007**, 46: 6073-6075,

59. **Liu, W.**, Peterson, P.E., Langston, J.A., Jin, X., Zhou, X., Fisher, A.J. & Toney, M.D.* "Kinetic and Crystallographic Analysis of Active Site Mutants of *Escherichia coli* γ-Aminobutyrate Aminotransferase", *Biochemistry* **2005**, 44: 2982-92,

60. Fogle, E.J., **Liu, W.**, Keller, J. & Toney, M.D.* "Role of Q52 in the Decarboxylation and Transamination of Dialkylglycine Decarboxylase", *Biochemistry* **2005**, 44: 16392-404,

61. **Liu W.**, Peterson P.E., Carter R.J., Zhou X., Langston J.A., Fisher A.J. & Toney M.D. Crystal Structures of Unbound and Aminooxyacetate-bound *Escherichia coli* γ-Aminobutyrate Aminotransferase. *Biochemistry* **2004**, 43: 10896-905

62. **Liu W.** & Toney M.D. "Kinetic and thermodynamic analysis of the interaction of cations with dialkylglycine decarboxylase", *Biochemistry* **2004**, 43: 4998-5010

63. **Liu W.**, Rogers C.J., Fisher A.J. & Toney M.D. "Aminophosphonate inhibitors of dialkylglycine decarboxylase: Structural basis for slow binding inhibition", *Biochemistry* **2002**, 41: 12320-28.

Patent Applications:

1. Liu W., "A Chemical Biology Method for the Synthesis of Protein Site-specifically with Lysine Methylation", U.S. Application No. 62/425,054 (2016).
2. Liu W., "Functionalized Ubiquitin Derivatives and Related Methods", U.S. Application No. 61/915934 (2013).
3. Liu W. & Wan W., "Fusion Proteins of Superfolder Green Fluorescent Protein and Use Thereof", U. S. Application No. 61/438,743 (2011).
4. Liu W., "Incorporation of Two Different Noncanonical Amino Acids into A Single Protein", U.S. Application No. 61/467,728 (2012).
5. Liu W. & Huang Y., "Methods, Cells, and Systems for Incorporating Noncanonical Amino Acids into Proteins", U.S. Application No. 61/438,743 (2011).
6. Liu W. & Schultz P.G., "Genetic Incorporation of Unnatural Amino Acids into Proteins in

Mammalian Cells", U.S. Application No. 12/311,545 (2007).

Current Extramural Grants:

1. Welch Research Grant A-1715 $480,000 06/01/2015-05/31/2021
   "Novel chemical biology tools for investigating the protein ubiquitination system"
   Principal investigator: Wenshe Liu, Ph.D.
2. NIH-R01GM121584 $1,100,000 12/01/2016-11/30/2020
   "Studying reversible histone acylations in nucleosome contexts"
   Principal Investigator: Wenshe Liu, Ph.D.
3. CPRIT-RP170797 $200,000 09/01/2017-08/31/2019
   "The preparation of Novel Phage Displayed Macrocyclic Peptide Libraries for the Identification of Anticancer Agents"
   Principal Investigator: Wenshe Liu, Ph.D.
4. NIH-R01GM085092 $141,325 (to TAMU) 10/01/2014-09/30/2018
   "Development and application of bioorthogonal chemistry"
   Principal investigator: Qing Lin, Ph.D. at University at Buffalo, the State University of New York
   Co-PI: Wenshe Liu, Ph.D.
5. Asian Aroma Holding Research Grant $100,000 07/01/2016-06/30/2018
   "The synthesis of aroma molecules"
   Principal investigator: Wenshe Liu, Ph.D.

Finished Extramural Grants:

1. NSF CAREER Award CHE-1148684 $575,000 04/01/2012-09/31/2017
   "CAREER: Site-specific dual-labeling of a protein through two genetically incorporated noncanonical amino acids"
   Principal investigator: Wenshe Liu, Ph.D
2. NIH-1R01CA161158 $1,483,085 07/01/2011-04/30/2017
   "Phage display with two genetically incorporated noncanonical amino acids"
   Principle investigator: Wenshe Liu, Ph.D
3. National Institute of Health $154,032 01/01/2013-08/31/2015
   "Chemical/biochemical tools for studying novel protein acyl lysine modifications"
   Principal investigator: Hening Lin, Ph.D. at Cornell University
   Co PI: Wenshe Liu, Ph.D.
4. Welch Research Grant A-1715 $225,000 06/01/2012-05/31/2015
   "Sensors for small molecules and enzymes"
   Principal investigator: Wenshe Liu, Ph.D.
5. Research Grant from Suzhou Origen Biotech $40,000 03/01/2012-12/31/2014
   "Selective modification of insulin"
   Principle Investigator: Wenshe Liu, Ph.D.
6. Welch Research Grant A-1715 $150,000 06/01/2009-05/30/2012
   "Synthesis and evaluation of methyltransferase-mediated alkylating agents"
   Principle investigator: Wenshe Liu, Ph.D.

Invited Seminars:

1. Department of Chemistry, Peking University, 03/27/2018
2. College of Pharmacy, University of South California, 03/09/2018
3. Department of Chemistry, University of Washington, 11/16/2017
4. College of Pharmacy, University of Minnesota, 11/06/2017
5. Department of Chemistry, Brandeis University, 10/16/2017
6. College of Pharmacy, University of Arizona, 09/12/2017
7. Department of Chemistry, Tsinghua University, 07/20/2017
8. Department of Chemistry, Georgia State University, 11/18/2016
9. Department of Chemistry, Fudan University, 09/09/2016
10. Department of Chemistry, National Taiwan University, 09/01/2016
11. Institute of Biological Chemistry, Academia Sinica, 08/30/2016
12. School of Medicine, Texas A&M University, 06/01/2016
13. Department of Chemistry, Ohio State University, 03/03/2016
14. Department of Chemistry, University of Houston, 09/21/2015
15. Department of Chemistry, University of South Florida, 09/03/2015
16. Department of Chemistry, University of California-Davis, 01/06/2015
17. Shanghai Institute of Organic Chemistry, Shanghai, China, 07/01/2014
18. Department of Chemistry, University of North Carolina, 02/19/2014
19. Department of Microbiology & Molecular Genetics, The University of Texas Medical School at Houston, 02/06/2014
20. Department of Chemistry and Biochemistry, University of Georgia, 10/10/2013
21. Department of Chemistry, Mercer University, 10/09/2013
22. Department of Biochemistry, Michigan State University, 02/21/2013
23. Department of Chemistry, North Carolina State University, 01/16/2013
24. Department of Chemistry, Duke University, 01/15/2013
25. Department of Chemistry, Princeton University, 11/05/2012
26. Department of Chemistry, University of Illinois at Urbana Champaign, 10/15/2012
27. Department of Chemistry, University of California-Irvine, 09/28/2012
28. Department of Chemistry, University of Utah, 09/06/2012
29. Department of Chemistry, University of California-Berkeley, 09/04/2012
30. Department of Chemistry, Baylor University, 08/24/2012
31. Department of Chemistry, Wuhan University, 07/25/2012
32. Department of Physics, Huazhong University of Science and Technology, 07/24/2012

33. Department of Chemistry, Peking University, China, 06/16/2012
34. Department of Chemistry, University of Delaware, 05/02/2012
35. Department of Chemistry, University of South Carolina, 04/19/2012
36. Skaggs Institute of Chemical Biology, Scripps Research Institute, 04/17/2012
37. Department of Chemistry, University of New Mexico, 04/13/2012
38. Department of Chemistry, Cornell University, 04/09/2012
39. Department of Chemistry, Columbia University, 04/10/2012
40. Department of Chemistry, University of Chicago, 04/06/2012
41. School of Medicine, University of Miami, 03/20/2012
42. Department of Chemistry, Arizona State University, 03/09/2012
43. Department of Chemistry, Boston College, 02/14/2012
44. Department of Chemistry, Massachusetts Institute of Technology, 02/13/2012
45. Department of Chemistry, University of Nebraska-Lincoln, 02/03/2012
46. Department of Pharmacology, Johns Hopkins Medical School, 02/01/2012
47. Interdisciplinary Faculty of Toxicology, Texas A&M University, 01/23/2012
48. Department of Chemistry and Biochemistry, University of Texas-Austin, 01/20/2012
49. Department of Chemistry, Stanford University, 12/13/2011
50. Sutro Biopharma Inc., 12/12/2011
51. Department of Molecular and Cellular Oncology, UT Anderson Cancer Center, 10/12/2011
52. Department of Biochemistry, University of Texas Health Science Center at San Antonio, 09/30/2011
53. Department of Molecular Biophysics and Biochemistry, Yale University, 09/07/2011
54. School of Pharmacy, Wuhan University, 07/28/2011
55. Department of Chemistry, Shandong University, 07/8/2011
56. Department of Chemistry, University of California-Davis, 1/11/2011
57. Institute of Organic Chemistry, Chinese Academy of Science, 06/01/2010
58. Department of Biochemical Engineering, East China University of Science and Technology, 05/28/2010
59. Department of Natural Sciences, Albany State University-Georgia, 10/21/2008
60. Department of Chemistry, Beijing University, 01/11/2008

Talks and Posters at Conferences and Meetings:

1. Liu W.R., The synthesis of proteins with site-specific lysine methylation/acylation, GRC Research Conference: Posttranslational Modification Networks, Hong Kong, Aug 13-17, 2017 (invited speaker)

2. Liu W.R., Study Posttranslational Nucleosomal Modifications with an Expanded Genetic code, GRC Research Conference: Translation Machinery in Health & Disease, Galveston, Mar 19-24, 2017 (invited speaker)
3. Liu, W.R., Expanding chemical diversities of ribosomal peptide natural products with genetically encoded noncanonical amino acids, 72nd Southwest Regional Meeting of American Cancer Society, Galveston, TX, USA, Nov 11-13, 2016 (invited speaker)
4. Liu, W.R., Probing histone deacetylases with uniquely engineered nucleosomes, 72nd Southwest Regional Meeting of American Cancer Society, Galveston, TX, USA, Nov 11-13, 2016 (invited speaker)
5. Liu W.R., The synthesis of structurally defined nucleosomes and its applications, tRNA 26th Conference, Jeju, Korea, Sept 4-8, 2016 (invited Speaker)
6. Liu W.R., A refined mechanism of the copper(I)-catalyzed azide-alkyne Huisgen cycloaddition reaction, Pacifichem 2015, Honolulu, HI, Dec 15-20, 2015 (invited speaker)
7. Liu W.R., Using structurally defined nucleosomes to profile epigenetic targets of histone lysine deacylases and demethylases, Pacifichem 2015, Honolulu, HI, Dec 15-20, 2015 (invited speaker)
8. Liu W.R., Using structurally defined nucleosomes to profile epigenetic targets of histone lysine deacylases and demethylases, Konstanz Sympozium Chemical Biology 2015, Konstanz, Germany, Oct 8-9, 2015 (invited speaker)
9. Liu W.R., Wang Y.-S., Fang X & Kurra Y., Engineering pyrrolysyl-tRNA synthetase for the genetic incorporation of tyrosine, phenylalanine, and histidine derivatives, Gordon Research Conference, Waterville Valley, NH, June 14-19, 2013
10. Liu W.R. & Lee Y.J., A genetically encoded acrylamide functionality, the 9th Sino-US Symposium on Organic Chemistry, Chengdu, China, Jul 12-14/2013 (invited speaker)
11. Liu W.R. & Lee Y.J., A fascinating chemistry of a genetic encoded acrylamide, Gordon Research Conference, Proctor Academy, NH, June 9-14, 2013 (invited speaker)
12. Liu W.R., A Rationally Designed Pyrrolysyl-tRNA Synthetase Has a Broad Substrate Spectrum, Gordon Research Conference, Proctor Academy, NH, June 10-15, 2012
13. Tharp J.M., Wang Y.-S. & Liu W.R., Increasing Insulin Yield by Fusion with Superfolder Green Fluorescent Protein, Abstracts of Papers, 243rd ACS National Meeting & Exposition, San Diego, CA, United States, March 25-29, 2012, CHED-433
14. Odoi K.A. & Liu W.R., Alternative Codon Study for Genetic Code Expansion in *Escherichia coli*, Abstracts of Papers, 243rd ACS National Meeting & Exposition, San Diego, CA, United States, March 25-29, 2012, BIOL-135
15. Wang Y.-S. & Liu W.R., Tools to Study Posttranslational Lysine Modifications of Histone, Chemistry and Biology of Peptides, Gordon Research Conference, Ventura, CA, 02/19-24/2012
16. Wang Y.-S. & Liu W.R., Tools to Study Posttranslational Lysine Modifications of Histone, Chromatin: Structure and Function, Aruba, 12/05-08/2011
17. 67th Southwest Regional Meeting of the American Chemical Society, Austin, TX, 11/09-11/2011
18. Wang Y.-S. & Liu W.R., Genetic Encoding of Methyl- and Acetyl-lysine Analogs into Proteins, Abstracts of Papers, 242nd ACS National Meeting & Exposition, Denver, CO, United States, August 28-September 1, 2011 (2011), BIOL-116

19. Jacobs K.J., Wang Y.-S. & Liu W. "Probing the active site of alanine racemase by incorporation of non-canonical amino acids". Abstracts of Papers, 241st ACS National Meeting & Exposition, Anaheim, CA, United States, March 27-31, 2011 (2011), CHED-352
20. Huang Y., Wan W. & Liu W. "Facile system for genetic incorporation of two different noncanonical amino acids into one protein in Escherichia coli". Abstracts of Papers, 241st ACS National Meeting & Exposition, Anaheim, CA, United States, March 27-31, 2011 (2011), BIOL-51.
21. Huang Y. & Liu W.R., Site-specific Installation of Two Lysine Derivatives in Histone H3, Enzyme Mechanism Conference, St. Petersburg, FL, 01/02-06/2011
22. Wang Y.-S., Wu B. & Liu W. "Genetically encoded photocaged N^{ε}-methyl-L-lysine". Abstracts of Papers, 240th ACS National Meeting, Boston, MA, United States, August 22-26, 2010 (2010), BIOL-156.
23. Dodd L.E., Wang Y.-S. & Liu W. "Site specific post-translational modifications of protein by expanding the genetic code: Protein methylation and structure enrichment". Abstracts of Papers, 239th ACS National Meeting, San Francisco, CA, United States, March 21-25, 2010 (2010), CHED-458.
24. Wan W., Huang Y. & Liu W.R., Genetic Incorporation of Two Different Noncanonical Amino Acids into One Protein, Challenges in Organic Chemistry and Chemical Biology (ISACS1), San Francisco, 07/06-09/2010
25. Wan W., Huang Y. & Liu W.R., Genetic Incorporation of Two Different Noncanonical Amino Acids into One Protein, Bioorganic Chemistry, Gordon Research Conference, Proctor Academy, 06/13-18/2010
26. Liu W.R., Engineering Pyrrolysyl-tRNA Synthetase for Genetic Code Expansion, The 3rd Texas Enzyme Conference, Austin, TX, 01/80-09/2010
27. Liu W.R., The Genetic Code Expansion, The 4th Sino-US Symposium on Organic Chemistry, Beijing, China, 06/12-13/2008 (invited speaker)

Teaching Experience: **Texas A&M University** **08/2007 – current**

Fall 207: CHEM 227.507-508-Organic Chemistry (total enrolment: 207)

Spring 2017: CHEM 630-Bioorganic Chemistry/Chemical Biology (enrolment: 11)

Fall 2016: CHEM 228.517-Organic Chemistry (enrolment: 72)

Spring 2016: CHEM 228.502-Organic Chemistry (enrolment: 69)

Spring 2014: CHEM 630-Bioorganic Chemistry/Chemical Biology (enrolment: 7); CHEM 681.605-Seminar (enrolment: 12)

Fall 2013: CHEM 228.504-Organic Chemistry II (enrolment: 69)

Spring 2013: ChEM 630-Bioorganic Chemistry/Chemical Biology (enrolment: 14); CHEM 681.605-Seminar (enrolment: 13)

Fall 2012: CHEM 228.504-Organic Chemistry II (enrolment: 76)

Fall 2011: CHEM 228.503-Organic Chemistry II (enrolment: 68); CHEM 690.609-Theory of Chemistry Research (enrolment: 5)

Spring 2011: CHEM 630-Bioorganic Chemistry/Chemical Biology (enrolment: 4); CHEM 681.605-

Seminar (enrolment: 12)

Fall 2010: CHEM 627-Principles of Biological Chemistry (enrolment: 19)

Spring 2010: CHEM 689.603-S. T. in Chemical Biology (enrolment: 6)

Fall 2009: CHEM 627-Principles of Biological Chemistry (enrolment: 22)

Spring 2009: CHEM 228-Organic Chemistry II (enrolment: 39)

Fall 2008: CHEM 689.603-S. T. in Chemical Biology (enrolment: 6)

Fall 2007: CHEM 689.603-S. T. in Chemical Biology (enrolment: 6)

Postdoctoral Researchers Mentored

NAME	PROGRAM	DATE	Comments
Dr. Ge Yu	Chemistry	10/2017-current	
Dr. Yanyan Yang	Chemistry	10/2012-12/21014	Left for Univ. of N. Carolina
Dr. Catrina Reed	Chemistry	09/2012-08/2014	Left for TAMU Vet School
Dr. Yu Zeng	Chemistry	10/2011-08/2015	Transfer to another group
Dr. Xinqiang Fang	Chemistry	09/2011-06/2012	Left for Cornell
Dr. Yadagiri Kurra	Chemistry	07/2011-12/2017	Left for Wisconsin
Dr. Xuejuan Xin	Chemistry	07/2010-06/2011	Left for ECUST
Dr. Zhiyong Wang	Chemistry	09/2008-02/2011	Left for Troy University
Dr. Yang Wang	Chemistry	09/2007-08/2008	Left for Novartis

PhD Students Mentored

NAME	PROGRAM	DATE	COMMENT
Chia-Chuan Cho	Chemistry	11/2017-current	
Peng-Shun Chen	Chemistry	11/2017-current	
Jered Mose	Chemistry	11/2016-current	
Kaci Kratch	Chemistry	11/2016-current	
Xinyu Ma	Chemistry	11/2016-current	
Yuchen Qiao	Chemistry	10/2016-current	
Zhipeng Wang	Chemistry	07/2014-current	
Erol Vatansever	Chemistry	04/2014-current	
Wesley Wang	Chemistry	10/2013-current	
Xiaoshan Wang	Chemistry	11/2012-current	
Jeffrey Tharp	Chemistry	11/2012-current	
Vanmayee Sharma	Chemistry	11/2012-05/2017	Graduated
Sasha Chihak	Chemistry	11/2012-05/2016	Graduated

Willie Hsu	Chemistry	01/2012-05/2017	Graduated
Xiaoyan Wang	Chemistry	10/2011-08/2016	Graduated
Alfred Tuley	Chemistry	11/2011-08/2015	Graduated
Keturah Odoi	Chemistry	11/2009-08/2016	Graduated
Yan-Jiun Lee	Chemistry	10/2008-07/2015	Graduated
Bo Wu	Chemistry	10/2008-05/2014	Graduated
Ying Huang	Chemistry	10/2007-12/2011	Graduated
Yane-Shih Wang	Chemistry	10/2007-05/2012	Graduated

Master Students Mentored

NAME	PROGRAM	DATE	COMMENTS
Meghna Muralidhar	BIOT-non-thesis	06/2011-06/2012	Graduated

Undergraduate Students Mentored

NAME	PROGRAM	Dates
Nicholas J. Palma	Chemistry	09/2017-current
Donald G. Woodall	Chemistry	09/2017-current
Callie M. Frank	Chemistry	06/2017-12/2017
Hayley Dylla	Chemistry	01/2017-08/2007
Jacqueline L. Trussell	Chemistry	05/2016-08/2016
Nora McGuffey	Chemistry	01/2016-05/2016
Melissa Leonhardt	Bio/Bio	05/2015-06/2017
Jason McCandless	Chemistry	09/2014-06/2015
Anastasia Lopez	Chemistry	09/2014-06/2015
Andrew Daugherty	REU Student	06/2014-08/2014
Lauren Fore	Chem Engineering	01/2014-08/2014
Jeannelle Stevens	Chemistry	01/2014-06/2015
Yuanpeng Bi	Chem Engineering	01/2014-05/2014
Andrew Bach	Chemistry	05/2013-08/2013
Josh Chen	Chemistry	05/2011-09/2012
Ashley Wallace	Chemistry	05/2011-09/2011
Willie Hsu	Chemistry	01/2011-12/2011
Jeff Tharp	REU Student	06/2011-08/2011
Kimberly Jocobs	REU Student	06/2010-08/2010
Yin Moe	REU Student	06/2009-08/2009

Lindsey Dodd	REU Student	06/2009-08/2009
John Oliver	Chemistry	09/2008-06/2010
Hiren Bhakta	Chemistry	09/2007-06/2008
Clayton Mercer	Chemistry	09/2007-06/2008

Committee Membership:

2016-current	Member, University Wide Mass Spectrometry Committee
2016	Chair, CPRIT Recruiting committee, Department of Chemistry
2015-current	Chair, Chemistry Mass Spectrometry User Committee
2015	Chair, American Chemical Society Texas A&M Local Section
2014-2016	Member, Department of Chemistry Executive Committee
2013-2016	Member, Texas A&M Faculty Senate
2012	Member, Department of Chemistry Self Study Committee
2011-current	Member, Professional Program in Biotechnology Executive Committee
2009-2013	Member, Professional Program in Biotechnology Recruiting Committee
2007-2015	Member, Undergraduate Student Award Committee
2007-current	Member, Graduate Student Recruiting Committee

Editorial Board Member:

Frontiers in Chemical Biology, *Scientific Reports*

Journal Article Review:

Nature Chemistry, Nature Chemical Biology, Frontiers in Chemical Biology, Science China Chemistry, Angewandte Chemie, *JACS*, *ACS Chemical Biology, Nutrition & Metabolism*, *Acta Biochimica et Biophysica Sinica*, *Molecular BioSystems*, *Biochemistry*, *FEBS Letters, Chemistry & Biology, Bioorganic & Medicinal Chemistry Letters, Applied Biochemistry & Biotechnology, ChemBioChem, Genome Research, Nucleic Acid Research, Medical Oncology, Bioconjugate Chemistry, PLOS One*, *Nature Communications, Chemical Communications, Genetics*, and *Chemical Sciences*.

Grant Proposal Review:

02/2018	Member, National Institutes of Health, Study Section: SBCB
10/2016	Member, National Institutes of Health, Study Section: EBIT
09/2015	Panellist, National Science Foundation, Division of Chemistry
05/2015	Reviewer, French National Research Agency Science Program
09/2014	Reviewer, National Science Foundation CAREER Award Program
09/2014	Reviewer, W.M.Keck Foundation Medical Research Program
07/2014	Reviewer, UNL Biomedical Research Seed Grant Program

05/2014	Reviewer, Texas A&M-NSFC Research Grant Program
04/2014	Panellist, National Science Foundation, Division of Chemistry
02/2014	Reviewer, National Institutes of Health, Study Section: BCMB
05/2013	Reviewer, National Science Foundation, Division of MCB
04/2013	Reviewer, Israel Science Foundation
02/2013	Panellist, National Science Foundation, Division of Chemistry
03/2012	Panellist, National Science Foundation, Division of Chemistry