

# RYAN E. LOOPER, Ph.D.

PROFESSOR · DEPARTMENT OF CHEMISTRY · UNIVERSITY OF UTAH  
315 SOUTH 1400 EAST · SALT LAKE CITY, UT 84112

PHONE (801) 585-0408 · FAX (801) 581-8433 · R.LOOPER@UTAH.EDU · WEB.UTAH.EDU/LOOPER/HOME\_1.HTM

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## EDUCATION AND ACADEMIC POSITIONS

Professor (2018- current) and Jon M. Huntsman Presidential Chair Department of Chemistry	University of Utah Salt Lake City, UT
Associate Professor (2013-2018) and Henry Eyring Fellow Department of Chemistry	University of Utah Salt Lake City, UT
Henry Eyring Assistant Professor (2009-2013) Department of Chemistry	University of Utah Salt Lake City, UT
Assistant Professor (2007-2009) Department of Chemistry	University of Utah Salt Lake City, UT
NIH Post-Doctoral Fellow (2004-2007) Advisor: Professor Stuart L. Schreiber	Harvard University Cambridge, MA
Ph.D. <i>Organic Chemistry</i> , (2004) Advisor: Professor Robert M. Williams	Colorado State University Fort Collins, CO
M.S. <i>Organic Chemistry</i> (1999) B.S. <i>Chemistry (Cum Laude)</i> ACS cert. (1998) Advisor: Professor James R. Vyvyan	Western Washington University Bellingham, WA

## OTHER EXPERIENCE

Scientific Co-Founder (2013-present)	Curza Salt Lake City, UT
Scientific Co-Founder (2107-present)	TMClear Salt Lake City, UT
Academic Director (2013-present) USTAR Synthetic and Medicinal Chemistry Core Facility	University of Utah Salt Lake City, UT

## HONORS AND AWARDS

Jon M. Huntsman Presidential Chair, University of Utah (2019)  
Robert W. Parry Teaching Award (Endowed by the Brady Foundation) (2017)  
ACS Teva Pharmaceutical Scholar (2015)  
University of Utah Presidential Scholar (2015)  
Entrepreneurial Faculty Scholar, University of Utah (2014)  
Eli Lilly Young Investigator Award (2013)  
Amgen Young Investigator Award (2012)  
Thieme Chemistry Journal Award (2012)  
Henry Eyring Assistant Professorship (2009)  
Ruth L. Kirschstein National Institute of Health Postdoctoral Fellow (2005)

Array Biopharma Research Fellow (2003)  
Colorado State University Graduate Research Grant (2002)  
Western Assoc. of Grad. Schools (WAGS) /UMI Distinguished M.S. Thesis Award (2001)  
Outstanding Organic Chemistry Student, Western Washington University (1997)  
Verna Alexander-Price Scholarship in Chemistry (1997)

**RESEARCH INTERESTS** Synthetic Organic, Biological and Medicinal Chemistry, Anti-biofilm antibiotics and microbiology

**AFFILIATIONS** American Chemical Society, American Society for Microbiology, International Society of Heterocyclic Chemistry

**PUBLICATIONS** (\*CORRESPONDING AUTHOR; † UNDERGRADUATE AUTHOR)

- 57) Diana D. Shi, Milan R. Savani, Michael M. Levitt, Adam C. Wang, Jennifer E. Endress, Cylaina E. Bird, Joseph D. Buehler, Sylwia A. Stopka, Michael S. Regan, Yu-Fen Lin, Wenhua Gao, Januka Khanal, Min Xu, Bofu Huang, Rebecca B. Jennings, Dennis Bonal, Misty S. Martin-Sandoval, Tammie Dang, Lauren C. Gattie, Sungwoo Lee, John M. Asara, Harley I. Kornblum, Tak W. Mak, Ryan E. Looper, Quang-De Nguyen, Sabina Signoretti, Stefan Gradl, Andreas Sutter, Michael Jeffers, Andreas Janzer, Mark A. Lehrman, Lauren G. Zacharias, Thomas P. Mathews, Timothy E. Richardson, Daniel P. Cahill, Ralph J. DeBerardinis, Keith L. Ligon, Joan S. Brugge, Peter Ly, Nathalie Y. R. Agar, Kalil G. Abdullah, Isaac S. Harris, William G. Kaelin, Jr., Samuel K. McBrayer De Novo Pyrimidine Synthesis is a Targetable Vulnerability in IDH-Mutant Glioma *Nature* **2022**, submitted.
- 56) Kathryn Gunn, Matti Myllykoski, John Cao, Bofu Huang, Betty Rouaisnel, Bill Diplas, Michael Levitt, Ryan Looper, John Doensch, Samuel McBrayer, Hai Yan, Lucy A. Godley, Peppi Koivunen, Julie-Aurore Losman "(R)-2-hydroxyglutarate inhibits KDM5 histone lysine demethylases to drive tumorigenesis in IDH-mutant cancers" *Molecular Cell* **2022**, submitted.
- 55) Rawson, Kaden; Neuberger, Travis; Smith, Tyler; Reddy, Hariprasada Reddy Kanna; Haussener, Travis; Sebahar, Paul; Looper, Ryan; Isaacson, Brad; Shero, John; Pasquina, Paul; Williams, Dustin. "Antibiofilm potential of a negative pressure wound therapy foam loaded with a first-in-class tri-alkyl norspermidine-biaryl antibiotic" *J. Biomed. Res.* **2022**, in press.
- 54) Mathew R. Nelli, Kendall N. Heitmier and Ryan E. Looper "Dissecting the Nucleoside Antibiotics as Universal Translation Inhibitors" *Acc. Chem. Res.* **2021**, 54, 2798-2811.  
*Perspective:* Looper, Ryan E.; Boger, Dale L.; Silver, Lynn L. "Small Molecular Weapons against Multi-Drug Resistance" *Acc. Chem. Res.* **2021**, 54(13), 2785-2787.
- 53) Aishwaryadev Banerjee, Shakir-UI Khan, Samuel Broadbent, Ashaffruzzman Bulbul, Kyeong Kim, Ryan Looper, Carlos Mastrangelo, and Hanseup Kim "Molecular Bridge Mediated Ultra-Low-Power Gas Sensing" *Microsystems & Nanoengineering* **2021**, 7, 27.
- 52) D. L. Williams, B. Kawaguchi, N. B. Taylor, G. Allyn, M. A. Badham<sup>†</sup>, J. C. Rogers, B. R. Peterson<sup>†</sup>, P. R. Sebahar, T. J. Haussener, H. R. Kanna Reddy, B. M. Isaacson, P. F. Pasquina, R. E. Looper "In Vivo Efficacy of a Unique First-In-Class Antibiofilm Antibiotic for Biofilm-Related Wound Infections Caused by *Acinetobacter baumannii*" *Biofilm* **2020**, 2, 100032.
- 51) M. Miller, J. C. Rogers, M. A. Badham<sup>†</sup>, L. Cadenas, E. Brightwell, J. Adams, C. Tyler, P. R. Sebahar, T. J. Haussener, H. K. Reddy, R. E. Looper, D. L. Williams "Examination of a first-in-class bis-dialkyl norspermidine-terphenyl antibiotic in topical formulation against mono and polymicrobial biofilms" *PLOS One* **2020**, 15, e0234832.

- 50) C. M. Serrano, H. R. Kanna Reddy, D. R. Eiler, B. I. C. Tresco<sup>†</sup>, M. R. Koch, L. R. Barrows, R. T. Vanderlinden, C. A. Testa, P. R. Sebahar, R. E. Looper\* "Unifying aminohexopyranose nucleoside antibiotics; implications for antibiotic design" *Angew. Chem. Int. Ed.* **2020**, 59(28), 11330-11333.
- 49) Banerjee, A.; Khan, S. H.; Broadbent, S.; Likhite, R.; Looper, R.; Kim, H.; Mastrangelo, C. H. "Batch-fabricated  $\alpha$ -Si assisted nanogap tunneling junctions" *Nanomaterials* **2019**, 9(5), 727.
- 48) S. R. Paladugu, C. K. James and R. E. Looper\* "A Direct C11 Alkylation Strategy on the Saxitoxin Core: A Synthesis of (+)-11-Saxitoxinethanoic Acid" *Organic Letters* **2019**, 21(19), 7999-8002.
- 47) D. L. Williams, S. R. Smith, R. T. Epperson, B. R. Peterson<sup>†</sup>, Ryan E. Looper "Growth Substrate May Influence Biofilm Susceptibility to Antibiotics" *PLOS One*, **2019**, 14(3), e0206774.
- 46) Williams, Dustin L.; Epperson, Richard T.; Ashton, Nicholas N.; Taylor, Nicholas B.; Kawaguchi, Brooke; Olsen, Raymond E.; Haussener, Travis J.; Sebahar, Paul R.; Allyn, Gina; Looper, Ryan E. "In vivo analysis of a first-in-class tri-alkyl norspermidine-biaryl antibiotic in an active release coating to reduce the risk of implant-related infection" *Acta Biomaterialia*, **2019**, 93, 36-49. PMID: 30710710
- 45) Williams, Dustin L.; Epperson, Richard T.; Ashton, Nicholas N.; Taylor, Nicholas B.; Kawaguchi, Brooke; Olsen, Raymond E.; Haussener, Travis J.; Sebahar, Paul R.; Allyn, Gina; Looper, Ryan E. "In Vitro Testing of a First-In-Class Tri-alkylnorspermidine-biaryl Antibiotic in an Anti-biofilm Silicone Coating" *Acta Biomaterialia* **2019**, 93, 25-35. PMID:30769135
- 44) Vaden, R. M.; Guillen, K. P.; Salvant, J. M.; Santiago, C. B.; Gibbons, J. B.; Pathi, S. S.; Arunachalam, S.; Sigman, M. S.; Looper, R. E.; Welm, B. E., A Cancer-Selective Zinc Ionophore Inspired by the Natural Product Naamidine A. *ACS Chem. Biol.* **2019**, 14 (1), 106-117. PMID: 30571086
- 43) Laukka, T.; Myllykoski, M.; Looper, R. E.; Koivunen, P., Cancer-associated 2-oxoglutarate analogues modify histone methylation by inhibiting histone lysine demethylases. *Journal of Molecular Biology* **2018**, 430 (18, Part B), 3081-3092;
- 42) Philip, B.; Yu, D. X.; Silvis, M. R.; Shin, C. H.; Robinson, J. P.; Robinson, G. L.; Welker, A. E.; Angel, S. N.; Tripp, S. R.; Sonnen, J. A.; VanBrocklin, M. W.; Gibbons, R. J.; Looper, R. E.; Colman, H.; Holmen, S. L., Mutant IDH1 Promotes Glioma Formation In Vivo. *Cell Rep.* **2018**, 23 (5), 1553-1564;
- 41) Bharat, D.; Cavalcanti, R. R. M.; Petersen, C.; Begaye, N.; Cutler, B. R.; Costa, M. M. A.; Ramos, R. K. L. G.; Ferreira, M. R.; Li, Y.; Bharath, L. P.; Toolson, E.; Sebahar, P.; Looper, R. E.; Jalili, T.; Rajasekaran, N. S.; Jia, Z.; Symons, J. D.; Anandh Babu, P. V., Blueberry Metabolites Attenuate Lipotoxicity-Induced Endothelial Dysfunction. *Mol. Nutr. Food Res.* **2018**, 62 (2), n/a;
- 40) McBrayer SK, Mayers JR, DiNatale GJ, Shi DD, Khanal J, Chakraborty AA, Sarosiek KA, Briggs KJ, Robbins AK, Sewastianik T, Shareef SJ, Olenchock BA, Parker SJ, Tateishi K, Spinelli JB, Islam M, Haigis MC, Looper RE, Ligon KL, Bernstein BE, Carrasco RD, Cahill DP, Asara JM, Metallo CM, Yennawar NH, Vander Heiden MG, Kaelin WG. Transaminase Inhibition by 2-Hydroxyglutarate Impairs Glutamate Biosynthesis and Redox Homeostasis in Glioma. *Cell* **2018**, 175(1):101-116.e25. PMID: 30220459
- 39) Tuomas Laukka, Matti Myllykoski, Ryan E. Looper, Peppi Koivunen "Cancer-associated 2-oxoglutarate analogues modify histone methylation by inhibiting histone lysine demethylases" *J. Mol. Biol* **2018**, 430, 3081-3092.

- 38) Adam Spivak, Racheal Nell, Mark Petersen, Laura Martins, Paul Sebahar, Ryan Looper and Vicente Planelles "Synthetic Ingenols Maximize Protein Kinase C-Induced HIV-1 Latency Reversal" *Antimicrob. Agents Chemother.* **2018**, 62, e01361-18. PMID: 30104276
- 37) Ki-Hyeok Kwon, Anne V. Edwards, Miao Yang, and Ryan E. Looper\* "Exploring hydroamination-cycloaddition-fragmentation sequences to access polycyclicguanidines and vinyl-2-aminoimidazoles" *Tetrahedron* **2017**, 73, 6067-6079. PMID: 29681663
- 36) Justin M. Salvant, Anne V. Edwards, Joseph B. Gibbons, Daniel Z. Kurek<sup>†</sup>, Ryan E. Looper "Regioselective base-mediated cyclizations of mono-*N* acylpropargylguanidines" *J. Org. Chem.* **2017**, 82 (13), 6958–6967.
- 35) Travis J. Haussener, Paul R. Sebahar, Hariprasada K. Reddy, Dustin L. Williams and Ryan E. Looper "A Practical Synthesis of *N*-alkyl- and *N*',*N*'-dialkyl polyamines", *Tetrahedron Letters*. **2016**, 57, 2845-2848.
- 34) Srinivas R. Paladugu and Ryan E. Looper "Preparation of a 1,2-isoxazolidine synthon for the synthesis of zeteketoxin AB." *Tetrahedron Lett.* **2015**, 56, 6332-6334. PMCID: PMC4649947
- 33) Joseph B. Gibbons, Justin M. Salvant, Rachel M. Vaden, Bryan E. Welm and Ryan E. Looper "A synthesis of naamidine A and selective access to *N*<sup>2</sup>-acyl-2-aminoimidazoles." *J. Org. Chem.* **2015**, 80, 10076–10085.
- 32) Kihyeok Kwon, Travis J. Haussener and Ryan E. Looper "Preparation of mono-Cbz protected guanidines (Potassium carbobenzyloxycyanamide, carbobezylloxycyanamide potassium salt)" *Org. Synth.* **2015**, 92, 91-102.
- 31) Kaitlin J. Basham, Christopher J. Leonard, Collin Kieffer, Dawne N. Shelton, Vasudev R. Bhonde, Ryan E. Looper, and Bryan E. Welm "Dioxin Exposure Blocks Lactation Through a Direct Effect on Mammary Epithelial Cells Mediated by the Aryl Hydrocarbon Receptor Repressor" *Toxicol. Sci.* **2015**, 143 (1), 36-45. PMCID: PMC4274378
- 30) Jing Fan, Xin Teng, Ling Liu, Ryan E. Looper and Joshua D. Rabinowitz "Human phosphoglycerate dehydrogenase produces the oncometabolite D-2-hydroxyglutarate" *ACS Chemical Biology* **2015**, 10, 510-516. PMCID:PMC4340346
- 29) Ki-hyeok Kwon, Catherine M. Serrano, Michael Koch, Louis R. Barrows and Ryan E. Looper "Synthesis of bicyclic guanidines via cascade hydroamination /Michael additions of mono-*N*-acylpropargylguanidines" *Organic Letters*, **2014**, 16, 6048-6051. PMCID:PMC4260634
- 28) Kaitlin J. Basham, Vasudev R. Bhonde, Collin Keiffer, James B. C. Mack<sup>†</sup>, Matthew Hess<sup>†</sup>, Bryan E. Welm and Ryan E. Looper " *Bis*-aryloxadiazoles as effective activators of the aromatic hydrocarbon receptor" *Bioorg. Med. Chem. Lett.* **2014**, 24, 2473-2476. PMCID: PMC4086406
- 27) Keith M. Gligorich, Rachel M. Vaden, Dawne N. Shelton, Guoying Wang, Cindy B. Matsen, Ryan E. Looper, Matthew S. Sigman, and Bryan E. Welm "Development of a Screen To Identify Selective Small Molecules Active Against Patient-Derived Metastatic and Chemoresistant Breast Cancer Cells" *Breast Cancer Research*, **2013** 15(4), R58. PMCID: PMC4028696.
- 26) Miao Yang, Shannon Odelberg, Dean Li and Ryan E. Looper "Cationic-Rh(II) complexes for the synthesis of dihydropyrimidines from propargylureas", *Tetrahedron*, **2013**, 69, 5744-5750. PMCID: PMC3690933
- 25) Vasudev R. Bhonde and Ryan E. Looper "Carbamic acid, *N*-[[[(1,1 dimethylethoxy)carbonyl] amino](methylthio)methylene]-, 1,1-dimethylethyl ester" *Encyclopedia of Reagents for Organic*

- 24) Julie-Aurore Losman, Ryan Looper, Peppi Koivunen, Sungwoo Lee, Rebekka K. Schneider, Christine McMahon, Glenn Cowley, David Root, Benjamin L. Ebert, and William G. Kaelin Jr. "(R)-2-Hydroxyglutarate Is Sufficient to Promote Leukemogenesis and Its Effects Are Reversible" *Science*, **2013**, 339, 1621-1625. PMID:PMC3836459
- 23) Kaitlin J. Basham, Collin Keiffer, Dawne N. Shelton, Chris J. Leonard, Vasudev R. Bhonde, Hariprasad Vankayalapati, Brett Milash, David J. Bearss, Ryan E. Looper and Bryan E. Welm "Chemical genetic screen reveals a role for desmosomal adhesion in mammary branching morphogenesis." *J. Biol. Chem.* **2013**, 288(4), 2261-2270. PMID:PMC3554898
- 22) Joseph B. Gibbons, Keith M. Gligorich, Bryan E. Welm and Ryan E. Looper "Synthesis of the reported structures for kealiinines B and C" *Organic Letters* **2012**, 14, 4734-4737. PMID: PMC3619427
- 21) Travis J. Haussener and Ryan E. Looper "An epoxide opening cascade to access the pactamycin core" *Organic Letters* **2012**, 14, 3632-3635. PMID:22758908
- 20) Ryan E. Looper and Robert M. Williams "Efficient Asymmetric Synthesis of *N*-tert-Butoxycarbonyl- $\alpha$ -Aminoacids using 4-*tert*-Butoxycarbonyl-5,6-Diphenylmorpholin-2-one: (*R*)-(N-*tert*-Butoxycarbonyl)allylglycine" *Organic Synthesis* **2012**, 89, 394-403.
- 19) Peppi Koivunen, Sungwoo Lee, Chris G Duncan, Giselle Lopez, Shakti Ramkissoon, Julie Losman, Päivi Joensuu, Ulrich Bergmann, Stefan Gross, Ryan Looper, Keith Ligon, Roeland Verhaak, Hai Yan, and William G. Kaelin, Jr. "Transformation by the (*R*) Enantiomer of 2-Hydroxyglutarate Linked to Egln Activation." *Nature* **2012**, 483, 484-488. PMID:PMC3656605
- 18) Vasudev R. Bhonde and Ryan E. Looper "A stereocontrolled synthesis of (+)-saxitoxin" *J. Am. Chem. Soc.* **2011**, 133, 20172-20174. PMID: PMC3320040
- 17) Catherine M. Serrano and Ryan E. Looper "Rapid assembly of cytidine through tandem Cu-catalyzed *N*-aryl amidation reactions" *Organic Letters* **2011**, 13, 5000-5003. PMID: 21913679
- 16) Ryan E. Looper, Travis J. Haussener and James B. C. Mack<sup>†</sup> "Chlorotrimethylsilane activation of acylcyanamides for the synthesis of mono-*N*-acylguanidines" *J. Org. Chem.* **2011**, 76, 6967-6971. PMID: PMC3189699 [the reagent described in this paper, is now commercialized by Sigma-Aldrich]
- 15) Morgan J. Gainer, Nitasha R. Bennett<sup>†</sup>, Yu Takahashi and Ryan E. Looper "Regioselective Rh(II)-catalyzed hydroaminations of propargylguanidines" *Angew. Chem. Int. Ed.* **2011**, 50, 684-687. PMID: PMC3631534 [Highlighted by the ACIE editors as a "HOT" paper]; [Highlighted in *Synfacts* 2011, 374.]
- 14) Robert L. Giles, Richard A. Nkansah and Ryan E. Looper "Synthesis of 2-thio and 2-oxoimidazoles via cascade addition-cycloisomerization reactions of propargyl-cyanamides" *J. Org. Chem.* **2010**, 75, 261-264. PMID:19954194
- 13) Mohan R. Kaadige, Ryan E. Looper, Kamalanaadhan Sadhaasivam and Donald E. Ayer "Glutamine-dependent anapleurosis dictates glucose uptake and cell growth by regulating MondoA transcriptional activity" *Proc. Natl. Acad. Sci. USA* **2009**, 106, 14878-14883. PMID: PMC2736411

- 12) Robert L. Giles, John D. Sullivan, Andrew M. Steiner and Ryan E. Looper "Addition-cycloisomerization of propargylcyanamides: efficient access to the 2-amino-imidazole core" *Angew. Chem. Int. Ed.* **2009**, *48*, 3116-3120. PMID:19322858 [Highlighted in *Synfacts 2009*, 725.]
- 11) John D. Sullivan, Robert L. Giles and Ryan E. Looper "2-aminoimidazoles from *Leucetta* sponges; synthesis, biology and the emergence of a privileged pharmacophore" *Current Bioactive Compounds* **2009**, *5*, 39-78.

#### BOOK CHAPTERS:

- 10) Gregory P. Tochtrop and Ryan E. Looper "Target-oriented synthesis/ Strategies for building focused libraries and their uses." pp.74-87. In *Chemical Genomics*, Ed. by Haiyan Fu. Cambridge University Press. **2012**.

#### GRADUATE AND POSTDOCTORAL:

- 9) Ryan E. Looper, Daniela Pizzirani and Stuart L. Schreiber "Macrocycloadditions leading to conformationally restricted small molecules" *Organic Letters* **2006**, *8*, 2063-2066.
- 8) Ryan E. Looper, Maria T.C. Runnegar and Robert M. Williams "Syntheses of the cylindrospermopsin alkaloids and their toxicological evaluation" *Tetrahedron* **2006**, *62*, 4549-4562.
- 7) Ryan E. Looper, Maria T.C. Runnegar and Robert M. Williams "Synthesis of the putative structure of 7-deoxycylindrospermopsin: C7-oxygenation is not required for the inhibition of protein synthesis" *Angew. Chem. Int. Ed.* **2005**, *44*, 3879-3881.
- 6) Ryan E. Looper and Robert M. Williams "A concise asymmetric synthesis of the marine hepatotoxin 7-epi-cylindrospermopsin" *Angew. Chem. Int. Ed.* **2004**, *43*, 2930-2933. [Highlighted by the editors as a "VIP" paper]
- 5) Ryan E. Looper "Concise Asymmetric syntheses of the Cylindrospermopsin Alkaloids" *Ph.D. Dissertation*, **2004**, Colorado State University.
- 4) Ryan E. Looper and Robert M. Williams "Construction of cylindrospermopsin's A ring via an intramolecular oxazinone-N-oxide dipolar cycloaddition" *Tetrahedron Lett.* **2001**, *42*, 769-771.
- 3) James R. Vyvyan, Celeste Loitz, Ryan E. Looper, Cheryl S. Mattingly, Emily A. Peterson and Steven T. Staben "Synthesis of aromatic bisabolene natural products via palladium-catalyzed cross couplings of organozinc reagents" *J. Org. Chem.* **2004**, *69*, 2461-2468.
- 2) James R. Vyvyan and Ryan E. Looper "Total synthesis of ( $\pm$ )-heliannuol D, an allelochemical from *Helianthus annuus*" *Tetrahedron Lett.* **2000**, *41*, 1151-1153.
- 1) Ryan E. Looper "Studies directed toward the synthesis of allelopathic natural products: the heliannuols, ( $\pm$ )-glandulone A, and related aromatic bisabolene natural products" *M.S. Thesis*, **1999**, Western Washington University.

#### PATENTS:

- 14) Sebahar, Paul Richard; Looper, Ryan Preparation of N-arylsulfonyl-azetidines as TRPV4 receptor ligands for treatment of ocular disorders, WO 2021102314 A1 20210527, **2021**.
- 13) Sebahar, Paul R.; Looper, Ryan E.; Testa, Charles A.; Tresco, Benisaac C.; Haussener, Travis J.; Reddy, Hariprasada R. Kanna; Grant, Seth Preparation of cytosine derivatives as antimicrobial agents, WO 2021097061 A1 20210520. **2021**

- 12) Looper, Ryan E.; Sebahar, Paul; Reddy, Hariprasada R. Kanna; Haussener, Travis J.; Testa, Charles A.; Tresco, Benisaac C.; Grant, Seth; Napolitano, Carmela; Sabbatini, Fabio Maria Pyrimidin-2-one compounds as antimicrobial agents and their preparation. WO 2020150372 A1, **2020**.
- 11) Looper, Ryan E.; Sebahar, Paul; Reddy, Hariprasada R. Kanna; Haussener, Travis J.; Testa, Charles A.; Tresco, Benisaac C.; Grant, Seth; Napolitano, Carmela; Sabbatini, Fabio Maria Preparation of cytosine derivatives as antimicrobial agents WO 2020150385 A1, **2020**.
- 10) Reddy, H. R. K.; Sebahar, P. R.; Looper, R. E. Preparation of substituted pyrimidin-2(1H)-ones as antimicrobial agents WO2019013790A1, **2019**.
- 9) Reddy, H. R. K.; Sebahar, P. R.; Serrano, C. M.; Looper, R. E. Preparation of substituted N-(2-oxo-1,2-dihydropyrimidin-4-yl)benzamides as antimicrobial agents WO2019013789A1, **2019**.
- 8) Looper, R. E.; Williams, D.; Sebahar, P. R.; Haussener, T. J.; Reddy, H. R. K. Compositions and methods comprising a triaryl polyamine with antimicrobial activity to inhibit biofilms. WO2018187615A1, **2018**.
- 7) Looper, R. E.; Salvant, J. M.; Kirkeby, E. K.; Guo, W.; Guillen, K. P.; Welm, B. E. Preparation of substituted 2-aminoimidazoles for the treatment of cancer. WO2018184019A1, **2018**.
- 6) Ryan E. Looper, Rachel M. Vaden , Joseph B. Gibbons, Justin M. Salvant, Anne V. Edwards Matthew S. Sigman, Bryan E. Welm Compositions and Methods comprising 2-(acylamino)imidazoles. US20150021602, **2015**.
- 5) Looper, R.; Williams, D.; Jeyapalina, S.; Haussener, T.; Sebahar, P. R.; Reddy, H. R. K. Compositions and methods comprising a biocidal polyamine. US20150038512A1, **2015**.
- 4) Looper, R.; Williams, D.; Jeyapalina, S.; Haussener, T.; Sebahar, P. R.; Reddy, H. R. K. Compositions and methods comprising a polyamine to inhibit or substantially prevent biofilm formation. WO2014190096A1, **2014**.
- 3) Williams, D.; Jeyapalina, S.; Haussener, T.; Sebahar, P. R.; Reddy, H. K Compositions comprising a biocidal polyamine US 8853278 B1, **2014**.
- 2) Looper, R.; Williams, D.; Jeyapalina, S.; Haussener, T.; Sebahar, P. R.; Reddy, H. R. K. Compositions and methods comprising a polyamine and a silver substance to inhibit or substantially prevent biofilm formation. WO2014190097A1, **2014**.
- 1) Williams, D.; Looper, R.; Jeyapalina, S.; Haussener, T.; Sebahar, P. R.; Reddy, H. K. Methods of use for compositions comprising a biocidal polyamine. US20140350017A1, **2014**.

## IN THE NEWS

Highlights of 2-oxoglutarate work: “U. researchers: Tumors hungry for sugar”  
<http://archive.sltrib.com/article.php?id=13179951&itype=NGPSID>

Highlyght of 2-hydroxyglutarate work: “New Enzyme Targets for Leukemia and Brain Tumors”  
<http://www.genengnews.com/gen-news-highlights/new-enzyme-targets-for-leukemia-and-brain-tumors/81247961/>

Highlights of anti-biofilm work: “Cell communication: Stop the microbial chatter”  
*Nature* 511, 493-497 (24 July 2014)



[HTTP://WWW.NATURE.COM/NATURE/JOURNAL/V511/N7510/FULL/511493A.HTML](http://www.nature.com/nature/journal/v511/n7510/full/511493a.html)

CURZA'S CEO DISCUSSES THE ANTIBIOTIC LANDSCAPE: [HTTP://WWW.BLOOMBERG.COM/VIDEO/WHY-COMPANIES-ARE-INVESTING-IN-ANTIBIOTICS-UGUJ15TYTW~CAN5CEIFR6A.HTML](http://www.bloomberg.com/video/why-companies-are-investing-in-antibiotics-uguj15tytw~can5ceifr6a.html)

[HTTP://WWW.DAILYUTAHCHRONICLE.COM/2015/01/30/U-RESEARCH-TEAM-DEVELOPS-NEW-ANTIBIOTICS/](http://www.dailyutahchronicle.com/2015/01/30/u-research-team-develops-new-antibiotics/)

[HTTP://WWW.KSL.COM/?SID=33528669&NID=148&TITLE=MEDICAL-BREAKTHROUGH-A-DRUG-THAT-MAY-KILL-SUPERBUGS&S\\_CID=QUEUE-9](http://www.ksl.com/?SID=33528669&NID=148&TITLE=MEDICAL-BREAKTHROUGH-A-DRUG-THAT-MAY-KILL-SUPERBUGS&S_CID=QUEUE-9)

[HTTP://WWW.KUTV.COM/NEWS/FEATURES/TOP-STORIES/STORIES/UTAH-COMPANY-CREATING-SUPERDRUG-TO-FIGHT-SUPERBUGS-86984.SHTML#.VODB-i4ZK\\_A](http://www.kutv.com/news/features/top-stories/stories/utah-company-creating-superdrug-to-fight-superbugs-86984.shtml#.VODB-i4ZK_A)

## INVITED PRESENTATIONS

### 2021

Denver University, March 4<sup>th</sup> 2021 *"Engineering the Aminohexose-Cytosine Antibiotics as Selective P-site Inhibitors"*

59) Gordon Research Conference on Natural Products (August 1<sup>st</sup>, 2020) *"Discovery and Development of the first selective ribosomal P-site inhibitors"-postponed*

58) Pfizer, Inc. Groton CT (January 16<sup>th</sup> 2020) *"Discovery and Development of the first selective ribosomal P-site inhibitors"*

### 2019

57) Gordon Research Conference on Natural Products (August 1<sup>st</sup>, 2019)

### 2017

56) Nucleosides and Nucleotides GRC ( June 25-30<sup>th</sup>, 2017) *"Engineering the Aminohexose-Cytosine Antibiotics as Selective P-site Inhibitors"*

55) Montana State University ( March 3<sup>rd</sup>, 2017) *"Synthetic Studies on the Paralytic Shellfish Toxins"*

### 2016

54) Dartmouth (Scheduled November 17<sup>th</sup>, 2016) *"Synthetic Studies on the Paralytic Shellfish Toxins"*

53) Utah Valley University (November 1<sup>st</sup>, 2016) *"Synthetic Studies on the Paralytic Shellfish Toxins"*

52) Colorado State University (September 17<sup>th</sup>, 2016) *"Synthetic Studies on the Paralytic Shellfish Toxins"*

### 2015

51) Utah High School Summer Science Enrichment Program (U of U, July 2<sup>nd</sup>, 2015) *"Antimicrobial resistance: a problem, a solution and a challenge for you"*

50) Northwest Regional ACS Meeting (Pocatello, ID, June 25<sup>th</sup>, 2015) *"Synthetic and biological investigations of natural product inspired 2-aminoimidazole scaffolds"*

49) College of Science's "Science at Breakfast" (Zion's Bank, Salt Lake City, UT, January 15<sup>th</sup>, 2015) *"Big Pharma, Little U"*

### 2014

48) College of Pharmacy (University of Utah; November 5<sup>th</sup>, 2014) *"New strategies to target chronic biofilm impaired wounds"*

47) Biointerface 2014 (San Francisco, CA; October 8<sup>th</sup>, 2014) *"Medical Device Technologies: Potential to Treat and Prevent Biofilm Implant-Related Infections"*

46) Eli Lilly and Co. (Indianapolis, IN; March 9<sup>th</sup>, 2014) 16<sup>th</sup> Biennial Lilly Grantee Symposium *"New Methods to Access Guanidinium Ion Natural Products"*

### 2013

45) NIH-NCI (Frederick, Maryland Oct. 10<sup>th</sup> 2013) *"New Methods to Access Guanidinium Ion Natural Products"*

44) Colorado State University (R. M. Williams Birthday Symposium, Ft. Collins, CO Sept 28<sup>th</sup>, 2013)



- “New Methods to Access Guanidinium Ion Natural Products”
- 43) Heterocyclic Compounds GRC (Salve Regina, RI; June 16th , **2013**)  
*“Synthesis of cyclic and poly-cyclic guanidinium natural products ”*
  - 42) Bristol-Myers-Squibb (New Brunswick, NJ; May 14th , **2013**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
  - 41) Bristol-Myers-Squibb (Lawrenceville, NJ; May 13th , **2013**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
  - 40) Yale University (New Haven, CT; March 28th , **2013**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
  - 39) Wilamette University (Salem, OR; January 28<sup>th</sup> , **2013**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*

## **2012**

- 38) Amgen Inc. (Thousand Oaks, CA; Oct 17<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*  
(Young Investigators Award Symposium)
- 37) Merck and Co. (Rahway, NJ; October 3<sup>rd</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 36) Michigan State University (Lansing, MI; September 4<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 35) 244<sup>th</sup> ACS National Meeting (Philadelphia, PA; Scheduled August 25<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*  
(Invited contribution to the Young Investigators Symposium)
- 34) Eli Lilly and Co. (Indianapolis, IN; July 17<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 33) NSF Workshop, Endicott House, MIT (Cambridge, MA; May 30<sup>th</sup> , **2012**)  
*“Heteroatom-alkyne cyclization reactions: Synthesis, Catalysis and Cascade reactivity”*
- 32) Colorado State University (Fort Collins, CO; April 16<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 31) Case Western Reserve University (Cleveland, OH; April 5<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 30) University of Wisconsin (Madison WI; March 29<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 29) Sigma-Aldrich Co. (Milwaukee, WI; March 28<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 28) Technical University of Denmark (Copenhagen, Denmark; March 14<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 27) Constellation Pharmaceuticals Inc. (Boston, MA; March 9<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 26) Amgen Inc. (Boston, MA; March 8<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 25) Boston University (Boston, MA; March 6<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 24) University of Pennsylvania (Philadelphia, PA; March 5<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 23) Emory University (Atlanta, GA; February 29<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 22) Vanderbilt University (Nashville, TN; February 27<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 21) University of Alabama (Tuscaloosa, AL; February 25<sup>th</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 20) Texas A&M University (College Station, TX; February 2<sup>nd</sup> , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*
- 19) University of California, Santa Barbara (Santa Barbara, CA; January 15th , **2012**)  
*“Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds”*

## 2011

- 18) University of California, Irvine (Irvine, CA; November 13<sup>th</sup>, **2011**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*
- 17) Frontier Scientific Inc. (Logan, UT; June 16<sup>th</sup>, **2011**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*
- 16) Science Night Live- U of U College of Science (Salt Lake City, UT; April 18<sup>th</sup>, **2011**)  
*"Good bugs, bad bugs, new drugs... blue drugs"*
- 15) University of Notre Dame (Southbend, IN; April 12<sup>th</sup>, **2011**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*
- 14) 241<sup>st</sup> ACS National Meeting (Anaheim, CA; March 16<sup>th</sup>, **2011**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*  
(Guenther Award Symposium honoring Prof. R. M. Williams)
- 13) University of Texas Southwest Medical Center (Dallas, TX; February 18<sup>th</sup>, **2011**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*
- 12) ATK (Alliant Techsystems Inc.) (Prominotory, UT; February 24<sup>th</sup>, **2011**)  
*"New strategies to synthesize nitrogen rich heterocycles"*

## 2010

- 11) PACIFICHEM (Honolulu, HI; December 19<sup>th</sup>, **2010**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*
- 10) Portland State University (Portland, OR; November 18<sup>th</sup>, **2010**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*
- 9) Brigham Young University (Provo, UT; November 12<sup>th</sup>, **2010**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*
- 8) Western Washington University (Bellingham, WA; Oct. 21<sup>st</sup>, **2010**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*
- 7) Rigel Pharmaceuticals (San Francisco, CA ; Oct 13<sup>th</sup>, **2010**)  
*"New strategies to prepare important heterocyclic scaffolds"*
- 6) University of Arkansas (Fayetteville, AR; March 11<sup>th</sup>, **2010**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*

## 2009

- 5) Idaho State University (Pocatello, ID; Oct 2<sup>nd</sup>, **2009**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*
- 4) Natural Products Gordon Conference (Tilton, NH; July 24<sup>th</sup>, **2009**)  
*"Propargylguanidine hydroaminations and their application to important heterocyclic scaffolds"*

## 2008

- 3) 19th ACS Rocky Mountain Regional Meeting ( Park City, UT June 15<sup>th</sup>, 2008).  
*"Propargylguanidine cyclizations to access natural product cores"*

## Prior to Utah

- 2) Cambridge HealthTech Institute's inaugural conference on Compound Library Design and Synthesis (San Diego, CA April 25<sup>th</sup>, **2006**)  
*"Macrocycloaddition approaches for the synthesis of conformationally restricted small molecules"*
- 1) WAGS/UMI Distinguished M.S. Thesis Award Address (Los Angeles, CA May 8<sup>th</sup>, **2001**)  
*"Studies directed toward the total synthesis of allelopathic natural products: The heliannuols, (±)-glandulone A, and related aromatic bisabolene natural products"*

## POSTERS & ABSTRACTS

### INDEPENDENT: (# DENOTES UNDERGRADUATES, PRESENTING AUTHOR UNDERLINED)

- "Synthesis of the TAN-1057 D antibiotic candidate and development of biologically relevant analogs" Cantrell, Rachel<sup>#</sup>; Nelli, Matthew; Looper, Ryan 257th ACS National Meeting & Exposition **2019**, CHED-1433.

- “Engineering aminohexose-cytosine antibiotics as selective ribosomal P-site Inhibitors” Loooper, R.; Kanna Reddy, H.; Serano, C.; Eiler, D.; Sebahar, P.; Testa, C.; Haussener, T.; Tresco, B. # In American Chemical Society: 2018; pp ORGN-258;
- “A synthesis of (+)-Saxitoxin” Bhonde, V. R. and Loooper, Ryan E. *Natural Products Gordon Conference*, **2011**.
- “Synthetic design and biological activity of 2-aminoimidazole marine natural products “ Nkansah, Richard A.; Sullivan, John D.; Giles, Robert L.; Loooper, Ryan E. *241<sup>st</sup> ACS National Meeting*, Anaheim, CA, **2011**.
- “Modular synthetic approach to Amicetin derivatives” Catherine M. Serrano and Loooper, Ryan E. *240<sup>th</sup> ACS National Meeting*, Boston, MA **2010**.
- “Copper catalyzed cyclizations of propargylguanidines” Morgan J. Gainer, Nitasha Newbold<sup>#</sup> and Ryan E. Loooper, *237<sup>th</sup> American Chemical Society Meeting*, Salt Lake City, UT, **2009**.
- “Studies toward the synthesis of Guadinomine B/NA22598A1” Vasudev Bhonde and Ryan E. Loooper, *237<sup>th</sup> American Chemical Society Meeting*, Salt Lake City, UT, **2009**.
- “Synthetic efforts toward amicetin: Tandem C-N bond formation for the construction of the N1-C18 fragment” Catherine M. Serrano, Daichi Ito<sup>#</sup> and Ryan E. Loooper, *237<sup>th</sup> American Chemical Society Meeting*, Salt Lake City, UT, **2009**.
- “Studies toward the synthesis of naamidine A: Rapid access to 2-aminoimidazoles” John D. Sullivan, Robert L. Giles and Ryan E. Loooper, *237<sup>th</sup> American Chemical Society Meeting*, Salt Lake City, UT, **2009**.

#### GRADUATE AND POSTDOCTORAL:

- “Natural product synthesis: An inspiration to pursue Chemical Biology “Ryan E. Loooper, *230<sup>th</sup> ACS National Meeting*, Washington, DC, **2005**.
- “A macrocycloaddition strategy for the synthesis of conformationally restricted small molecules” Ryan E. Loooper, Daniela Pizzirani and Stuart L. Schreiber, *NIGMS-Centers for Excellence in Methodology and Library Development Symposium*, Boston University, **2005**.
- “Syntheses of the cylindrospermopsin alkaloids” Ryan E. Loooper and Robert M. Williams, *2004 Roche Symposium*, Boulder, CO June 6<sup>th</sup> **2004**.
- “Synthesis of benzoxocane-containing natural products: heliannuol A, K, and helianane” James R. Vyvyan, Stephen T. Staben, Ryan E. Loooper and Celeste Loitz. Abstracts of Papers, *227<sup>th</sup> ACS National Meeting*, Anaheim, CA, **2004**.
- “A nitro-aldol approach to the synthesis of cylindrospermopsin” Ryan E. Loooper and Robert M. Williams *19<sup>th</sup> International Congress of Heterocyclic Chemistry*, Fort Collins, CO, **2003**.
- “Synthesis of benzoxocanes via regioselective 8-endo phenol epoxide cyclizations” James R. Vyvyan, Ryan E. Loooper and Steven T. Staben *225<sup>th</sup> American Chemical Society Meeting*, New Orleans, LA, **2003**.
- “Toward an enantioselective total synthesis of the marine hepatotoxin cylindrospermopsin” Ryan E. Loooper and Robert M. Williams, *224<sup>th</sup> ACS National Meeting*, Boston, MA, **2002**.

- “Synthetic studies on the marine hepatotoxin, cylindrospermopsin” Ryan E. Looper and Robert M. Williams, *University of Colorado-Array Biopharma Symposium on Medicinal and Synthetic Chemistry*, Boulder, CO, June 6-8, **2001**.
- “Total synthesis of (±)-heliannuol D, an allelochemical from *Helianthus annuus*” James R. Vyvyan and Ryan E. Looper, *219<sup>th</sup> American Chemical Society National Meeting*, San Francisco, CA, **2000**.
- “Synthetic studies on allelopathic natural products: the heliannuols” James R. Vyvyan, Cheryl S. Ingram and Ryan E. Looper *36<sup>th</sup> National Organic Chemistry Symposium*, U. of Wisconsin, **1999**.
- “Synthetic studies on allelopathic natural products: the heliannuols” Ryan E. Looper and James R. Vyvyan, *Sigma Xi Research Symposium*, Western Washington University, Bellingham, WA, **1999**. *Named Outstanding Graduate Student Poster*.
- “Studies directed toward the total synthesis of the heliannuols” James R. Vyvyan and Ryan E. Looper, *Pacific Northwest Regional ACS Meeting*, Seattle-Pacific University, **1998**.

## FUNDING

<b>Awarded/Active</b>									
Award#	Agency	PI	CoPI	Title	Budget	\$ Looper	Start	End	
2R01-RGM090082-A1	NIGMS	Looper		"Synthesis and Biological Investigations of 2-aminoimidazole Derived Natural Products"	\$1,260,000	\$1,260,000	9/1/2016	4/30/2020	
1R01AI127724-01	NIAID	Looper		"Development of selective ribosomal P-site inhibitors"	\$1,490,000	\$1,490,000	12/21/2016	11/30/2020	
R01-RGM090082-S1	NIGMS	Looper		"Synthesis and Biological Investigations of 2-aminoimidazole Derived Natural Products"	\$93,423	\$93,423	9/1/2016	8/31/2017	
1R43AI124821-01A1	NIAID	Testa	Looper	"Natural product-inspired antibacterials with unique ribosomal binding"	\$598,770	\$119,000	12/21/2016	6/30/2018	
HCI-ET Pilot	HCI-ET	Ghandeheri	Looper, Welm	"Development of targeted chemotherapeutics to elicit metal dyshomeostasis"	\$35,000	\$12,000			
Neuroscience SEED	UofU	Looper	Krizaj, Reilly	"Development of TRPV4 Channel Antagonists to Treat Glaucoma"	\$50,000	\$35,000	Sep-16	Jul-16	
56427-TEV	ACS	Looper		"Repurposing old scaffolds as new anti- tubercular leads"	\$300,000	\$300,000			
HR00111520049	DARPA	Kim	Looper, Mastrangelo	"ZDICA: Zero-Power Digital Binary Chemical Analyzer"	\$525,464	\$179,803	12/18/2016	7/17/2018	
	CRSR	Williams	Looper	Polyamines as unique topical wound therapies to treat biofilm related infections	\$1,099,951	\$47,000			
5050924	Curza	Looper	Sebahar, Testa	"New Ribosomal Antibiotics"	\$1,011,468	\$1,011,468	1/1/2017	12/31/2017	
	DrinkSaavy	Looper	Sebahar	"Sensors for Adulterated Drinks"	\$366,838	\$366,838			
	UofU	Looper		UofU Presidential Scholar	\$30,000		2015	2018	
				<b>Total</b>	<b>\$6,590,450</b>				
<b>Awarded/Completed</b>									
Award#	Agency	PI/CoPI		Title	Budget	\$ Looper	Start	End	
	UofU	Looper	Sebahar	Moran Eye Center Collaboration	\$50,000				
23347	USTAR	Looper	Sebahar	A Synthetic and Medicinal Chemistry Core Facility	\$500,000				
(Phasel)	DARPA	Kim	Looper, Mastrangelo	"ZDICA: Zero-Power Digital Binary Chemical Analyzer"	\$431,664	68330	9/18/2015	12/17/2016	
5050924	Curza	Looper	Sebahar	"Development of new anti-biofilm antibiotics"	\$561,333				
5050924	Curza	Looper	Sebahar	"Development of new anti-biofilm antibiotics"	\$180,000				
	Curza	Looper		Curza Development Award	\$100,000	180000	Aug-07	Aug-13	
	UofU	Looper		Henry Eyring Fellow	\$30,000	\$30,000			
P41GM089158	NIGMS	Sigman	Looper, Rainier	"Discovery Based Studies of Medicinally Relevant Pharmacophore Libraries"	\$1,160,000	\$372,000			
R01GM090082-01S1	NIGMS	Looper		"Research Supplements to Promote Diversity in Health-Related Research"	\$48,500	\$48,500			
R01GM090082	NIGMS	Looper		Synthesis and Biological Investigations of 2-aminoimidazole Natural Products	\$1,429,750	\$1,429,750			
	Eli Lilly	Looper		Lilly Young Investigator Award	\$100,000	\$100,000			
VPR-SEED	UofU	Looper		Rapid Acces to Small Molecule Probes	\$35,000	\$35,000			
	ACS-PRF	Looper		Addition-Cycloisomerization of propargyl-cyanamides	\$50,000	\$50,000			
	Amgen	Looper		Amgen Young Investigator Award	\$25,000	\$25,000			
	UofU	Looper		Start-Up Funds	\$750,000	\$750,000	Aug-07	Aug-13	
<b>Contracts</b>									
Renshaw	UofU	Looper	Sebahar	"5HTP-creatine Analogues"	\$50,000				
DesignMedix		Looper	Sebahar	Intermidate Synthesis	\$10,000				
AxumBio		Looper	Sebahar	Compound Synthesis	\$6,000				
Aquayiled		Looper	Sebahar	Compound Synthesis	\$11,317				
Aurimed		Looper	Sebahar	"Epilepsy Compounds/Analogues"	\$16,000				
Viderabox		Looper	Sebahar	"Ba/Bi Diatrizoates Radipaque Compounds"	\$12,500				
Viderabox		Looper	Sebahar	"Ba/Bi Diatrizoates Radipaque Compounds"	\$9,000				
Navigen		Looper	Sebahar	Synthesis of Select Analogues	\$7,500				
Vettore		Looper	Sebahar	Synthesis of metabolism Inhibitors"	\$6,000				
Navigen		Looper	Sebahar	Synthesis of Select Analogues	\$3,187				
Swaminathan	UofU	Looper	Sebahar	Synthesis of Anti-HCV Compounds	\$5,000				
Fujinami	UofU	Looper	Sebahar	"Scale Up of LDK"	\$2,500				
Lei	UofU	Looper	Sebahar	Scale Up of Tyrphostin	\$1,651				
Li	UofU	Looper	Sebahar	Lead Scale Up	\$2,517				
Velayutham	UofU	Looper	Sebahar	Anthocyanin Synthesis	\$1,000				
Spivak/Planelles	UofU	Looper	Sebahar	Novel Ingenol Derivatives	\$40,000				
Williams	UofU	Looper	Sebahar	Ployamines for Topical Wound Dressings	\$4,000				
				<b>Total</b>	<b>\$5,639,419</b>				
<b>Submitted/Pending</b>									
Agency	PI/CoPI		Title	Budget	\$ Looper	Start	End		
1R01AI132304-01	NIAID	Testa	Looper, Louie,	Broad spectrum antibacterials selectively targeting an un-drugged site on the ribosome	\$4,300,000		6/1/2017	5/31/2022	
	UTAG	Looper	Krizaj, Reilly	Drugging a Unique Target for Glaucoma	\$348,875				
	UTAG	Testa	Looper	Tackling Antibiotic-Resistant Superbugs	\$320,000				
DM170247	DoD	Testa	Looper	First-in-class polyamine-based antibiofilm antibiotics for treating biofilm-related wound infec	\$1,999,868		5/10/2017	11/10/2018	
<b>Submitted / Rejected</b>									
Agency	PI/CoPI		Title	Budget	\$ Looper	Start	End		
AI120322	NIAID			Development of Polyamine Antibiotics for Chronic Biofilm-Impaired Wounds	\$2,995,889				
01CARB-X121	CARB-X	Testa	Looper	A new class of antibiotics selectively inhibiting bacterial protein synthesis	\$5,000,000		6/1/2017	12/31/2018	
1R43AI126961-01	NIAID	Testa		New Therapeutic Agents Targeting Borrelia Biofilms and Chronic Lyme Disease	\$600,000				



Name	Role	Degree	Year	Current Position
Ryan Looper	PI			
<b>Current Co-Workers</b>				
Paul Sebahar, Ph.D.	USMCC Director			
Dr. Charles (Chad) Testa III, Ph.D.	USMCC Director			
Ryan VanderLinden, Ph.D.	USMCC Principal Scientist			
Seth Grant, M.S.	USMCC Principal Scientist			
Shi Luo, B.S.	USMCC Research Associate			
Mark Petersen, Ph.D.	USMCC Principal Scientist			
Travis Haussener	USMCC Principal Scientist			
Hariprassada (Hari) Reddy Kannareddy	Post-Doc			
Anne Edwards	Graduate Student	PhD,G6	exp. 2017	Post-doc, Richard Lee, St. Judes Research Hospital
Srinivas Reddy Paladugu	Graduate Student	PhD,G6		
Justin M. Salvant	Graduate Student	PhD,G5		
Wenxing Guo	Graduate Student	PhD,G5		
Samuel Broadbent	Graduate Student	PhD,G3		
Cody Bender	Graduate Student	PhD,G2		
Matthew Nelli	Graduate Student	PhD,G1		
Chintelle James	Graduate Student	PhD,G1		
Kyle Nogales	Graduate Student	PhD,G1		
Emily Kirkeby	Undergraduate Student	BS	exp. 2017	
Ben Tresco	Undergraduate Student	BS	exp. 2018	
Melisa Rollins	Undergraduate Student	BS	exp. 2018	
Rachel Cantrell	Undergraduate Student	BS	exp.2019	
<b>Former CoWorkers</b>				
<i>Former Post-Docs / PhD Scientists</i>				
Ian McAlexander	USMCC Employee		2014-2015	Scientist, UofU Mass-Spectrometry Facility
Kiheyok Kwon, Ph.D. (Marquette)	Post-Doc		2011-2013	Senior Scientist, Samsung Inc, South Korea
Miao Yang, Ph.D. (SIOC)	Post-Doc		2011-2013	Senior Scientist, Sundia MedTech Company, China
Robert Giles, Ph.D. (UofU)	Post-Doc		2007-2010	Assistant Professor, Virginia Commonwealth Univeristy
<b>Former Graduate Students</b>				
Hariprassada (Hari) Reddy Kannareddy	Graduate Student	PhD	2016	Post-doc Looper Lab
Charles Price	Graduate Student	None	2015-2016	Deceased
Jack Mohr	Graduate Student	MS	2016	Looking for Work
Travis Haussener	Graduate Student	PhD	2015	Scientist, USMCC
Joseph Gibbons	Graduate Student	PhD	2015	Senior Scientist, Neutraceutical Cooperation
Catherine Serrano	Graduate Student	PhD	2015	Post-Doc, Jim Sacchetinni, Texas A&M
Dolan Dean	Graduate Student	MS	2013	Scientist, Serepta Therapeutics
Vasudev Bhone	Graduate Student	PhD	2013	Post-Doc, Steve Buchwald, MIT, now Scientist at Eastman Kodack
Richard Nkansah	Graduate Student	MS	2012	Scientist, Bend Research
Morgan Gainer	Graduate Student	PhD	2012	Lecturer Univ. California Santa Barbara
Daichi Ito	Graduate Student	MS	2011	Myriad Genetics
John Sullivan	Graduate Student	MS	2007-2010	Scientific Manager, Dept of Chemistry, Washington State Univ.
<b>Former Undergraduate Students</b>				
Karlee Stokes	Undergraduate Student	BS	2017	
Daniel Kurek	Undergraduate Student	BS	2016	PhD Student, Univ. British Columbia
Scott Eldridge	Undergraduate Student	BS	2015	Medical School, University of Utah
Janelle Trieu	Undergraduate Student	BS	2014	Pharmacy School, UofU
Tyler Baldwin	Undergraduate Student	BS	2014	Unknown
James Mack	Undergraduate Student	BS	2012	PhD Student w/ Justin DuBois, Stanford
Harrison Jones	Undergraduate Student	BS	2010	MD-PhD student, Dartmouth
Matthew Hess	Undergraduate Student	BS	2010	US Air Force
Karianne Rencher	Undergraduate Student	BS	2010	Unknown
Nitasha Bennett	Undergraduate Student	BS	2009	PhD w/ Laura Kiessling (U. Wisc), Post-doc with Darrell Irvine (MIT)
<b>Former Visiting Scholars</b>				
Kristina Meink	Braunschweig MS student	MS	2015	
Yu Takahashi	Visiting PhD Student	MS	2011-2012	(COE Fellow from Keiji Tanino's Lab)
Sing Ting Li	Braunschweig MS student	MS	2011	
Alex Cichosh	Braunschweig MS student	MS	2010	
Martin Hoffman	Braunschweig MS student	MS	2010	



## DEPARTMENT / UNIVERSITY SERVICE

Department of Chemistry Faculty Search Committee (Co-Chair)	2021-2022
Department of Bioengineering Internal Review Committee	2021
Department of Chemistry Faculty Instructor Search Committee	2021-2022
Department RPT /TFR Committee	2021
Department of Chemistry NMR Director Search Committee	2021
Department of Chemistry Safety Committee (Chair)	2019-present
Department Liaison for Mass Spec Core Facility	2018-present
Department Liaison for Med Chem Core Facility	2013-present
Department of Chemistry Facilities Committee	2018-present
<i>[Highlights: Supported applications for successful acquisition of new NMR spectrometer, diffractometer and Helium Recovery System]</i>	
College of Science's "Understanding the Science" Panel	2020-2021
Department RPT Committee	2020
Department of Chemistry Space Committee	2018-2019
Department of Chemistry Faculty Search Committee	2014-2017
USTAR Faculty Search Committee	2013-2015
Dean's Kitchen Cabinet	2013-2015
Department of Chemistry Admissions Committee	2007-2010, 2013
Chair, Biological Division	2013-2015
Chair, Organic Division	2013-present
College of Science Council Member	2013-2018
Thatcher Building Committee	2010-2013
Science day at the U	2010
Biological Chemistry Program Admissions Committee	2007-2008
Organic & Biological Seminar Coordinator	2007-2012
Biological Chemistry Student Advising Committee	2007-2011
Faculty Search Committee	2008-2009

## PROFESSIONAL SERVICE

Co-developer / organizer (with A. Barrett and M. VanNewhenzie): Robert M. Williams Memorial Lectureship, Steamboat Conference on Medicinal Chemistry.

### Proposal Review:

<i>National Institutes of Health (SBCA, ad-Hoc member)</i>	2020
<i>National Science Foundation</i>	2016-2017
<i>Petroleum Research Fund</i>	2012, 2015

Referee for Manuscripts: *Science, J. Am. Chem. Soc., Angewante Chemie, Chem. Sci., J. Org. Chem., Org. Lett., Bioorg. Med. Chem., Tetrahedron and Tetrahedron Lett.*

## TEACHING

Semester	Course	Title	Role
† Spring 2007	CHEM E2b	<i>Organic Chemistry II</i>	Co-Instructor
‡ Fall 2007	CHEM 7200	<i>Contemporary Organic Synthesis</i>	Instructor
‡ Spring 2008	CHEM 7280	<i>Applied Organic Spectroscopy</i>	Instructor
‡ Fall 2008	CHEM 7200	<i>Contemporary Organic Synthesis</i>	Instructor
‡ Spring 2009	CHEM 2321	<i>Honors Organic Chemistry</i>	Instructor
‡ Spring 2009	MDCH 6995	<i>Medicinal and Biological Chemistry</i>	Lecturer

‡ <b>Summer 2009</b>	CHEM 2320	<i>Organic Chemistry II</i>	Instructor
‡ <b>Fall 2009</b>	CHEM 7200	<i>Contemporary Organic Synthesis</i>	Instructor
‡ <b>Spring 2010</b>	CHEM 2321	<i>Honors Organic Chemistry</i>	Instructor
‡ <b>Spring 2010</b>	BCHEM 6691	<i>Proposal Writing</i>	Co-Instructor
‡ <b>Fall 2010</b>	CHEM 7200	<i>Contemporary Organic Synthesis</i>	Instructor
‡ <b>Spring 2011</b>	CHEM 2321	<i>Honors Organic ChemistryII</i>	Instructor
‡ <b>Spring 2011</b>	BCHEM 6691	<i>Proposal Writing</i>	Co-Instructor
‡ <b>Fall 2011</b>	CHEM 5710	<i>Adv. Organic Laboratory</i>	Instructor
‡ <b>Fall 2012</b>	CHEM 2310	<i>Organic Chemistry II</i>	Instructor
‡ <b>Spring 2013</b>	CHEM 7210	<i>Advanced Synthesis II</i>	Instructor
‡ <b>Spring 2014</b>	CHEM 2321	<i>Honors Organic Chemistry II</i>	Instructor
‡ <b>Spring 2014</b>	CHEM 7210	<i>Advanced Synthesis II</i>	Instructor
‡ <b>Fall 2014</b>	CHEM 7200	<i>Advanced Synthesis I</i>	Instructor
‡ <b>Fall 2014</b>	CHEM 2311	<i>Honors Organic Chemistry I</i>	Instructor
‡ <b>Fall 2016</b>	CHEM 5710	<i>Adv. Organic Laboratory</i>	Instructor
‡ <b>Spring 2017</b>	CHEM 2321	<i>Honors Organic Chemistry II</i>	Instructor
‡ <b>Fall 2018</b>	CHEM 23211	<i>Honors Organic Chemistry I</i>	Instructor
‡ <b>Fall 2018</b>	CHEM 7250	<i>Physical Organic Chemistry II</i>	Instructor
‡ <b>Fall 2019</b>	CHEM 23211	<i>Honors Organic Chemistry I</i>	Instructor
‡ <b>Fall 2019</b>	CHEM 7250	<i>Physical Organic Chemistry II</i>	Instructor
‡ <b>Fall 2020</b>	CHEM 23211	<i>Honors Organic Chemistry I</i>	Instructor
‡ <b>Fall 2020</b>	CHEM 7250	<i>Physical Organic Chemistry II</i>	Instructor
‡ <b>Fall 2021</b>	CHEM 23211	<i>Honors Organic Chemistry I</i>	Instructor
‡ <b>Fall 2021</b>	CHEM 7250	<i>Physical Organic Chemistry II</i>	Instructor

(‡) Courses taught at Harvard University); (±) Courses taught at the University of Utah