

# Michael Douglas Best

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Associate Professor  
Department of Chemistry  
The University of Tennessee at Knoxville  
Buehler Hall Room 353  
Knoxville, TN 37996

Tel: (865) 974-8658  
Fax: (865) 974-3454  
E-mail: [mdbest@utk.edu](mailto:mdbest@utk.edu)  
Faculty page: <https://chem.utk.edu/people/michael-d-best/>  
Research group page: <https://best.utk.edu/michael-best/>

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## Education

**The University of Texas at Austin**, Austin, Texas (Advisor: Prof. Eric V. Anslyn)

Ph.D. August 2002

Dissertation: "Receptors for analyte sensing: recognition using single analyte specific host-guest interactions and differential sensors"

**Boston College**, Chestnut Hill, Massachusetts (Advisor: Prof. Lawrence T. Scott)

B.S. May 1997

Senior thesis: "Investigation of large, bowl-shaped fullerene fragments"

## Experience

**The University of Tennessee at Knoxville**, Knoxville, Tennessee

Paul and Wilma Ziegler Professor of Chemistry, 2017 – present

Paul and Wilma Ziegler Associate Professor of Chemistry, 2013 – 2017

Director of Chemistry Graduate Studies, 2012 – present

Associate Professor of Chemistry, 2011 – 2013

Assistant Professor of Chemistry, 2005 – 2011

**The Scripps Research Institute**, La Jolla, California (Advisor: Prof. Chi-Huey Wong)

Post-doctoral research associate: September 2002 – 2005.

Development of carbohydrate microarrays for studying interactions of proteins with cell-surface saccharides. Generation of small molecule inhibitors of sulfotransferase enzymes.

## Honors and Awards

National Science Foundation Career Award, 2010–2015

Honorary member of the Golden Key Society, chosen by UTK students, 2006

American Institute of Chemists Award for Outstanding Senior Majoring In Chemistry, 1997

Boston College Undergraduate Faculty Research Fellowship, 1996–1997

Eagle Scout, 1993

**Research Interests:** Bio-organic, synthetic, medicinal and supramolecular chemistry

- Design, synthesis and study of functional lipid probes to elucidate lipid biological activities.
- Application of activity probes corresponding to signaling lipids for the collective labeling, purification, identification and characterization of protein–lipid binding events
- Development of high-throughput microarray platforms for the detection of protein–lipid and protein–membrane binding interactions
- Biosynthetic labeling of lipids in cells to visualize and track lipid biosynthesis and trafficking
- Derivatization and targeting of liposomes towards drug delivery applications
- Switchable lipids for triggered release of encapsulated contents from liposomes
- Development of molecular receptors for the selective binding and detection of analytes
- Generation of inhibitors of therapeutically relevant enzyme targets
- Development of novel compounds with herbicidal activity
- Design and synthesis of deuterated dyes for single molecule spectroscopic detection

## **Professional Affiliations**

American Chemical Society, Member of Division of Organic Chemistry, Division of Medicinal Chemistry and Division of Carbohydrate Chemistry

## **Publications**

Includes articles, reviews, and book chapters, but not abstracts, proceedings

### **Citation information (as of January 2019, obtained from ISI web of knowledge)**

Citations full career: 2,670

Citations full career (excluding self-citations): 2,572

h-index full career: 23

Average citations per paper: 46.03

Citations from research at UTK: 1,019

Citations from research at UTK (excluding self-citations): 940

h-index from research at UTK: 16

Average citations per paper at UTK: 23.7

### **Publications from faculty position at the University of Tennessee at Knoxville**

\* = corresponding author

## **2019**

**62.** Ricks, T.J.; Cassilly, C.D.; Carr, A.J.; Alam, S.; Tschersch, K.; Yokley, T.W.; Worman, C.E.; Alves, D.S.; Morrell-Falvey, J.L.; Barrera, F.N.; Reynolds, T.B.; Best, M.D.\* [Labeling of phosphatidylinositol lipid products in cells via metabolic engineering using a clickable myo-inositol probe.](#) *ChemBioChem.* **2019**, *20*, 172-180. DOI 10.1002/cbic.201800248.

**61.** Lou, J.; Zhang, X.; Best, M.D.\* Lipid switches: [Stimuli-responsive liposomes via conformational isomerism driven by molecular recognition.](#) *Chem. Eur. J.* **2019**, *25*, 20-25. DOI 10.1002/chem.201803389.

**60.** Mattern-Schain, S.I.; Fisher, R.K.; West, P.C.; Kirkpatrick, S.S.; Best, M.D.\*; Mountain, D.J.H.\* [Cell mimetic liposomal nanocarriers for tailored delivery of vascular therapeutics.](#) *Chem. Phys. Lipids.* **2019**, *218*, 149-157. DOI: 10.1016/j.chemphyslip.2018.12.009.

## **2018**

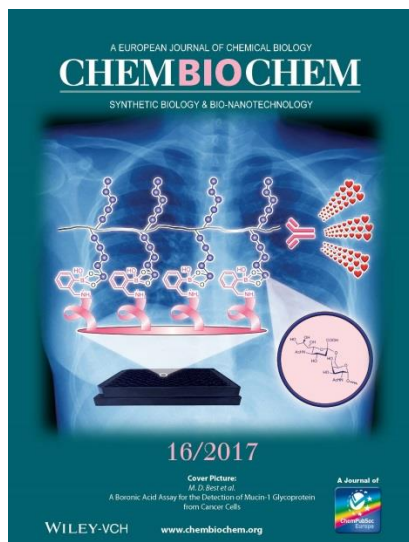
**59.** Zhang, X.; Alves, D.S.; Lou, J.; Hill, S.D.; Barrera, F.N.; Best, M.D.\* [Boronic acid liposomes for cellular delivery and content release driven by carbohydrate binding.](#) *Chem. Commun.* **2018**, *54*, 6169-6172.

**58.** Lou, J.; Carr, A.J.; Watson, A.J.; Mattern-Schain, S.I.; Best, M.D.\* [Calcium-responsive liposomes via a synthetic lipid switch.](#) *Chem. Eur. J.* **2018**, *24*, 3599-3607.

## **2017**

**57.** Zhang, X.; Zhang, S.; Baek, S.J.; Best, M.D.\* [A boronic acid assay for the detection of mucin-1 glycoprotein from cancer cells.](#) *ChemBioChem* **2017**, *18*, 1578-1582.

Selected for journal cover artwork:



56. Whitehead, S.A.; McNitt, C.D.; Mattern-Schain, S.I.; Carr, A.J.; Alam, S.; Popik, V.V.; Best, M.D.\* [Artificial membrane fusion triggered by strain-promoted alkyne-azide cycloaddition](#). *Bioconjugate Chem.* **2017**, *28*, 923-932.

55. Alam, S.; Mattern-Schain, S.I.; Best, M.D.\* [Targeting and triggered release using lipid-based supramolecular assemblies as medicinal nanocarriers](#). In: *Comprehensive Supramolecular Chemistry II*, Atwood, J.L. (ed.), **2017**, vol. 5, 329-364. (Book Chapter)

54. Fisher, R.K.; Mattern-Schain, S.I.; Best, M.D.; Kirkpatrick, S.S.; Freeman, M.B.; Grandas, O.H.; Mountain, D.J.H.\* [Improving the efficacy of liposome-mediated vascular gene therapy via lipid surface modifications](#). *Journal of Surgical Research* **2017**, *219*, 136-144.

## 2016

53. Do-Thanh, C.-L.; Vargas, J.J.; Thomas, J.W.; Armel, G.R.\*; Best, M.D.\* [Design, synthesis and evaluation of novel auxin mimic herbicides](#). *J. Agric. Food Chem.* **2016**, *64*, 3533-3537.

## 2015

52. Alam, S.; Alves, D.S.; Whitehead, S.A.; Bayer, A.M.; McNitt, C.D.; Popik, V.V.; Barrera F.N.; Best, M.D.\* [A clickable and photocleavable lipid analogue for cell membrane delivery and release](#). *Bioconjugate Chem.* **2015**, *26*, 1021-1031.

51. Rezaee, M.; Wang, Y.; Zhang, X.; Liu, G.; Bowen, K.; Bayer, A.M.; Best, M.D.; Compton, R.N.\* [Negative ion properties of trans-2,2',6,6'-tetrafluoroazobenzene: Experiment and theory](#). *J. Chem. Phys.* **2015**, *143*(11), 114303.

50. Elmore, M.\*; Brosnan, J.T.; Armel, G.R.; Kopsell, D.A.; Best, M.D.; Mueller, T.C.; Sorochan, J.C. [Cytochrome P450 inhibitors reduce creeping bentgrass \(\*agrostis stolonifera\*\) tolerance to topramezone](#). *PLOS One* **2015**, DOI: 10.1371/journal.pone.0130947.

## 2014

49. Best, M.D.\* [Global approaches for the elucidation of phosphoinositide-binding proteins](#). *Chem. Phys. Lipids* **2014**, *182*, 19-28.

48. Bayer, A.M.; Alam, S.; Mattern-Schain, S.I.; Best, M.D.\* [Triggered liposomal release through a phosphatidylcholine analogue bearing a photocleavable moiety embedded within the sn-2 acyl chain](#). *Chem. Eur. J.* **2014**, *20*(12), 3350-3357.

47. Cutulle, M.A.\*; Armel, G.R.; Brosnan, J.T.; Best, M.D. Kopsell, D.A.; Bruce, B.D.; Bostic, H.E.; Layton, D.D. [Synthesis and evaluation of heterocyclic analogs of bromoxynil](#). *J. Agric. Food Chem.* **2014**, *62*, 329-336.

46. Crozier, K.B.\*; Zhu, W.; Wang, D.; Lin, S.; Best, M.D.; Camden, J.P. [Plasmonics for surface enhanced raman scattering: Nanoantennas for single molecules](#). *J. Sel. Top. Quant. Elect.* **2014**, *20*(3), DOI: 10.1109/JSTQE.2013.2282257.

## 2013

45. Best, M.D.\* [The development and application of clickable lipid analogs for elucidating lipid function](#). *Click Chemistry in Glycoscience: New Developments and Strategies*. Wiley and Sons, editors: Zbigniew Witczak and Roman Bielski. **2013**. 79-107. (Book Chapter)

44. Wang, D.; Zhu, W.; Best, M.D.; Camden, J.P.; Crozier, K.B.\* [Directional Raman scattering from single molecules in the feed gaps of optical antennas](#). *Nano Lett.* **2013**, *13*(5), 2194-2198.

43. Liu, L.; Xie, H.; Bostic, H.E.; Jin, L.; Best, M.D.; Zhang, X.P.; Zhan, W.\* [Effects of oriented surface dipole on photoconversion efficiency in an alkane/lipid-hybrid-bilayer-based photovoltaic model system](#). *ChemPhysChem*, **2013**, *14*(12), 2777-2785.

42. Lambert, J.; Chen, J.; Buonaugurio, A.; Bowen, K.H.\*; Do-Thanh, C.-L.; Wang, Y.; Best, M.D.; Compton, B.\*; Sommerfeld, T. [Combined photoelectron, collision-induced dissociation, and computational studies of parent and fragment anions of N-paranitrosulfohenylsulfonilalanine and N-paranitrophenylalanine](#). *J. Chem. Phys.* **2013**, *139*, 224308.

41. Thomas, J.W.\*; Armel, G.R.; Best, M.D.; Brosnan, J.T.; Klingeman, W.E.; Kopsell, D.A.; Bostic, H.E.; Vargas, J.J.; Do-Thanh, C.-L. [Herbicidal activity of heterocyclic dichlobenil analogues](#). *J. Pest. Sci.* **2013**, *38*(4), 220-222.

40. Milojevich, C.B.; Mandrell, B.K.; Turley, H.K.; Iberi, V.; Simmons, P.D.; Best, M.D.; Camden, J.P.\* [Surface-enhanced hyper-Raman scattering from single molecules](#). *J. Phys. Chem. Lett.* **2013**, *4*, 3420-3423.

39. Wang, D.; Zhu, W.; Best, M.D.; Camden, J.P.; Crozier, K.B.\* [Wafer-scale metasurface for total power absorption, local field enhancement and single molecule Raman spectroscopy](#). *Scientific Reports* **2013**, *3*, doi:10.1038/srep02867.

## 2012

38. Bostic, H.E.; Smith, M.D.; Poloukhine, A.A.; Popik, V.V.; Best, M.D.\* [Membrane labeling and immobilization via copper-free click chemistry](#). *Chem. Commun.* **2012**, *48*, 1431-1433.

37. Rowland, M.M.; Bostic, H.E.; Gong, D.; Lucas, N.; Cho, W.; Best, M.D.\* [Microarray analysis of Akt PH domain binding employing synthetic biotinylated analogs of all seven phosphoinositide headgroup isomers](#). *Chem. Phys. Lipids* **2012**, *165*, 207-215.

36. Do-Thanh, C.-L.; Khanal, N.; Lu, Z.; Cramer, S.A.; Jenkins, D.M.\*; Best, M.D.\* [Chloride binding by a polyimidazolium macrocycle detected via fluorescence, NMR and X-ray crystallography.](#) *Tetrahedron* **2012**, 68, 1669-1673.

35. Mirsaleh-Kohan, M.; Iberi, V.; Simmons, P.D.; Bigelow, N.W.; Vaschillo, A.; Rowland, M.M.; Best, M.D.; Pennycook, S.J.; Masiello, D.J.\*; Guiton, B.S.\*; Camden, J.P.\* [Single-molecule surface-enhanced raman scattering: can STEM/EELS image electromagnetic hot spots?](#) *J. Phys. Chem. Lett.* **2012**, 3, 2303-2309.

## 2011

34. Rowland, M.M.; Bostic, H.E.; Gong, D.; Speers, A.E.; Lucas, N.; Cho, W.; Cravatt, B.F. Best, M.D.\* [Phosphatidylinositol \(3,4,5\)-trisphosphate activity probes for the labeling and proteomic characterization of protein binding partners.](#) *Biochemistry.* **2011**, 50, 11143–11161.

33. Best, M.D.\*; Rowland, M.M.; Bostic, H.E. [Exploiting bioorthogonal chemistry to elucidate protein–lipid binding interactions and other biological roles of phospholipids.](#) *Acc. Chem. Res.* **2011**, 44(9), 686–698.

32. Kooijman, E.E.\*; Kuzenko, S.R.; Gong, D.; Best, M.D.; Folkesson, H.G. [Phosphatidylinositol-4,5-bisphosphate stimulates alveolar epithelial fluid clearance in male and female adult rats.](#) *Am. J. Physiol.-Lung Cell. Mol. Physiol.* **2011**, 301, L804–L811.

31. He, J.; Gajewiak, J.; Scott, J.L.; Gong, D.; Ali, M.; Best, M.D.; Prestwich, G.D.; Stahelin R.V.; Kutateladze, T.G.\* [Metabolically stabilized derivatives of phosphatidylinositol 4-phosphate: Synthesis and applications.](#) *Chem. Biol.* **2011**, 18, 1312-1319.

30. Best, M.D.\* [Recent developments in the generation and application of lipid probes.](#) *ASBMB Today* **2011**, August edition, 28-29.

29. Smith, M.D.; Best, M.D.\* [Characterization of protein–membrane binding interactions via a microplate assay employing liposome immobilization.](#) *Bioconjugation Protocols, 2<sup>nd</sup> edition*, Editor: Sonny S. Mark. **2011**, 477-489.

28. Do-Thanh, C.-L.; Rowland, M.M.; Best, M.D.\* [Fluorescent bis-cyclen tweezer receptors for inositol \(1,4,5\)-trisphosphate.](#) *Tetrahedron* **2011**, 67, 3803-3808.

27. Bolen, A.L.; Naren, A.P.; Yarlagadda, S.; Beranova-Giorgianni, S.; Chen, L. Norman, D.; Baker, D.L.; Rowland, M.M.; Best, M.D.; Sano T., Tsukahara, T.; Liliom, K.; Igarashi, Y.; Tigyi, G.\* [The phospholipase A 1 activity of lysophospholipase A-I links platelet activation to LPA production during blood coagulation.](#) *J. Lipid Res.* **2011**, 52, 958-970.

## 2010

26. Best, M.D.\*; Zhang, H.; Prestwich, G.D. [Inositol polyphosphates, diphosphoinositol polyphosphates and phosphatidylinositol polyphosphate lipids: structure, synthesis, and development of probes for studying biological activity](#) *Nat. Prod. Rep.* **2010**, 27, 1403-1430.

25. Rowland, M.M.; Best, M.D.\* [Reeling in the Catch: Advancing Cleavable Linkers for Proteomics.](#) *Chem. Biol.* **2010**, 17, 1166-168. (Invited preview article).

24. Zhan, W.\*; Jiang, K.; Smith, M.D.; Bostic, H.E.; Best, M.D.\*; Auad, M.L. Ruppel, J.V., Kim, C.; Zhang, X.P. [Photocurrent generation from porphyrin/fullerene complexes assembled in a tethered lipid bilayer](#). *Langmuir* **2010**, *26*(19), 15671–15679.

23. Hoeglund, A.B.; Bostic, H.E.; Howard, A.L.; Wanjala, I.W.; Best, M.D.; Baker, D.L.\*; Parrill, A.L.\* [Optimization of a pipemidic acid-based autotaxin inhibitor](#). *J. Med. Chem.* **2010**, *53*, 1056–1066.

## 2009

22. Best, M.D.\* [Click chemistry and bioorthogonal reactions: Unprecedented selectivity in the labeling of biological molecules](#). *Biochemistry* **2009**, *48*, 6571-6584.

21. Smith, M.D.; Sudhakar, C.G.; Gong, D.; Stahelin, R.V.; Best, M.D.\* [Modular synthesis of biologically active phosphatidic acid probes using click chemistry](#). *Mol. Biosyst.* **2009**, *5*, 962-972.

20. Gong, D.; Smith, M.D.; Manna, D.; Bostic, H.E., Cho, W.; Best, M.D.\* [Microplate-based characterization of protein-phosphoinositide binding interactions using a synthetic biotinylated headgroup analogue](#). *Bioconjugate Chem.* **2009**, *20*, 310-316.

19. Losey, E.A.; Smith, M.D.; Meng, M.; Best, M.D.\* [Microplate-based analysis of protein–membrane binding interactions via immobilization of whole liposomes containing a biotinylated anchor](#). *Bioconjugate Chem.* **2009**, *20*, 376-383.

18. Rowland, M.M.; Best, M.D.\* [Modular synthesis of bis\(monoacylglycerol\)phosphate for convenient access to analogues bearing hydrocarbon and perdeuterated acyl chains of varying length](#). *Tetrahedron* **2009**, *65*, 6844–6849.

17. Gong, D.; Bostic, H.E.; Smith, M.D.; Best, M.D.\* [Synthesis of modular headgroup conjugates corresponding to all seven phosphatidylinositol polyphosphate isomers for convenient probe generation](#). *Eur. J. Org. Chem.* **2009**, *48*, 4170–4179.

## 2008

16. Smith, M.D.; Gong, D.; Sudhakar, C.; Reno, J.C.; Stahelin, R.V.; Best, M.D.\* [Synthesis and convenient functionalization of azide-labeled diacylglycerol analogues for modular access to biologically active lipid probes](#). *Bioconjugate Chem.* **2008**, *19*, 1855-1863.

### Publications resulting from previous positions

#### Publications resulting from post-doctoral research at The Scripps Research Institute

## 2006

15. Huang, C.-Y.; Thayer, D.A.; Chang, A.Y.; Best, M.D.; Hoffman, J.A., Head, S.; Wong, C.-H.\* [Carbohydrate microarray for profiling the antibodies interacting with Globo H tumor antigen](#). *Proc. Natl. Acad. Sci. U.S.A.* **2006**, *103*(1), 15-20.

## 2005

14. Calarese, D.A.; Lee, H.-K; Huang, C.-Y.; Best, M.D.; Astronomo, R.; Stanfield, R.L.; Katinger, H.; Burton, D.; Wong, C.-H.\*; Wilson, I.A.\* [Dissection of the carbohydrate specificity of the broadly neutralizing anti-HIV-1 antibody 2G12](#). *Proc. Natl. Acad. Sci. U.S.A.* **2005**, *102*(38), 13372-13377.

Article cited > 100 times

13. Brik, A.; Wu, C.-Y.; Best, M.D.; Wong, C.-H.\* [Tetrabutylammonium fluoride-assisted rapid N9-alkylation on purine ring: application to combinatorial reactions in microtiter plates for the discovery of potent sulfotransferase inhibitors in situ.](#) *Bioorg. Med. Chem.* **2005**, *13*, 4622-4626.

## 2004

12. Bryan, M.C.; Fazio, F.; Lee, H.-K.; Huang, C.-Y.; Chang, A.; Best, M.D.; Calarese, D.A.; Blixt, O.; Paulson, J.C.; Burton, D.; Wilson, I.A.; Wong, C.-H.\* [Covalent display of oligosaccharide arrays in microtiter plate.](#) *J. Am. Chem. Soc.* **2004**, *126*, 8640-8641.

Article cited > 100 times

11. Best, M.D.; Brik, A.; Chapman, E.; Lee, L.V.; Cheng W.-C., Wong, C.-H.\* [Rapid discovery of potent sulfotransferase inhibitors by diversity-oriented reaction in microplates followed by in situ screening.](#) *ChemBioChem* **2004**, *5*(6), 811-819.

10. Hanson, S.R.; Best, M.D.; Bryan, M.C.; Wong, C.-H.\* [Chemoenzymatic synthesis of oligosaccharides and glycoproteins.](#) *Trends Biochem. Sci* **2004**, *29*(12), 656-663. (Invited and peer-reviewed review article)

9. Hanson, S.R.; Best, M.D.; Wong, C.-H.\* [Sulfatases: Structure, mechanism, biological activity, inhibition and synthetic utility.](#) *Angew. Chem. Int. Ed.* **2004**, *43*(43), 5736-5763. (Invited and peer-reviewed review article)

8. †Chapman, E.; †Best, M.D.; Hanson, S.R.; Wong, C.-H.\* [Sulfotransferases: Structure, mechanism, biological activity, inhibition and synthetic utility.](#) *Angew. Chem. Int. Ed.* **2004**, *43*(27), 3526-3548. (Invited and peer-reviewed review article). † Co-first authors

### **Publications resulting from graduate research at the University of Texas at Austin**

7. Zhong, Z.; Snowden, T.S.; Best, M.D.; Anslyn, E.V.\* [Rate of enolate formation is not very sensitive to the hydrogen bonding ability of donors to carboxyl oxygen lone pair acceptors: a ramification of the principle of non-perfect synchronization for general-base-catalyzed enolate formation.](#) *J. Am. Chem. Soc.* **2004**, *126*(11), 3488-3495.

## 2003

6. Best, M.D.; Anslyn, E.V.\* [A fluorescent sensor for 2,3-bisphosphoglycerate using a europium tetra-\*N\*-oxide bis-bipyridine complex for both binding and signaling purposes.](#) *Chem. Eur. J.* **2003**, *9*(1), 51-57.

5. Best, M.D.; Tobey, S.L.; Anslyn, E.V.\* [Abiotic guanidinium containing receptors for anionic species.](#) *Coord. Chem. Rev.* **2003**, *240*(1-2), 3-15. (Invited and peer-reviewed review article)  
Article cited > 200 times

4. Worm, K.; Matsumoto, K.; Best, M.D.; Anslyn, E.V.\* [Preorganized bis-zinc phosphodiester cleavage catalysts possessing natural ligands: a lesson pertinent to bimetallic artificial enzymes.](#) *Chem. Eur. J.* **2003**, *9*(3), 741-747.

## 2001

3. Cabell, L.A.; Best, M.D.; Lavigne, J.L.; Schneider, S.E.; Perreault, D.M.; Monahan, M.-K.; Anslyn, E.V.\* [Metal triggered fluorescence sensing of citrate using a synthetic receptor.](#) *J. Chem. Soc., Perkin Trans. 2* **2001**, 3, 315-323.

### **Publications resulting from undergraduate research at Boston College**

#### **1998**

2. Weitz, A.; Shabtai, E.; Rabinovitz, M.\*; Bratcher, M.S.; McComas, C.C.; Best, M.D.; Scott, L.T.\* [Dianions and tetraanions of bowl-shaped fullerene fragments dibenzo\[a,g\]corannulene and dibenzo\[a,g\]cyclopenta\[k\]corannulene.](#) *Chem. Eur. J.* **1998**, 4(2), 234-239.

#### **1997**

1. Chen, G.; Ma, S.; Cooks, R.G.\*; Bronstein, H.E.; Best, M.D.; Scott, L.T.\* [Electron affinities and C<sub>60</sub> anion clusters of certain bowl-shaped polycyclic aromatic hydrocarbons.](#) *J. Mass. Spectrom.* **1997**, 32(12), 1305-1309.

### **Funded Proposals**

#### **Active**

14. "Synthetic Lipid Switches for Controlling Liposome Assembly and Release"  
PI: Michael Best  
Agency: National Science Foundation (DMR-1807689)  
7/1/2018 – 06/30/2021  
\$450,000
13. "Identification of CDP-DAG and serine binding sites in *Candida albicans* phosphatidylserine synthase, an antifungal drug target"  
PI: Todd Reynolds, Co-PI: Michael D. Best  
Agency: National Institutes of Health (1R21AI130895-01)  
3/2017 – 3/2019  
\$409,337 (\$115,688 to Best Lab)
12. "Labeling of Lipid Products using Synthetic Tagged Metabolite Probes to Analyze Lipid Biosynthesis and Trafficking"  
PI: Michael Best; Co-investigators: Francisco Barrera, Todd Reynolds and Jennifer Morrell-Falvey  
Agency: National Institutes of Health (1R15GM120705-01)  
9/2016 – 8/2019  
\$453,000 (\$396,148 to Best Lab)
11. "REU Site: Advanced Materials for Energy and Sensing Applications at the University of Tennessee"  
PI: Michael D. Best; Co-PI: Shawn Campagna  
Agency: National Science Foundation (CHE-1560033)  
6/2016-6/2019  
\$353,611

#### **Completed**

10. "The Development of a Dual-Ligand PEGylated Liposome Nanotechnology for Cell-Selective Targeted Vascular Gene Therapy"  
PIs: Deidra Mountain and Michael Best  
Agency: University of Tennessee Medical Center "Pot of Gold" Award



- 11/15/2015-11/14/2016  
\$10,000 (split between PIs)
9. "Targeting Liposome Nanoparticles with Cancer-Targeting Peptides"  
PIs: Jon Wall and Michael Best  
Agency: University of Tennessee Medical Center "Pot of Gold" Award  
11/15/2014-11/14/2015  
\$10,000 (split between PIs)
  8. "REU Site: Advanced Materials for Energy and Sensing Applications at the University of Tennessee"  
PI: Michael D. Best; Co-PI: Shawn Campagna  
Agency: National Science Foundation (CHE-1262767)  
6/2013-6/2016  
\$300,000
  7. "Discovery of Novel Herbicides for Commercial Licensing"  
PIs: Greg Armel and Michael Best  
AgResearch and Extension Innovation Grant  
1/2011-12/2011  
\$20,000
  6. "CAREER: Chemical Approaches to the Investigation of Protein–Lipid Binding"  
PI: Michael D. Best  
Agency: National Science Foundation (CHE-0954297)  
6/2010-5/2015  
\$577,980
  5. "Multivalent Carbohydrate–Protein Binding on Surfaces with Defined Density and Valency that Mimics Cellular Membranes"  
PI: David C. Baker, Co-PI: Michael D. Best  
Agency: National Science Foundation (DMR-0906752)  
8/15/2009-8/14/2012  
\$225,000 (half of total \$450,000)
  4. "Synthesis and Assembly of Geometrically Defined Building Blocks for Dynamic Covalent Synthesis of Robust Higher Order Organic Frameworks"  
PI: Michael D. Best  
Agency: Science Alliance Joint Directed Research and Development (JDRD) program (UT-ORNL)  
1/2009–12/2010  
\$106,000
  3. "Request to the SARIF Equipment and Infrastructure Fund: Beaglehole Picometer phase-modulated ellipsometer"  
PI: Michael S. Kilbey, Contributors: Michael D. Best, Mark D. Dadmun and Bin Zhao  
Agency: University of Tennessee Office of Research  
4/2008  
\$43,000
  2. "Request to the SARIF Equipment and Infrastructure Fund: Acquisition of a Peptide Synthesizer to Support Chemistry, Biochemistry, and Microbiology Research"  
PIs: Michael D. Best and Shane Foister  
Agency: University of Tennessee Office of Research  
4/2007  
\$65,610
  1. "Request to the SARIF Equipment and Infrastructure Fund: Acquisition of a Biacore 3000 surface plasmon resonance instrument"  
PI: Cynthia Peterson, Michael D. Best included among contributors  
Agency: University of Tennessee Office of Research  
4/2006

\$200,000

## **Presentations**

### **Invited Seminar Presentations at Research Institutions (Ph.D.-granting, M. Best is presenter for all talks listed below)**

1. University of Tennessee at Knoxville, Department of Biochemistry, Cellular and Molecular Biology, September 21<sup>st</sup>, 2005: (Invited Talk)
2. University of Tennessee Medical Center, Graduate School of Medicine, Knoxville, TN, April 18<sup>th</sup>, 2006. (Invited Talk)
3. Oak Ridge National Laboratory, Chemical Sciences Division (CSD), Oak Ridge, TN, September 24<sup>th</sup>, 2007. (Invited Talk)
4. Oak Ridge National Laboratory, Center for Nanophase Materials Science (CNMS), Oak Ridge, TN, November 9<sup>th</sup>, 2007. (Invited Talk)
5. University of Memphis, Department of Chemistry, Memphis, TN, January 18<sup>th</sup>, 2008. (Invited Talk)
6. University of Florida, Department of Chemistry and Biochemistry, Gainesville, FL, March 21<sup>st</sup>, 2008. (Invited Talk)
7. University of New Mexico, Department of Chemistry and Chemical Biology, Albuquerque, NM, April 25<sup>th</sup>, 2008. (Invited Talk)
8. Auburn University, Department of Chemistry and Biochemistry, Auburn, AL, October 23<sup>rd</sup>, 2008. (Invited Talk)
9. Georgia State University, Department of Chemistry, Atlanta, GA, October 16<sup>th</sup>, 2009, (Invited talk).
10. University of Georgia, Department of Chemistry, Athens, GA, October 22<sup>nd</sup>, 2009 (Invited Talk).
11. Clemson University, Department of Chemistry, Clemson, SC, January 14<sup>th</sup>, 2010 (Invited talk).
12. University of South Carolina, Department of Chemistry and Biochemistry, Columbia, SC, January 28<sup>th</sup>, 2010 (Invited talk).
13. Boston College, Department of Chemistry, Chestnut Hill, MA, March 9<sup>th</sup>, 2010 (Invited talk).
14. Tufts University, Department of Chemistry, Boston, MA, March 11<sup>th</sup>, 2009 (Invited talk).
15. Vanderbilt University, Department of Chemistry, Nashville, TN, April 5<sup>th</sup>, 2010 (Invited talk).
16. University of Texas at Austin, Department of Chemistry and Biochemistry, Austin, TX, April 9<sup>th</sup>, 2010 (Invited talk).
17. Emory University, Department of Chemistry, Atlanta, GA, April 14<sup>th</sup>, 2010, (Invited talk).
18. University of Toledo, Department of Chemistry, Toledo, OH, April 21<sup>st</sup>, 2010, (Invited talk).
19. Notre Dame University, Department of Chemistry and Biochemistry, South Bend, IL, April 22<sup>nd</sup>, 2010, (Invited talk).
20. The Scripps Research Institute, La Jolla, Ca, May 11<sup>th</sup>, 2010. (Invited Talk).
21. The University of Miami, Coral Gables, FL, September 17<sup>th</sup>, 2010. (Invited Talk).
22. Kent State University, Kent, OH, October 7<sup>th</sup>, 2010. " (Invited Talk).

23. University of Utah, Department of Medicinal Chemistry, Salt Lake City, UT, December 2<sup>nd</sup>, 2010. (Invited Talk).
24. University of Georgia, Department of Pharmaceutical and Biomedical Sciences, Athens, GA, February 22<sup>nd</sup>, 2012. (Invited talk)
25. University of Minnesota, Department of Chemistry, Minneapolis, MN, March 22<sup>nd</sup>, 2012. (Invited talk)
26. Iowa State University, Department of Biochemistry, Biophysics and Molecular Biology, Ames, IA, April 19<sup>th</sup>, 2012. (Invited talk)
27. University of Tennessee at Knoxville, Department of Biochemistry, Cellular and Molecular Biology, November 5<sup>th</sup>, 2014: (Invited Talk)
28. University of Tennessee Medical Center, Graduate School of Medicine, January 20<sup>th</sup>, 2015. (Invited Talk)

**Invited Presentations at Primarily Undergraduate Institutions (Recruiting Visits, M. Best is presenter for all talks listed below))**

29. East Tennessee State University, Department of Chemistry, Johnson City, TN, October 21<sup>st</sup>, 2005. (Invited Talk)
30. University of Tennessee at Chattanooga, Department of Chemistry, Chattanooga, TN, October 6<sup>th</sup>, 2006. (Invited Talk)
31. Kennesaw State University, Department of Chemistry, Kennesaw, GA, November 9<sup>th</sup>, 2006. (Invited Talk)
32. Western Carolina University, Department of Chemistry, Cullowhee, NC, January 26<sup>th</sup>, 2007. (Invited Talk)
33. Austin Peay State University, Department of Chemistry, Clarksville, TN, March 16<sup>th</sup>, 2007. (Invited Talk)
34. Appalachian State University, Department of Chemistry, Boone, NC, November 16<sup>th</sup>, 2007. (Invited Talk)
35. Harding University, Department of Chemistry, Searcy, AR, January 21<sup>st</sup>, 2008. (Invited Talk)
36. Berry College, Department of Chemistry, Rome, GA, November 9<sup>th</sup>, 2009 (Invited Talk).
37. Florida Institute of Technology, Department of Chemistry, Melbourne, FL, January 21<sup>st</sup>, 2010 (Invited talk)
38. Tennessee Tech University, Department of Chemistry, Cookeville, TN, September 24<sup>th</sup>, 2010 (Invited talk)
39. Kennesaw State University, Department of Chemistry, Kennesaw, GA, October 28<sup>th</sup>, 2010. (Invited Talk)
40. University of Tennessee, Department of Chemistry, Chattanooga, TN, January 27<sup>th</sup>, 2012. (Invited talk)
41. Winthrop University, Department of Chemistry, Rock Hill, SC, February 2<sup>nd</sup>, 2012. (Invited talk)
42. Berea College, Department of Chemistry, Berea, KY, February 7<sup>th</sup>, 2012. (Invited talk)
43. Central College, Department of Chemistry, Pella, IA, April 20<sup>th</sup>, 2012. (Invited talk)

44. Clark Atlantic University, Department of Chemistry, Atlanta, GA, November 14<sup>th</sup>, 2012 (Invited talk)
45. Appalachian State University, Department of Chemistry, Boone, NC, November 8<sup>th</sup>, 2013. (Invited Talk)
46. Tennessee Tech University, Department of Chemistry, Cookeville, TN, February 21<sup>st</sup>, 2014 (Invited talk)
47. Davidson College, Department of Chemistry, Davidson, NC, April 4<sup>th</sup>, 2014 (Invited talk)
48. Kennesaw State University, Department of Chemistry, Kennesaw, GA, November 3<sup>rd</sup>, 2015. (Invited Talk)
49. Savannah State University, Department of Chemistry, Savannah, GA, November 5<sup>th</sup>, 2015. (Invited Talk)
50. Murray State University, Department of Chemistry, Murray, KY, September 11<sup>th</sup>, 2017.
51. Samford University, Department of Chemistry, Birmingham, AL, April 6<sup>th</sup>, 2018.

**Invited Oral Presentations at Professional Conferences (M. Best is presenter for all talks listed below)**

52. Southeast Regional Meeting of the American Chemical Society (SERMACS), Augusta, GA, November 3<sup>rd</sup>, 2006. (Invited Talk)
53. American Chemical Society National Meeting, "Young Investigators in Glycoscience" Symposium, San Francisco, CA, March 21<sup>st</sup>, 2010 (Invited talk)
54. American Chemical Society National Meeting, "Young Academic Investigators" Symposium of the ACS organic division, Boston, MA, August 24<sup>th</sup>, 2010 (Invited talk)  
Note: Selected as one of 16 speakers from a pool of 63 nominees from throughout the field of organic chemistry.
55. American Chemical Society National Meeting, Symposium of the ACS carbohydrate division, Anaheim, CA, March 28<sup>th</sup>, 2011 (Invited talk)
56. Southwest Regional Meeting of the American Chemical Society (SWRMACS), Austin, TX, November 10<sup>th</sup>, 2011. (Invited talk)
57. American Society for Biochemistry and Molecular Biology (ASBMB) National Meeting, San Diego, CA, April 25<sup>th</sup>, 2012. (Invited talk)
58. Institute for Biomedical Engineering Symposium, Knoxville, TN, April 22<sup>nd</sup>, 2014. (Invited talk)
59. Midwestern Regional Meeting of the American Chemical Society (MWRM), "Organic Chemistry in the SEC" Symposium, Columbia, MO, November 14<sup>th</sup>, 2014.
60. Joint Institute for Biological Sciences Biomembranes Workshop, ORNL, January 28<sup>th</sup>, 2015. (Invited talk)
61. ACS Midwestern Regional Conference, Columbia, MO, November 14<sup>th</sup>, 2014. (Invited talk).
62. Experimental Biology (EB) / ASBMB National Meeting, Boston, MA, March 30<sup>th</sup>, 2015. (Invited talk).
63. Pacificchem, Honolulu, HI, December 19<sup>th</sup>, 2015, "Function, Chemistry, and Signaling of Glycolipids and Sphingolipids" Symposium. (Invited talk)

**Contributed Oral Presentations at Professional Conferences (presenter's name is underlined)**

64. M.D. Best et al. Southeast Regional Meeting of the American Chemical Society (SERMACS), Greenville, SC, October 26<sup>th</sup>, 2007. (Contributed Talk)

65. M.D. Best et al. American Chemical Society National Meeting, New Orleans, LA, April 8<sup>th</sup>, 2008. (Contributed Talk)
66. M.D. Best et al. Gordon Research Conference on Bioorganic Chemistry, Proctor Academy, Andover, NH, June 15-20, 2008. "Chemical Approaches to the Study of Protein-Lipid Binding Events." (Contributed Poster)
67. M.D. Best et al. Southeast Regional Meeting of the American Chemical Society (SERMACS), Nashville, TN, November 12<sup>th</sup>, 2008. (Contributed Talk)
68. M.D. Best et al. Keystone Symposium, Joint Meeting on PI-3 Kinases and Complex Lipids, Lake Tahoe, CA, April 25<sup>th</sup>, 2009, (Contributed Poster)
69. M.D. Best et al. American Society for Biochemistry and Molecular Biology (ASBMB) National Meeting, San Diego, CA, April 22<sup>nd</sup>, 2012. (Contributed Poster)
70. M.D. Best et al. Southeast Regional Meeting of the American Chemical Society (SERMACS), Atlanta, GA, November 14<sup>th</sup>, 2013.
71. Bayer, A.M.; Alam, S.; Mattern-Schain, S.I.; Best, M.D.; Southeast Regional Meeting of the American Chemical Society (SERMACS), Atlanta, GA, November 14<sup>th</sup>, 2013.
72. Whitehead, S.A.; Alam, S.; Best, M.D. American Chemical Society National Meeting, San Diego, CA, March 13<sup>th</sup>, 2016 (Contributed talk).
73. Best, M.D.; Lou, J.; Bayer, A.M.; Whitehead, S.; Carr, A.J.; Zhang, X.; Alam, S.; Mattern-Schain, S.I.; Watson, A.J. American Chemical Society National Meeting, New Orleans, LA, March 20<sup>th</sup>, 2018 (Contributed talk).

**Contributed Poster Presentations at Professional Conference (presenter's name is underlined)**

74. Best, M.D. et al. Gordon Research Conference on Bioorganic Chemistry, Proctor Academy, Andover, NH, June 15-20, 2008.
75. Best, M.D. et al. Keystone Symposium, Joint Meeting on PI-3 Kinases and Complex Lipids, Lake Tahoe, CA, April 25<sup>th</sup>, 2009.
76. Parrill, A.B.; North, E.J.; Hoeglund, A.; Bostic, H.E.; Best, M.D.; Baker, D.L. American Chemical Society National Meeting, Boston, MA, August, 2010 (Contributed poster).
77. Abia, I.\*; Sanders, B.\*\*; Best, M.D.; Baker, D.C. American Chemical Society National Meeting, Boston, MA, August, 2010.
78. Bolen, A.L.; Naren, A.P.; Baker, D.L.; Beranova-Giorgianni, S.; Best, M.D.; Rowland, M.M.\*; Norman, D.D.; Chen, L.; Yarlagadd, S.; Sano, T.; Tsukahara, T.; Igarashi, Y.; Tigyi, G.; Liliom, K. Experimental Biology (EB) National Meeting, Washington, D.C., April, 2011.
79. Best, M.D. et al. Experimental Biology (EB) National Meeting, San Diego, CA, April 25<sup>th</sup>, 2012.
80. Petro, E.J.; Tu-Sekine, B.; Rowland, M.M.; Eni Eni, S.; Best, M.D.; DeVine, L.; Cole, R.N.; Raben, D.M. Experimental Biology (EB) National Meeting, Boston, MA, April, 2013.
81. Ricks, T.; Tscherch, K.; Best, M.D. Lipid Maps Conference, La Jolla, CA, May 13-14<sup>th</sup>, 2014
82. Bayer, A.M.; Alam, S.; Mattern-Schain, S.I.; Best, M.D.; Institute for Biomedical Engineering Symposium, Knoxville, TN, April 22<sup>nd</sup>, 2014.
83. Alam, S.; Whitehead, S.; Best, M.D.; Biomembranes Conference, Oak Ridge National Laboratory, Oak Ridge, TN, July 9<sup>th</sup>, 2014.

84. Ricks, T.; Mattern-Schain, S.I.; Rowland, M.M.\*; Gong, D.; Smith, M.D.\*; Bostic, H.E.\* Biomembranes Conference, Oak Ridge National Laboratory, Oak Ridge, TN, July 9<sup>th</sup>, 2014.
85. Bayer, A.M.; Alam, S.; Mattern-Schain, S.I.; Best, M.D.; Biomembranes Conference, Oak Ridge National Laboratory, Oak Ridge, TN, July 9<sup>th</sup>, 2014.
86. Ricks, T.; Tscherch, K.; Best, M.D. Lipid Maps Conference, La Jolla, CA, May 12-13<sup>th</sup>, 2015 (Contributed Poster)
87. Ricks, T.; Tscherch, K.; Best, M.D. National Organic Chemistry Symposium, College Park, MD, June 28-July 2, 2015
88. Ricks, T., Tscherch, K., & Best, M. D. New York Academy of Sciences. New York, NY. September 15, 2014.
89. Cassilly, C. D., Maddox, M., Tester, A. T., Alam, S., Campagna, S., Lee, R. E., Best, M.D. Reynolds, T. B. Comparative and Experimental Medicine and Public Health Research Symposium. May 1, 2015.
90. Cassilly, C. D., Farmer, A. T., Alam, S., Best, M. D., Campagna, S. R., & Reynolds, T. B. ASM Conference on Candida and Candidiasis. Seattle, WA. April 1, 2016.
91. Alam, S.; Whitehead, S.A.; Bayer, A.M., Popik, V.V, Best, M.D. American Chemical Society National Meeting, San Diego, CA, March 15<sup>th</sup>, 2016.
92. Whitehead, S., Alam, S., & Best, M. D. American Chemical Society National Meeting, San Diego, CA, March 13<sup>th</sup>, 2016.
93. Fisher, R.K.; Mattern-Schain, S.I.; Best, M.D.; Kirkpatrick, S.S.; Freeman, M.B.; Grandas, O.H.; Mountain, D.J. Academic Surgical Congress. Las Vegas, NV, February 8<sup>th</sup>, 2017.
94. Best, M.D.; Bayer, A.M.; Alam, S.; Whitehead, S.A. American Chemical Society National Meeting, San Francisco, CA, April 3<sup>rd</sup>, 2017.
95. Cudnik, J.S.; Best, M.D.; Kirkpatrick, S.S.; Freeman, M.B.; Grandas, O.H. Mountain, D.J. Annual Meeting of the Society for Vascular-Surgery. San Diego, CA, June 1<sup>st</sup>, 2017.
96. Carr, A.J.; Alam, S.; Ricks, T.J.; Zhang, X.; Best, M.D. American Chemical Society National Meeting, New Orleans, LA, March 19<sup>th</sup>, 2018 (Contributed talk).

### **Research Presentations at Local High Schools**

3. Hardin Valley Academy, April 12<sup>th</sup>, 2011.
2. Farragut High School, January 24<sup>th</sup>, 2011.
1. Farragut High School, April 9<sup>th</sup>, 2009.

### **Professional Meetings Attended**

- American Chemical Society National Meeting**, New Orleans, LA, March 18<sup>th</sup>-22<sup>nd</sup>, 2018. Purpose: oral presentation.
- American Chemical Society National Meeting**, San Francisco, CA, April 1<sup>st</sup>-4<sup>th</sup>, 2017. Purpose: poster presentation.
- PacifiChem**, Honolulu, HI, December 16<sup>th</sup> -20<sup>th</sup>, 2015.
- Chemistry REU PI Workshop**, San Antonio, TX, July 15-17<sup>th</sup>, 2015.
- Joint Institute for Biological Sciences Biomembranes Workshop**, Oak Ridge National Laboratory, Oak Ridge, TN, January 28<sup>th</sup>, 2015.
- American Society for Biochemistry and Molecular Biology (ASBMB) National Meeting**, Boston, MA, March 30<sup>th</sup>, 2015. Purpose: co-organizer of four days of talks in the ASBMB Lipid Theme, Invited Talk.

**American Chemical Society Midwestern Regional Conference**, Columbia, MO, November 14<sup>th</sup>, 2014. Purpose: Invited Talk.

**Southeast Regional Meeting of the American Chemical Society (SERMACS)**, Atlanta, GA, November 14<sup>th</sup>, 2013. Purpose: Invited Talk

**American Society for Biochemistry and Molecular Biology (ASBMB) National Meeting**, San Diego, CA, April 22<sup>nd</sup>-25<sup>th</sup>, 2012. Purpose: Invited Talk.

**Southwest Regional Meeting of the American Chemical Society (SWRMACS)**, Austin, TX, November 10<sup>th</sup>, 2011. Purpose: Invited to speak at Supramolecular Chemistry Symposium.

**American Chemical Society National Meeting**, Anaheim, CA, March 28<sup>th</sup>, 2011. Purpose: Invited talk in "Click Chemistry Approaches in Carbohydrate Chemistry" Symposium of the ACS carbohydrate division.

**American Chemical Society National Meeting**, Boston, MA, August 24<sup>th</sup>, 2010. Purpose: Invited talk in "Young Academic Investigators" Symposium of the ACS organic division.

**American Chemical Society National Meeting**, San Francisco, CA, March 2010, Purpose: Invited talk in "Young Investigators in Glycoscience" Symposium.

**Keystone Symposium, Joint Meeting on PI-3 Kinases and Complex Lipids**, Lake Tahoe, CA, April 22-26, 2009, Purpose: contributed poster.

**Gordon Research Conference on Bioorganic Chemistry**, Proctor Academy, Andover, NH, June 15-20, 2008. Purpose: contributed poster.

**Southeast Regional Meeting of the American Chemical Society (SERMACS)**, Nashville, TN, November 2008. Purpose: contributed talk

**American Chemical Society National Meeting**, New Orleans, LA, April 2008. Purpose: recruiting and contributed talk.

**Southeast Regional Meeting of the American Chemical Society (SERMACS)**, Greenville, SC, October 2007. Purpose: recruiting and contributed talk.

**American Chemical Society National Meeting**, Boston, MA, August, 2007. Purpose: recruiting.

**American Chemical Society National Meeting**, Chicago, IL, March 2007. Purpose: recruiting.

**Southeast Regional Meeting of the American Chemical Society (SERMACS)**, Augusta, GA, November 2006. Purpose: recruiting and invited talk.

**American Chemical Society National Meeting**, Atlanta, GA, March 2006. Purpose: recruiting.

### **Group Members Mentored**

#### **Post-Doctoral Research Associates**

1. Dr. Denghuang Gong, April 2007 – February 2009
  - Ph.D., Shanghai Institute of Organic Chemistry, 2004
  - Current Position: Shijiazhuang Pharm Group R&D Center, Shijiazhuang, China
2. Dr. Kathrin Tscherch, August 2013 – 2014
  - Ph.D., University of Hamburg, 2013
  - Senior Technologist at the J.M. Smucker Company

#### **Graduate Students**

1. Chi-Linh Do-Thanh, Fall 2005 – Spring 2011
  - Current employment: Post-doctoral research associate at the University of Tennessee at Knoxville.
  - Ph.D. in Chemistry, defended: 4/7/2011
  - Dissertation title: A Fluorescent Tweezer Receptor for Phosphorylated Biomolecules
  - First Year Graduate Student Achievement Award, 2006
2. Erin A. Losey, Fall 2005 – August 2008
  - Current employment: Y-12 National Security Complex, Oak Ridge, TN.
  - Previous employment: Research Scientist at Galbraith laboratories, Knoxville, TN.
  - M.S. in Chemistry, defended: 7/17/2008
  - Thesis title: "The Synthesis of Lipid Analogs for Characterizing Protein – Lipid Binding Interactions"

3. Mary K. Coulter, Fall 2005 – May 2007
  - Switched to pursue graduate degree in education
4. Matthew D. Smith, Fall 2006 – May 2009 (following departure of previous advisor)
  - Current employment: Instructor of Chemistry, Walters State Community College
  - Ph.D. in Chemistry, defended: 3/26/2009
  - Dissertation title: “Chemical Approaches for the Investigation of Protein-Lipid Binding Interactions: Synthesis, Modification, and Evaluation of Novel Azido-Based Lipid Probes”
  - UT Scholarly Activity Research Incentive Fund Summer Research Assistant, 2007
  - D.A. Shirley Graduate Award in Organic Chemistry, 2007
  - Departmental Outstanding Service Award, 2007
5. Meng M. Rowland, Fall 2006 – Spring 2011
  - Current employment: US Food and Drug Administration
  - Previous: Assistant Professor of Biochemistry, University of Pittsburgh at Greensburg • Previous: Assistant Professor of Biochemistry, University of Pittsburgh at Greensburg
  - NIH Ruth Kirschstein Post-doctoral Fellowship at Johns Hopkins Medical School
  - Ph.D. in Chemistry, defended: 4/5/2011
  - Dissertation title: “Chemical Tools to Characterize Membrane-Protein Interactions Using Synthetic Lipid Probes”
  - Runner-up, “Best Poster” at 2009 UT Chemistry Board of Visitors Poster Session
  - D.A. Shirley Graduate Award in Organic Chemistry, 2010
  - Eugene John Barber Fellowship in Chemistry, 2010
6. Manpreet Cheema, Fall 2006 – August 2009
  - Graduate student at Penn State Food Science and Technology
  - Former employment: research scientist at Galbraith laboratories, Knoxville, TN.
  - M.S. in Chemistry, defended: 11/2/2009
  - Thesis title: “Design, Synthesis and Binding Studies of Boronic Acid Based Carbohydrate Sensors”
  - First Year Graduate Student Achievement Award, 2006
7. Heidi Bostic, Fall 2007 – Summer 2012
  - Current employment: Assistant Professor of Chemistry at Wofford College
  - Ph.D. in Chemistry, Summer 2012
  - Dissertation title: “Development and Application of Synthetic Lipid Probes to Study and Mimic Lipid Function.”
  - Winner , “Best Poster” at 2011 UT Chemistry Board of Visitors Poster Session
8. Leah Cuthriell, Fall 2007 – August 2009
  - Current employment: Instructor of Chemistry, Wallace Community College
  - M.S. in Chemistry, defended: 10/30/2009
  - Thesis title: “Development of a Novel Lysophosphatidic Acid Activity Probe to Identify and Characterize Protein Targets”
9. Paul Petersen, Fall 2008 – July 2010
  - Current employment: Global sales at Eastman Chemical Company, Johnson City, TN.
  - M.S. in Chemistry, defended: 7/22/2010
  - Thesis title: “Design and Synthesis of a Boronic Acid Sensor to Study Carbohydrate Binding Using SERS”
10. Ashdeep Rajpal, Fall 2008 – Fall 2010
  - Current employment: research scientist at Chattem Chemicals, Chattanooga, TN.
  - M.S. in Chemistry, defended: 11/5/2010
  - Thesis title: "Design and Synthesis of Metabolically Stabilized Lipid Probes for the Investigation of Protein-Lipid Binding Interactions"
11. Andrew Bayer, Fall 2009 – Summer 2014
  - Current employment: Research scientist at Avanti Polar Lipids, Inc., Alabaster, AL.
  - Ph.D. in Chemistry, defended: 11/4/2014



- Dissertation title: “Photo-Switchable Control of Membrane Properties of Liposomes and Biochemical Processes”
  - Researcher, Avanti Polar Lipids, Alabaster, AL
12. Ritu Nandal, Fall 2009 – Summer 2011
    - M.S. in Chemistry, defended: 7/15/2011
    - Thesis title: “Development of Bifunctional Lysophosphatidic Acid and Lysophosphatidylcholine Activity Probes to Characterize Their Specific Binding Protein Receptors”
  13. Yilin Wang, Fall 2010 – Summer 2012
    - Current employment: Instructor of Chemistry at Orange Coast College
    - PhD in Chemistry from the University of California at Irvine
    - M.S. in Chemistry, defended: 7/16/2012
    - Thesis title: “Design and Synthesis of Boronic Acid-Based Sensors for Microarray Analysis and FRET Detection to Study Carbohydrates”
  14. Benjamin Smith, Fall 2010 – Spring 2013
    - Current employment: Research scientist, Baxter Health Care, Chicago, IL
    - M.S. in Chemistry, defended: 7/16/2012
    - Thesis title: “Microarray Analysis of Protein-Phosphoinositide Binding Interactions”
  15. Sammy Eni Eni, Fall 2010 – Spring 2015
  16. Shawn Cureton, Fall 2011 – Spring 2013
    - Senior Salesforce Developer at GearsCRM
  17. Shahrina Alam, Fall 2011 – Fall 2016
    - Current employment: Post-doc at University of Tennessee with Dr. Joe Bozell
    - Previous employment: Post-doc at Vanderbilt University with Craig Lindsley
    - Ph.D. in Chemistry, defended: 12/4/2016
    - Jerome Eastham Fellowship in Organic Chemistry, Spring 2014
  18. Stuart Whitehead, Fall 2011 – Fall 2016
    - Current employment: Research scientist at FinaBio, Rockville, MD
    - Ph.D. in Chemistry, defended: 11/25/2016
  19. Sam Mattern-Schain, Fall 2012 – Fall 2017
    - Second Year Candidacy Exam Award, Spring 2014
    - Outstanding Teaching Award, Spring 2015
  20. Tanei Ricks, Fall 2012 – Summer 2017
    - Current employment: Instructor at Georgia Military College
    - Ph.D. in Chemistry, defended: 8/4/2017
    - Outstanding Teaching Award, Spring 2013
  21. Alex Fisch, Fall 2013 – Summer 2016
  22. Adam Carr, Fall 2013 – present
    - Outstanding Teaching Award, Spring 2014
    - Jerome Eastham Fellowship in Organic Chemistry, Spring 2016
  23. Zhengsu Yu, Fall 2013 – present
  24. Alexa Watson, Fall 2014 – present
  25. Daniel Page, Fall 2014 – Spring 2015
  26. Xiaoyu Zhang, Fall 2014 – present
  27. Jinchao Lou, Fall 2016 – present
  28. Sara Barker, Fall 2017 – present

### **UTK Undergraduate Students**

1. Amy M. Pollard, Fall 2005 – May 2007
  - Current employment: American Radiation Services
  - Ph.D. in Chemistry from Louisiana State University, Fall 2012.
  - B.S. in Chemistry, UTK, May 2007
  - UT Summer Undergraduate Research Fellowship, 2006

2. W. Brad Grimes, Fall 2005 – 2006
  - B.S. in Chemistry, May 2006
3. Justin C. Reno, Spring 2006 – May 2008
  - Medical doctor, McKenzie, TN
  - M.D. from Quillen College of Medicine, East Tennessee State University, 2012
  - BS in Chemistry, May 2008
  - Pfizer Summer Undergraduate Research Fellowship, 2007
  - UT Summer Undergraduate Research Fellowship, 2006
  - C.A. Buehler Scholarship for top chemistry student, 2006
  - Shirley Award for top organic chemistry student, 2006
4. Brittany J. Wallen, Summer 2006
  - Pharmacy at Touro College of Pharmacy
5. Chinenye Usoh, Fall 2006 – May 2007
  - Medical doctor, Wake Forest University School of Medicine
  - M.D., Vanderilt University School of Medicine
  - B.S. in Chemistry, May 2007
  - Undergraduate Award in Physical Chemistry, 2007
  - D.A. Shirley Award in Organic Chemistry, 2007
6. Timothy J. Weatherall, Fall 2006 – May 2008
  - Medical doctor at University of Tennessee Health Science Center
  - M.D. from Quillen College of Medicine, East Tennessee State University, 2012
  - BS in Chemistry, May 2008
7. Lacy Cardwell, Spring 2007 – May 2008
  - Dentist in Jefferson City, TN
  - Graduated from University of Tennessee Health Science Center School of Dentistry
  - BS in Chemistry, May 2008
8. Paul Petersen, Spring 2007 – May 2008
  - Account Manager at Eastman Chemical Company
  - M.S. in Chemistry, University of Tennessee, Knoxville Department of Chemistry
  - BS in Chemistry, May 2008
9. Timothy Wesley, Spring 2007 – December 2007
  - Medical student at East Tennessee State University School of Medicine
  - Judson Hall Robertson Memorial Award in Analytical Chemistry, 2007
10. Elizabeth Jacobs, Fall 2007 – December 2007
  - AWIS Public Relations Committee
  - Post-doctoral research, The Scripps Research Institute, CA
  - PhD in Chemistry from the University of East Anglia (England)
11. John Prenshaw, Fall 2007 – December 2007
  - Ophthalmologist at White Eye Associates, Greenville, NC
  - MD, University of Tennessee Health Science Center
12. Jason Shearer, Spring 2008 – Summer 2008
13. Tyler Tantisook, Summer 2008 – Spring 2010
  - Medical student at UT Health Science Center at Memphis
14. Andrew Mabe, Fall 2008 – Spring 2010
  - Post-doctoral researcher at Lawrence Livermore National Laboratory
  - PhD from the University of Tennessee at Knoxville
13. Amanda Debuhr, Summer 2009
  - Medical doctor in Pittsburgh, PA
  - MD from University of Tennessee Health Science Center
16. Shawn Cureton, Spring 2010'
  - Graduate student at the University of Tennessee at Knoxville
17. Greg Watlington, Fall 2009 – Spring 2010
18. Matthew Torrico, Spring 2010

- Graduate student in radiation physics at Vanderbilt University
  - MS in Nuclear engineering, Georgia Tech
19. Michael Bright, Fall 2009 – Spring 2010
    - Medical student at University of Tennessee
  20. Molly Delk, Spring 2010 – Fall 2010
    - Medical doctor in Memphis, TN
    - MD from University of Tennessee
  21. Jennifer Brouner, Summer 2010 – Spring 2011
    - Medical student at Quillen College of Medicine
  22. Samuel Mattern-Schain, Fall 2011 – Spring 2012
    - PhD in Chemistry the University of Tennessee, Knoxville
  23. Bradley Bright, Fall 2011 – Spring 2012
  24. Maria De Lucia, Fall 2011 – Spring 2012
  25. Michelle Lam, Summer 2012
    - Medical student at Lincoln Memorial University
  26. Trevor Siler, Spring 2012
  27. Selamawit Tesema, Spring 2012
  28. Kaitlyn Wray, Spring 2012
    - Administrative support assistant, Haslam College of Business, UTK
  29. Juan Quintero, Summer 2012 – Spring 2014
  30. James Burton, Fall 2012 – Spring 2013
    - Customer support engineer, Perkin Elmer, Inc.
  31. Alana Stein, Spring 2013
    - PhD in Sociology, University of California, Davis
  32. Zachary Austin, Fall 2013 – Spring 2015
    - Graduate student in chemistry at Vanderbilt University
  33. Margaux Joe, Fall 2013 – Spring 2014
    - Program Coordinator at Latino Memphis
  34. Timothy Yokley, Fall 2013 – Spring 2015
    - Graduate student in chemistry at University of Memphis
  35. Taylor Broussard, Summer 2013 – Fall 2014
    - MBA Candidate, University of Tennessee
  36. Barrett Thompson, Spring 2014 – Spring 2015
    - Medical student at University of Tennessee
  37. Anna Walsh, Summer 2014 – Spring 2015
    - Medical student at University of Tennessee
  38. Dipti Patel, Spring 2015
    - Pharmacy school at University of Tennessee College of Pharmacy
  39. Alyssa Powlus, Spring 2015 – Fall 2016
    - Research Analyst at Vanderbilt Institute for Clinical and Translational Research
  40. Brittany Ramsey, Spring 2015 – Fall 2016
    - Hach Foundation Scholarship
  41. Meagan Rhyne, Spring 2015 – Spring 2016
    - Graduate student in chemistry at University of Tennessee
  42. Michael Brouner, Fall 2015 – Spring 2016
  43. Sofia Kim, Fall 2015 – Spring 2016
    - Pharmacy school at University of Tennessee College of Pharmacy
  44. Abigail Taylor, Fall 2015 – Spring 2016
  45. Timothy Whitehead, Fall 2015
  46. Andrew Mikhael, Spring 2016 – Fall 2017
  47. Nicholas Galan, Spring 2016 – Spring 2017
    - Graduate student in chemistry at University of Tennessee
  48. Alexa Griffith, Fall 2016 – Fall 2017

49. Cameron Workman, Spring 2017 – present
  - Graduate student in chemistry at University of Tennessee
50. Justus McMillan, Spring 2017 – present
51. Carolyn Barnes, Spring 2017 – present
  - C. A. Buehler Chemistry Scholarship
  - Lucy Scroggie Fellowship
52. Ryan Fisher, Spring 2018 – present
53. Tien Tran, Summer 2018 – present

#### **External Undergraduate Students (via UTK Chemistry's SURF program)**

1. Leah Cuthriell, from Huntingdon College, Summer 2006.
  - Received M.S. in Chemistry from the University of Tennessee, (my lab)
2. Cynthia Bunders, from Iowa State University, Summer 2007.
  - Received Ph.D. in Chemistry from North Carolina State University
3. Jordan Ross, from Samford University, Summer 2011
  - Medical School at University of Tennessee Health Science Center
4. Neelam Khanal, from Columbia College, Summer 2011
  - Chemistry graduate student at Indiana University
5. Kevin Robb, from Truman State University, Summer 2012
  - Chemistry graduate student at the University of Illinois-Urbana Champagne
6. Alexa Marlow, from Tennessee Wesleyan University, Summer 2013
  - Chemistry graduate student at the University of Tennessee (my lab)
7. Pilar Orozco, from Newman University, Summer 2014
8. Laney Browder, from Western Carolina University, Summer 2015
  - Chemistry graduate student at Boston University
9. Jake O'Leary, from Birmingham Southern College, Summer 2015
  - Chemistry graduate student at Columbia University
10. Alexia Thomas, from Jackson State University, Summer 2016
11. Shelby Hill, from Clemson University, Summer 2017
  - Chemistry graduate student at the University of Southern California
12. Monica Reece, from Western Carolina University, Summer 2018

#### **High School Student (via UTK's Pre-Collegiate Research Scholars Program)**

1. Amanda Sobhani, Farragut High School, Fall 2008 – May 2009
  - Undergraduate at UTK
2. Nick Taylor, Farragut High School, Fall 2008
  - Undergraduate at UTK
3. Cristen Peterson, Farragut High School, Summer 2009 – Spring 2010
  - Undergraduate at Cornell
4. Logan McNeil, Farragut High School, Spring 2010 – Spring 2011
  - Undergraduate at UTK
5. Ronak Patel, Summer 2011 – Spring 2012
  - Undergraduate at Ohio State
6. Austin Kaman, Summer 2011 – Spring 2012
  - Undergraduate at UTK
7. Hannah Feiten, Summer 2012 – Fall 2012
  - Undergraduate at Lipscomb
8. Lauren Martinez, Fall 2014 – Summer 2014
9. Anna Delahunt, Summer 2015 – Fall 2015
10. Angel Chen, Summer 2015 – Fall 2015

## **Collaborators**

Dr. Greg Armel (Univ. of Tennessee Institute of Agriculture)  
Dr. David Baker (Univ. Tennessee)  
Dr. Francisco Barrera (Univ. of Tennessee)  
Dr. Jon P. Camden (Notre Dame Univ.)  
Dr. Shawn R. Campagna (Univ. Tennessee)  
Dr. Wonhwa Cho (Univ. of Illinois Chicago)  
Dr. Robert Compton (Univ. Tennessee)  
Dr. Benjamin F. Cravatt: (The Scripps Research Institute, CA)  
Dr. Kenneth Crozier (Harvard Univ.)  
Dr. David Jenkins (Univ. of Tennessee)  
Dr. John Katsaras (Oak Ridge National Lab)  
Dr. Edgar Kooijman (Kent State Univ.)  
Dr. Tatiana Kutateladze: (Univ. of Colorado-Denver Pharmacology)  
Dr. Jennifer Morrell-Falvey (Oak Ridge National Laboratory)  
Dr. Abby Parrill (Univ. of Memphis)  
Dr. Vladimir Popik (Univ. of Georgia)  
Dr. Glenn D. Prestwich (Univ. Utah)  
Dr. Todd Reynolds (Univ. of Tennessee)  
Dr. Robert V. Stahelin (Indiana Univ. School of Medicine)  
Dr. Gabor Tigyi (University of Tennessee Health Science Center)  
Dr. Jon Wall (University of Tennessee Medical Center)  
Dr. Aaron T. Wright (Pacific Northwest National Laboratory)  
Dr. Wei Zhan (Auburn Univ.)  
Dr. X. Peter Zhang (Boston College)

## **Teaching**

### **Lecture courses Taught at the University of Tennessee at Knoxville** (\* = Honors course)

27. Spring 2019: CHEM 551, Organic Reactions  
Enrollment: 9
26. Fall 2018: CHEM 380, Foundations of Chemical Biology  
Enrollment: 17
25. Spring 2018: CHEM 551, Organic Reactions  
Enrollment: 11
24. Fall 2017: CHEM 380, Foundations of Chemical Biology  
Enrollment: 24
23. Spring 2017: CHEM 551, Organic Reactions  
Enrollment: 7
22. Fall 2016: CHEM 360, Organic Chemistry II  
Enrollment: 124
21. Spring 2016: CHEM 650, Selected Topics in Organic Chemistry  
Enrollment: 10
20. Fall 2015: CHEM 360, *Organic Chemistry II*  
Enrollment: 120
19. Spring 2015: CHEM 360, *Organic Chemistry II*  
Enrollment: 107
18. Fall 2014: CHEM 550, *Structure and Reactivity in Organic Chemistry*  
Enrollment: 19
17. Spring 2014: CHEM 368, *Honors Organic Chemistry II* \*  
Enrollment: 32
16. Fall 2013: CHEM 550, *Structure and Reactivity in Organic Chemistry*

- Enrollment: 31
15. Spring 2013: CHEM 368, *Honors Organic Chemistry II* \*  
Enrollment: 43
  14. Fall 2012: CHEM 550, *Structure and Reactivity in Organic Chemistry*  
Enrollment: 21
  13. Spring 2012: CHEM 650, Selected Topics in Organic Chemistry  
Enrollment: 7
  12. Fall 2011: CHEM 358, Honors Organic Chemistry I \*  
Enrollment: 59
  11. Spring 2011: CHEM 368, *Honors Organic Chemistry II* \*  
14-day enrollment: 32
  10. Fall 2010: CHEM 358, *Honors Organic Chemistry I* \*  
14-day enrollment: 41 undergraduate students
  9. Spring 2010: CHEM 368, *Honors Organic Chemistry II* \*  
14-day enrollment: 19 undergraduate students
  8. Fall 2009: CHEM 358, *Honors Organic Chemistry I* \*  
14-day enrollment: 53 undergraduate students
  7. Spring 2009: CHEM 360, *Organic Chemistry II*  
14-day enrollment: 127 undergraduate students
  6. Fall 2008: CHEM 550, *Structure and Reactivity in Organic Chemistry*  
14-day enrollment: 14 graduate students and 2 undergraduate students
  5. Spring 2008: CHEM 350, *Organic Chemistry*  
14-day enrollment: 88 undergraduate students
  4. Fall 2007: CHEM 550, *Structure and Reactivity in Organic Chemistry*  
14-day enrollment: 19 graduate students and 1 undergraduate student
  3. Spring 2007: CHEM 350, *Organic Chemistry*  
14-day enrollment: 84 undergraduate students
  2. Fall 2006: CHEM 550, *Structure and Reactivity in Organic Chemistry*  
14-day enrollment: 15 graduate students and 2 undergraduate students
  1. Fall 2005: CHEM 350, *Organic Chemistry, University of Tennessee at Knoxville*  
14-day enrollment: 83 undergraduate students

### **Summary of SAIS Teaching Evaluation Results<sup>a</sup>**

<b>Sem/Year</b>	<b>Course</b>	<b># students</b>	<b>Course as a Whole<sup>b</sup></b>	<b>Course Content<sup>c</sup></b>	<b>Instructor Contribution<sup>d</sup></b>	<b>Teaching Effectiveness<sup>e</sup></b>	<b>Advisees</b>
Fall 05	Ch 350	52	3.88	3.73	4.44	4.31	0
Fall 06	Ch 550	15	4.47	4.27	4.53	4.40	0
Spring 07	Ch 350	55	3.58	3.45	4.18	4.07	0
Fall 07	Ch 550	19	4.11	4.05	4.47	4.00	0
Spring 08	Ch 350	42	3.79	3.55	4.33	4.12	0
Fall 08	Ch 550	12	4.00	3.75	4.42	4.33	0
Spring 09	Ch 360	84	3.43	3.51	4.15	3.90	0
Fall 09	Ch 358	39	3.87	3.77	4.21	4.18	0
Spring 10	Ch 368	13	4.23	4.23	4.62	4.54	0
Fall 10	Ch 358	33	4.24	4.27	4.61	4.42	0
Spring 11	Ch 368	28	4.50	4.50	4.81	4.64	0
Fall 11	Ch 358	32	4.41	4.50	4.62	4.69	8
Spring 12	Ch 650	7	NA*	NA*	NA*	NA*	14
Fall 12	Ch 550	21	4.58	4.33	4.67	4.75	15

Spring 13	Ch 368	43	4.46	4.38	4.62	4.54	15
Fall 2013	Ch 550	31	4.50	4.42	4.67	4.75	13
Spring 14	Ch 368	32	4.00	4.00	4.00	3.83	14
Fall 14	Ch 550	19	NA <sup>f</sup>	NA <sup>f</sup>	NA <sup>f</sup>	NA <sup>f</sup>	12
Spring 15	Ch 360	107	4.03	4.07	4.07	4.10	15
Fall 15	Ch 360	120	3.74	3.83	4.05	3.94	11
Spring 16	Ch 650	10	NA <sup>f</sup>	NA <sup>f</sup>	NA <sup>f</sup>	NA <sup>f</sup>	12

<sup>a</sup>Data obtained from Student Assessment of Instruction System (SAIS) Survey  
Ratings (5–0) obtained from Student Assessment of Instruction System (SAIS) Survey:  
5 = excellent, 4 = very good, 3 = good, 2 = fair, 1 = poor, 0 = very poor

<sup>b</sup> SAIS rating: Instructor's contribution to the course

<sup>c</sup> SAIS rating: Instructor's effectiveness in teaching material

<sup>d</sup> SAIS rating: Students' confidence in instructor's knowledge

<sup>e</sup> SAIS rating: Instructor's enthusiasm

<sup>f</sup> Too few responses to report

### **Summary of TNVOICE Teaching Evaluation Results Fall 2016 and after<sup>a</sup>**

<i>Sem/Year</i>	<i>Course</i>	<i># students</i>	<i>Q 1<sup>b</sup></i>	<i>Q 2<sup>c</sup></i>	<i>Q 3<sup>d</sup></i>	<i>Q 4<sup>e</sup></i>	<i>Advisees<sup>b</sup></i>
Fall 16	Ch 360	89	4.26	4.29	4.55	4.58	8
Spring 17	Ch 350	5	4.60	4.40	4.75	4.80	13
Fall 17	Ch 380	21	4.25	4.25	4.64	4.67	13
Spring 18	Ch 551	11	4.67	4.83	5.00	5.00	
Fall 18	Ch 380	17	4.50	4.00	4.17	4.67	

<sup>a</sup>Data obtained from Student Assessment of Instruction System (SAIS) Survey  
Ratings (5–0) obtained from Student Assessment of Instruction System (SAIS) Survey:  
5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree, 0 = not applicable

<sup>b</sup> SAIS rating: The instructor contributed to your understanding of course content

<sup>c</sup> SAIS rating: The instructor created an atmosphere that invited you to seek additional help

<sup>d</sup> SAIS rating: Students' confidence in instructor's knowledge The instructor responded to your inquiries about the course (e.g., emails, texts, phone calls) within a reasonable timeframe (i.e., 48-72 hours)

<sup>e</sup> SAIS rating: The instructor created a respectful and positive learning environment.

<sup>f</sup> Too few responses to report

### **Summary of Students Enrolled and Mentored in Research Coursework**

<i>Semester</i>	<i>Chem 200/300 Students<sup>a</sup></i>	<i>Chem 400 Students<sup>b</sup></i>	<i>Chem 408 Students<sup>c</sup></i>	<i>Chem 500 Students<sup>d</sup></i>	<i>Chem 600 Students<sup>e</sup></i>	<i>High School Students<sup>f</sup></i>
Fall 2005	1	0	0	0	0	0
Spring 2006	1	2	0	1	0	0
Summer 2006	0	1	0	3	0	0
Fall 2006	2	1	1	3	0	0
Spring 2007	5	2	0	5	1	0
Summer 2007	2	0	0	3	2	0
Fall 2007	3	3	0	3	2	0

Spring 2008	1	1	1	3	3	0
Summer 2008	1	0	0	3	3	0
Fall 2008	2	0	0	3	3	2
Spring 2009	1	1	0	3	3	1
Summer 2009	2	0	0	5	2	1
Fall 2009	2	1	0	6	2	1
Spring 2010	3	3	0	4	3	2
Summer 2010	0	0	0	4	3	1
Fall 2010	2	0	0	3	3	1
Spring 2011	1	1	0	2	3	0
Summer 2011	0	0	0	5	1	2
Fall 2011	3	0	0	3	2	2
Spring 2012	4	0	0	6	2	2
Summer 2012	1	0	0	3	3	1
Fall 2012	1	2	0	2	3	1
Spring 2013	4	1	0	3	3	0
Summer 2013	1	1	0	3	4	0
Fall 2013	4	2	0	0	4	0
Spring 2014	3	3	0	1	4	0
Summer 2014	0	2	0	3	6	0
Fall 2014	2	3	0	2	6	1
Spring 2015	4	2	1	2	6	0
Summer 2015	0	0	0	4	6	0
Fall 2015	0	8	0	0	7	0
Spring 2016	1	3	2	0	7	0
Summer 2016	0	0	0	0	9	2
Fall 2016	2	1	0	0	8	2
Spring 2017	4	1	0	1	5	0
Summer 2017	0	0	0	1	5	0
Fall 2017	2	2	0	1	5	0

<sup>a</sup> Chem 200/300: "Introduction to Chemical Research" 1 credit hour course for undergraduates

<sup>b</sup> Chem 400: "Research in Chemistry" 3 credit hour course for undergraduates

<sup>c</sup> Chem 408: "Honors: Research in Chemistry" 3 credit hour course for undergraduates

<sup>d</sup> Chem 500: "Thesis" course for graduate students

<sup>e</sup> Chem 600: "Doctoral Research and Dissertation" course for graduate students

<sup>f</sup>High school students performing research as part of the Pre-Collegiate Research Scholars Program

## Service

### Institutional Service

#### Committee Work at the Departmental Level

<i>Committee</i>	<i>Role</i>	<i>Responsibilities</i>	<i>Dates</i>
Advisor to SAACS	Advisor	Faculty advisor to the Student Affiliates of the American Chemical Society undergraduate group. Oversee group operations including fund-raising, advertising, meetings and annual mentoring day visit by high school students.	Fall 2006 – Spring 2012



Organic Laboratory Committee	Member	Committee manages the curriculum and operations of UTK undergraduate organic chemistry laboratory course.	Fall 2008 - present
Faculty-Student Interaction Committee	Member	Committee manages interaction between faculty and students, including organizing activities to encourage interaction and developing programs such as the graduate-student-led seminar series (funded by the Haines-Morris endowment).	Fall 2008 – Spring 2011
Departmental Seminar Committee	Member	Committee oversees planning and logistics for Chemistry Department's weekly seminar series.	Fall 2008 – Spring 2011
Chemistry Summer Undergraduate Research Programs	Director	Direct internally funded Chemistry Summer Undergraduate Research Program for students from other institutions. Review applications, determine admission, assign research advisors, organize all program activities.	Spring 2010 – Spring 2013
Assistantship Selection Committee	Member	Review all applicants to Chemistry M.S. and Ph.D. programs (> 100 applications per year) and determines admissions and declines.	Fall 2010 – Present
Chemistry Department Head Search Committee	Member	Review applications and assist with organizing interviews for Department Head Position.	Spring 2011
Director of Graduate Studies	Director	Oversee Chemistry M.S. and Ph.D. programs, including curriculum, candidacy exams, student mentoring and evaluation, and program assessment	Spring 2012 – present
Graduate Curriculum Committee	Chair	Determine the coursework and graduation requirements for the Chemistry M.S. and Ph.D. degrees	Spring 2012 – present
NSF-Funded Chemistry REU Program	Director	Direct NSF-funded Chemistry Summer Undergraduate Research Program for students from other institutions. Write proposals, review applications, determine admission, assign research advisors, organize all program activities.	Spring 2013 – present
Chemical Biology Course Design Committee	Chair	Select course topics and textbook for this new course required for all chemistry undergraduate students in curriculum revision	Summer 2016
Ziegler Professorship Committee	Member	Revise the selection process and criteria for the UTK Chemistry professorships awarded through the Ziegler Endowment.	Summer 2016
Peer Review of Teaching for Dr. Steven Neal	Chair	Review teaching of Dr. Steven Neal	Fall 2016
Chemistry Faculty Search Committee	Chair	Review applications and interview candidates for Assistant Professor position in the area of Synthetic Organic or Polymer Chemistry	Fall 2016 – Spring 2017

### Committee Work at the College Level

<i>Committee</i>	<i>Role</i>	<i>Responsibilities</i>	<i>Dates</i>
BCMB Faculty Search Committee	Member	Review applications and interview candidates for Assistant Professor position in BCMB (Hired: Francisco Barrera)	Spring 2012
College of Arts and Sciences Bylaws Committee	Member	Revised bylaws for the College.	Summer 2012 – Spring 2014
PEER Mentoring Team	Member	Mentor students in the NIH-funded Program for Excellence and Equity in Research (PEER). Participate in program activities and workshops	Summer 2013 - present

### Committee Work at the University Level

<i>Committee</i>	<i>Role</i>	<i>Responsibilities</i>	<i>Dates</i>
Search Committee for Assistant Dean and Director of Graduate Admissions	Member	Review applications and interview candidates for this position (Hired: Yvonne Kilpatrick)	Spring 2012
PEER Mentoring Team	Member	Mentor students in the NIH-funded Program for Excellence and Equity in Research (PEER). Participate in program activities and workshops	Summer 2013 – present

### Contributions to University Programs to enhance equal opportunity and cultural diversity

<i>Activities</i>	<i>Dates</i>
Member of NIH-funded Program for Excellence and Equity in Research (PEER) Mentoring Team (See prior table for details)	Summer 2013 – present
Recruiting Seminar Presentations at Historically Black Colleges and Universities (HBCUs) Clark Atlantic University and Savannah State University	Fall 2012, Fall 2015
Faculty Mentor to Dr. Ampofo Darko, Assistant Professor of Chemistry	Fall 2014 – present
Director of NSF-funded REU program, which has included 16 students from Underrepresented Minority (URM) Groups out of a total of 42 (38%)	Spring 2013 – present

Co-developer and co-organizer of eVol<sup>10</sup>, a collaboration with engineering to bring in ~40 tenth graders, including many underrepresented minority students, for a week-long live in program to learn about chemistry, engineering and math, and build and run chemical cars. Summer 2013 – present

### **Membership on Graduate Committees**

<i>Name</i>	<i>Dept</i>	<i>Degree</i>	<i>Thesis/Dissertation Title</i>	<i>Date Completed</i>
Thomas O'Lenick	Chemistry	Ph.D.	Thermo- and pH-Sensitive Hydrophilic Block Copolymers: Synthesis, Micellization, Gelation, and Application	1/2011
Joshua Abbott	Chemistry	Ph.D.	The Synthesis and Characterization of Novel Group 13 Nanostructured Building Block Heterogeneous Silicate Catalysts	7/2012
Ashleigh Prince	Chemistry	Ph.D.	Homogeneous and Heterogeneous Approaches to 1,2,4-Triazine-Accelerated Copper-Catalyzed Azide-Alkyne Cycloadditions	7/2011
Matthew Walworth	Chemistry	Ph.D.	Liquid Extraction Based Surface Sampling: Liquid Microjunction Surface Sampling Probes Coupled with Mass Spectrometry	7/2011
Jessica Gooding	Chemistry	Ph.D.	Development and application of liquid chromatography tandem mass spectrometry methods to the understanding of metabolism and cell-cell signaling in several biological systems	10/2011
Belinda Lady	Chemistry	NA	1,2,4-Triazine-Accelerated Azide-Alkyne Cycloaddition and Synthesis of Metalloenzyme Inhibitors	11/2012
Seth Albright	BCMB	Ph.D.	NMR Structural Studies of Endotoxin Receptor CD14 in Complex with Gram-Negative and Gram-Positive Endotoxin	7/2011
Mary Eisenhauer	Chemistry	M.S.	Application of Liquid Chromatography-Tandem Mass Spectrometry Techniques to the Study of Two Biological Systems	4/2011
Irene Abia	Chemistry	Ph.D.	Development of a Glycoconjugate Tool Set for the Assembly and Presentation of Carbohydrate Ligands on Surfaces	11/2011
Camille Kite	Chemistry	M.S.	Synthesis, Characterization, and Functionalization of 2-Vinyl-4,4-Dimethylazlactone Brushes to Create Bio-Inspired Materials	11/2012
Joseph Thomas	Plant Sciences	M.S.	Synthesis and Evaluation of Novel Chemical Compounds for Weed Management	3/2013
Vighter Iberi	Chemistry	Ph.D.	Understanding the Plasmonic Properties of Metallic Nanostructures with Correlated Photon- and Electron-Driven Excitations	3/2014
Matt Elmore	Plant Sciences	Ph.D.	Alternative Strategies for Weed Control in Creeping Bentgrass	7/2014

Bo Meng	Chemistry	Ph.D.	Synthesis, Characterization and Evaluation of Lectin-Binding Properties of 1,2-cis-Glycosides	7/2015
Chunhui Bao	Chemistry	Ph.D.	Synthesis and Morphology of Well-Defined Mixed Homopolymer Brushes Grafted on 150 – 180 nm Silica Particles	3/2015
Joel Bucci	BCMB	Ph.D.	Pinpointing the Molecular Basis for Metal Ion Effects on Plasminogen Activator Inhibitor-1 (PAI-1)	4/2016
Maggie Lookadoo	Chemistry	M.S.	Exposing the Metabolome to Further Understand Disease and Treatment in Diabetes Mellitus, Malaria, and Castrate-Resistant Prostate Cancer	8/2015
Weiyu Wang	Chemistry	Ph.D.	Novel Thermoplastic Elastomers based on Benzofulvene: Synthesis and Mechanical Properties	11/2015
Sam Rosolina	Chemistry	Ph.D.	Novel Methods and Sensors for the Analysis of Trace Chemicals with Potential Environmental Applications	3/2016
Derek Mull	Chemistry	M.S.	Developing Synthetic Methods to Prepare Discrete Metal-Organic Nanotubes	4/2016
Bin Hu	Chemistry	Ph.D.	Hybrid Micellar Network Hydrogels of Thermosensitive Hydrophilic Triblock Copolymers and Thermosensitive Hairy Nanoparticles	6/2016
Stephen Dearth	Chemistry	Ph.D.	Optimization of Metabolomics Data Processing and Applications in Profiling of Soil Systems and Differentiation of the Gut Microbiota Modulating the Severity of Malaria	8/2016
Tabitha Cook	Chemistry	Ph.D.	Synthesis, Reactivity, and NMR Trends of Early Transition Metal Compounds)	8/2016
Dan D'Andrea	Chemistry	M.S.	Three Body Interactions of Rare Gas Solids Calculated Within the Einstein Model	8/2016
Kamlesh Bornani	Chemistry	Ph.D.	Impact of Macromolecular Design on Self-Assembly Properties of Block Copolymers: Effect of Tunable Chain Flexibility and Chain Topology	11/2016
Preeti Chandrachud	Chemistry	Ph.D.	Catalysis of Fully Alkyl Aziridines with a Borate-containing Macrocyclic N-heterocyclic Tetracarbene Iron Complex	11/2016
Wei Lu	Chemistry	Ph.D.	All Acrylic Thermoplastic Elastomers	3/2017
Lauren Brown	Chemistry	Ph.D.	Thermally Robust and Redox Active Catalysts: Studying Their Behavior for Ethylene and L-lactide Polymerization	3/2017
Graham Collier	Chemistry	Ph.D.	Design-Structure-Property Relationships of Purine-Based Copolymers and Chromophores	3/2017
Purva Bhojane	BCMB	Ph.D.	Towards Understanding Osmolyte Effects on Folate(s) and Dihydrofolate Reductase Proteins	11/2016
Gavin Rustin	Chemistry	M.S.	Synthesis and Characterization of Novel Ligands for Use on Rhodium Paddlewheel Complexes	10/2016
Bethany Aden	Chemistry	Ph.D.	Synthesis, Characterization, and Reactive Modification of 2-Vinyl-4,4-dimethyl Azlactone Polymers	6/2017

Carson Prevatte	Chemistry	Ph.D.	Anti-inflammatory and insulin-suppressive effects, BPA Degradation, and Quorum Sensing in the Ocean	6/2017
Deepika Nambiar	BCMB	NA	Role of c-di-GMP in stabilization and activation of PgaCD complex	6/13 – present
Kevin Higgins	Chemistry	M.S.	Transient Absorption Microscopy, Instrumentation and Application to Amphotericin B	8/2018
Brandon Kennedy	Chemistry	NA	NA, Current student (Entered candidacy)	3/15 – present
Shelby Stavretis	Chemistry	Ph.D.	Probing Magnetic and Vibrational Properties of Molecular Compounds by Neutron Scattering	4/2018
Justin Westerfield	BCMB	NA	NA, Current student (Entered candidacy)	7/15 – present
Eric Tague	Chemistry	NA	NA, Current student (Entered candidacy)	2/16 – present
Derek Cressy	Chemistry	NA	NA, Current student (Entered candidacy)	2/16 – present
Leondra Lawson	Chemistry	NA	NA, Current student (Entered candidacy)	3/16 – present
Nanqing Chen	Chemistry	NA	Functional Ionic Liquids and Related Porous Materials for Gas Capture and Catalysis	4/2018
Joseph DeJesus	Chemistry	NA	NA, Current student (Entered candidacy)	3/16 – present
Jordan Kaiser	Chemistry	NA	NA, Current student (Entered candidacy)	3/16 – present
Alex Anderson	Chemistry	NA	Studies in hydrogel microfluidics and development of low cost imaging for quantitative TLC in the undergraduate teaching laboratory	3/17 – present
Jessica Holmes	Chemistry	NA	NA, Current student (Entered candidacy)	3/17 – present
Morgan Higgins	Chemistry	NA	NA, Current student (Entered candidacy)	3/18 – present
Anthony Abshire	Chemistry	NA	NA, Current student (Entered candidacy)	3/18 – present
Evan Lewozko	Chemistry	NA	NA, Current student (Entered candidacy)	3/18 – present
Meagan Rhyne	Chemistry	NA	NA, Current student (Entered candidacy)	3/18 – present
Nicholas Galan	Chemistry	NA	NA, Current student (Entered candidacy)	
Breana Wilson	Chemistry	NA	NA, Current student (Entered candidacy)	
Eric Fusell	Chemistry	NA	NA, Current student (Entered candidacy)	
Yujie Ye	BCMB	NA	NA, Current student (Entered candidacy)	

## **Professional Service**

- Co-organizer of “Function, Chemistry, and Signaling of Glycolipids and Phospholipids” Symposium at Pacificchem 2015 (December 2015, Honolulu, HI).
- Co-organizer of the Lipid Theme (4 Full sessions) at the American Society for Biochemistry and Molecular Biology (ASBMB) 2015 National Meeting. (April 2015, Boston, MA)
- Editorial Advisory Board for the Journal *Chemistry and Physics of Lipids*, 2011-present
- Chair of the East Tennessee Section of the American Chemical Society, 2011
- Chair-elect of the East Tennessee Section of the American Chemical Society, 2010
- Secretary of the East Tennessee Section of the American Chemical Society, 2007 – 2009
- Proposals Reviewed
  - National Science Foundation (51)
  - NIH Proposals (10)
  - Department of Energy UT Cancer Institute Pilot Grant Program (1)
  - Louisiana Board of Regents fund (1)
  - Netherlands Organisation for Scientific Research (1)
  - A-STAR igrants (Singapore) (1)
  - Biotechnology and Biological Sciences Research Council (England) (1)
  - Qatar Research Fund (1)
  - Total (67)
- Proposal Review Panels:
  - 4 National Science Foundation Review Panels (2 Chemistry of Life Processes Panel, and 2 REU Panel, Division of Chemistry)
  - 1 NIH Review Panel (SBCA)
- Reviewer of journal Manuscript Submissions for the following journals (Since 2005):

<b><i>Journal</i></b>	<b><i>Number of Manuscripts Reviewed</i></b>
<i>ACS Applied Materials and Interfaces</i>	2
<i>ACS Chemical Biology</i>	2
<i>Accounts of Chemical Research</i>	2
<i>Acta Biomaterialia</i>	1
<i>Analytical Biochemistry</i>	2
<i>Angewandte Chemie</i>	8
<i>Applied Radiation and Isotopes</i>	1
<i>Australian Journal of Chemistry</i>	1
<i>Beilstein Journal of Organic Chemistry</i>	1
<i>Biochemistry</i>	4
<i>Biochimica Biophysica Acta</i>	2
<i>Bioconjugate Chemistry</i>	11
<i>Biomacromolecules</i>	1
<i>Bioorganic Chemistry</i>	1
<i>Bioorganic &amp; Medicinal Chemistry</i>	5
<i>Bioorganic &amp; Medicinal Chemistry Letters</i>	6
<i>Carbohydrate Research</i>	2
<i>Cell Chemical Biology</i>	1
<i>ChemBioChem</i>	7
<i>Chemical Communications</i>	2
<i>Chemical Reviews</i>	2

<i>Chemical Science</i>	4
<i>Chemistry: A European Journal</i>	1
<i>Chemistry: An Asian Journal</i>	1
<i>Chemistry and Biology</i>	2
<i>Chemistry and Physics of Lipids</i>	10
<i>Chemistry of Materials</i>	1
<i>Colloids and Surfaces B: Biointerface</i>	1
<i>Current Organic Chemistry</i>	1
<i>European Journal of Organic Chemistry</i>	3
<i>FEBS Letters</i>	1
<i>International Journal of Molecular Sciences</i>	1
<i>Journal of the American Chemical Society</i>	13
<i>Journal of the American Oil Chemists' Society</i>	1
<i>Journal of Bioenergetics and Biomembranes</i>	1
<i>Journal of Medicinal Chemistry</i>	2
<i>Journal of Organic Chemistry</i>	4
<i>Journal of Physical Chemistry</i>	1
<i>Journal of Proteomics</i>	1
<i>Journal of Visualized Experiments</i>	1
<i>Langmuir</i>	3
<i>Letters in Organic Chemistry</i>	1
<i>Mini-Reviews in Medicinal Chemistry</i>	1
<i>Molecular Biosystems</i>	2
<i>Molecules</i>	5
<i>Nature Chemical Biology</i>	1
<i>Nature Methods</i>	1
<i>Organic Chemistry Insights</i>	1
<i>Organic Letters</i>	2
<i>Pharmaceutics</i>	1
<i>Photochemistry and Photobiology A: Chemistry</i>	1
<i>PLOS One</i>	2
<i>Proceedings of the National Academy of Sciences, U.S.A.</i>	4
<i>Scientific Reports</i>	1
<i>Sensors and Actuators B. Chemical</i>	1
<i>Soft Matter</i>	1
<i>Tetrahedron</i>	1
<i>Tetrahedron Letters</i>	1
<i>Transactions in NanoBioscience</i>	1
<i>Trends in Biotechnology</i>	1
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<i>Total</i>	146

### **Outreach Service**

8. 2013 – present. Member of Program for Excellence and Equity in Research (PEER) Mentoring Team, an NIH-funded program for underrepresented minority students.
7. 2013 – present, co-developer and co-organizer of eVol<sup>10</sup>, a collaboration with engineering to bring in ~40 tenth graders, including many minority students, for a week-long live in program to learn about chemistry, engineering and math, and build and run chemical cars.
6. Presentations to general public audiences

3. O'Connor Senior Center, 9/21/2012
2. UT Science Forum, 10/21/2011
1. UT Pregame Showcase, 10/15/2011
5. Presentation at High School Teacher Summer Workshop, June 24<sup>th</sup>, 2010
4. Research presentations to local high school students
  4. Kensington Science Club, 10/21/2011
  3. Hardin Valley Academy Lecture Series, 4/12/2011.
  2. Farragut Science Academy Lecture Series, 1/24/2011.
  1. Farragut Science Academy Lecture Series, 4/9/2009.
3. Participation in Pre-Collegiate Research Scholars Program: 10 High School Researchers Supervised
2. Advisor to Student Affiliates of the American Chemical Society (SAACS), Fall 2006 – Spring 2012
  - Oversaw annual mentoring day in which ~30 local high school students visit chemistry department
1. 21 Invited Presentations at Primarily Undergraduate Institutions (Recruiting Visits, see Presentations section)