

Dr. Martin Conda-Sheridan

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Assistant Professor

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Education

2007–2012 Ph.D. Medicinal Chemistry Purdue University, West Lafayette, IN.

2005–2007 M.S. Chemistry, University of Utah, Salt Lake City, UT.

2002–2005 B.S. Chemistry, Brigham Young University, Provo, UT

Professional Experience

2015–present Assistant Professor, University of Nebraska Medical Center, Omaha, NE
Synthesis and characterization of biomaterials with antibacterial properties
Synthesis of anticancer drugs and antibacterial drugs

2012–2015 Postdoctoral Fellow, Northwestern University. Advisor, Prof. Samuel I. Stupp
Synthesis and characterization of peptide-amphiphile nanostructures
Design of enzyme-activated linkers for drug delivery

2007–2012 Graduate Researcher, Purdue University. Advisor, Prof. Mark Cushman
Synthesis and characterization of phenazines as cancer chemopreventive agents
Computer-based design of indenoisoquinolines as retinoid X receptor ligands

2005–2007 Graduate Researcher, University of Utah. Advisor, Prof. Janis Louie
Synthesis and characterization of Ni-N-heterocyclic carbene complexes
Mechanistic studies of vinylcyclopropane-cyclopentene rearrangement

2004–2005 Undergraduate Researcher, Brigham Young University. Advisor, Prof. Morris J. Robins
New methodologies for nucleotide synthesis

2003–2005 Undergraduate Researcher, Brigham Young University. Advisor, Prof. John D. Lamb
Supramolecular chemistry

Honors

2019 Best Work, XXI Argentinean Congress of Physical Chemistry and Inorganic Chemistry;
Physical Chemistry of Materials

2019 Guest Editor, Medicinal Research Reviews. Special issue honoring Professor Mark
Cushman

2018 Early Career Reviewer, National Institute of Health

2018 Milstein Fellowship, Ministry of Science and Technology, Argentina

2016 New Investigator Award, University of Nebraska

2011 Cancer Prevention Fellowship, NCI, R25CA128770, Purdue University

2005 Undergraduate Research Award, Brigham Young University

2004 Summer Undergraduate Research Fellowship, University of Texas – SWMC

2004, 2005 Office of Research (ORCA) Award, Brigham Young University

External Support

Current

- Modifying Heterocycles to Treat Gram + and Gram – Bacteria. PRMRP#PR172445, \$200,000, Department of Defense. (Conda-Sheridan, PI). 05/01/2018-10/31/2019
- Nebraska Center for Molecular Target Discovery and Development. P20-GM121316, \$510,980, NIH-NIGMS. (Lewis, PI; Conda-Sheridan, Co-I). 05/01/2018-04/30/2021.

Completed

- Nebraska Bankers Association, Equipment grant, \$15,000 (Conda-Sheridan, PI). 01/01/2018-04/30/2018
- Towards an Effective Prostate Cancer Targeting Biomaterial. 1R03EB022141-01. \$100,000, NIH-NCI (Conda-Sheridan, PI). 04/01/2016-03/31/2018
- Developing Sugar Amphiphiles, Novel Bioinspired Nanodrugs. DHHS#2018-17, \$ 50,000, Nebraska Department of Human Health (Conda-Sheridan, PI). 07/01/2017-06/30/2018
- The Evolution of Self-Assembled Organic Materials. PRF# 57434-DNI7, \$110,000, American Chemical Society (Conda-Sheridan, PI). 09/01/2017-08/31/2019

Pending

- Synthesis of Clp Protease Proteolytic Subunit (ClpP) Activators to Treat Chlamydial Infections. \$2,139,594. NIH-NIAID-R01-A1 (Conda-Sheridan, PI). 08/01/2020-07/31/2025.
- Developing nanostructure-drug hybrids and targeting nanostructures as novel approaches to treat bacterial infections. \$1,250,000. NIH-NIAID-R01 (Conda-Sheridan, PI). 07/01/2020-06/30/2025.
- Design and Understanding of Complex Biomaterials. \$372,095. National Science Foundation-CAREER (Conda-Sheridan, PI). 04/01/2020-03-31-2024
- Targeting of Prostate Cancer with Theranostic Nanostructures. \$660,000. American Cancer Society-Research Scholar Grant (Conda-Sheridan, PI). 01/01/2020-12/31/2022
- Development of Hybrid Broad Spectrum Antibacterials. \$100,000. NIH-NIAID-R03 (Conda-Sheridan, PI). 05/01/2020-04-30-2022
- Nanotechnology for the Detection and Treatment of Colon Cancer. \$360,000. Peer Reviewed Cancer Research Program 2019 Career Development Award-DoD (Conda-Sheridan, PI). 07/01/2020-06-30-2023

Internal Support

Current

- UNMC Diversity Award. \$100,000 (Conda-Sheridan, PI). 06/01/2019-05/31-2021

Completed

- UNMC Diversity Award. \$100,000 (Conda-Sheridan, PI). 06/01/2015-05/31-2017
- Developing Supramolecular Antibacterials. P20-GM103480, \$ 125,000, NIH-NIGMS. (Bronich, PI; Conda-Sheridan, Co-I). 07/01/2015-06/30/2017

Publications (* denotes equal contribution)

Independent career

1. Seleem, M.; Rodrigues de Almeida, N.; Chhonker, Y. S.; Murry, D. J.; Guterres, Z.; Blocker, A. M.; Kuwabara, S.; Fisher, D. J.; Leal, E. S.; Martinefski, M. R.; Bollini, M.; Monge, M. E.; Ouellette, S.; Conda-Sheridan, M. Synthesis and Antichlamydia Activity of Potential Activators of Cylindrical Proteases. Submitted to *J. Med. Chem.* **Manuscript ID:** jm-2019-01466b
2. Sang, M.; Wang, H.; Shen, Y.; Rodriguez de Almeida, N.; **Conda-Sheridan, M.**, Li, Y.; Du, L. Identification of an anti-MRSA cyclic lipodepsipeptide, WBP-29479A1, by genome mining of *Lysobacter antibioticus*. *Org. Lett.* **2019**, *21*, 6432-6436
3. Rodriguez de Almeida, N.; Catazaro, J.; Chhonker, Y.; Murry, D.; Powers, R.; **Conda-Sheridan, M.** Understanding interactions of Citropin 1.1 analogues with model membranes and their influence on biological activity. *Peptides* **2019**, 170119
4. Zaldivar, G.; Vemulapalli, S.; Udumula, V.; **Conda-Sheridan, M.***; Tagliacruzchi, M. Self-Assembled Nanostructures of Peptide-Amphiphiles: Charge Regulation by Size Regulation. *J. Phys. Chem. C* **2019**, *123*, 17606-17615
5. Rodrigues de Almeida, N.; Han, Y.; Perez, J.; Kirkpatrick, S.; Wang, Y.; **Conda-Sheridan, M.** Design, Synthesis, and Nanostructure-Dependent Antibacterial Activity of Cationic Peptide Amphiphiles. *ACS Appl. Mater. Interfaces.* **2019**, *11*, 2790-2801
6. Rodriguez de Almeida, N.; **Conda-Sheridan, M.** A Review of the Molecular Design and Biological Activities of RXR Agonists. *Med. Res. Rev.* **2019**, *39*, 1372-1397
7. Wood, N.; Chung, K.; Blocker, A.; Rodriguez de Almeida, N.; **Conda-Sheridan, M.**; Fisher, D.; Ouellette, S. Initial Characterization of the Two ClpP Paralogs of *Chlamydia trachomatis* Suggests Unique Functionality for Each. *J. Bacteriol.* **2018**, JB.00635-18
8. Zaldivar, G.; Samad, M.; **Conda-Sheridan, M.**; Tagliacruzchi, M. Self-Assembly of Model Short Triblock Amphiphiles in Dilute Solution. *Soft Matter* **2018**, *14*, 3171-3181
9. Samad, M.; Krishnaiah, M.; Rodriguez de Almeida, N.; **Conda-Sheridan, M.** Facile Protocol for the Synthesis of Self-Assembling Polyamine-based Peptide Amphiphiles (PPAs) and Related Biomaterials. *JoVE.* **2018**, 25.
10. Krishnaiah, M.; Rodrigues de Almeida, N.; Udumula, V.; Song, Z.; Chhonker, Y. S.; Abdelmoaty, M. M.; Aragao do Nascimento, V.; Murry, D. J.; **Conda-Sheridan, M.** Synthesis, biological evaluation, and metabolic stability of new antibacterial phenazines. *Eur. J. Med. Chem.* **2018**, *143*, 936-947
11. Dias de Oliveira, P.; Rodrigues de Almeida, N.; **Conda-Sheridan, M.**; do Prado Aparecido, R.; Michelettia, A. C.; Pereira Carvalhoc, N. C.; dos Anjos dos Santos, E.; Marques, M. R.; de Arrudae, E. J.; Braz Alcantara, G.; Silva de Oliveira, L. C.; Pires de Lima, D.; Beatriz, A. Ozonolysis of neem oil: Preparation and characterization of potent antibacterial agents against multidrug resistant bacterial strains. *RSC Adv.* **2017**, *7*, 34356-34365
12. Samad, M. B.; Chhonker, Y. S.; Contreras, J. I.; McCarthy, A.; McClanahan, M., Murry, D. J., **Conda-Sheridan, M.** Developing Polyamine-based Peptide Amphiphiles with Tunable Morphology and Physicochemical Properties. *Macromol. Biosci.* **2017** *17*, 1700096.
13. Basiri, A.; Xiao, M.; Mc Carthy, A.; Dutta, D. Byrereddy, S. N.; **Conda-Sheridan, M.** Design and synthesis of new piperidone grafted acetylcholinesterase inhibitors. *Bioorg. Med. Chem. Lett.* **2017**, *27*, 228– 231
14. Udumula, V*. ; Endres, J. L. ; Harper, C. N.; Jaramillo, L.; Zhong, H.; Bayles, K. W. ; **Conda-Sheridan, M.***. A Simple Synthesis of Endophenazine G and Its Analogues and Their Biological Evaluation as anti-methicillin-resistant *Staphylococcus aureus* agents. *Eur. J. Med. Chem.* **2016**, *128*, 710– 721

Before independent career

15. **Conda-Sheridan, M.***; Lee, S. S.*; Preslar, A. T.; Stupp, S. I. Esterase-Activated Release of Naproxen from Supramolecular Nanofibres. *Chem. Comm.* **2014**, *50*, 13757– 13760

16. **Conda-Sheridan, M.***; Park, E. J.*; Beck, D. E.; Reddy, P. V. N.; Nguyen, T. X.; Hu, B.; Chen, L.; White J. J.; van Breemen, R. B.; Pezzuto, J. M.; Cushman, M. Design, Synthesis, and Biological Evaluation of Indenoisoquinoline Rexinoids with Chemopreventive Potential. *J. Med. Chem.*, **2013**, *56*, 2561–2605
17. **Conda-Sheridan, M.***; Reddy, P. V. N.*; Morrell, A.; Chen, L.; van Breemen, R. B.; Park, E. J.; Kondratyuk, T. P.; Pezzuto, J. M.; Cushman, M. Synthesis and Biological Evaluation of Indenoisoquinolines That Inhibit Both Tyrosyl-DNA Phosphodiesterase I (Tdp1) and Topoisomerase I (Top1). *J. Med. Chem.*, **2013**, *56*, 182–200
18. **Conda-Sheridan, M.***; Chen, L.*; Reddy, P. V. N.; Morrell, A.; van Breemen, R. B.; Park, E. J.; Kondratyuk, T. P.; Pezzuto, J. M.; Cushman, M. Identification, Synthesis, and Biological Evaluation of the Metabolites of 3-Amino-6-(3'-aminopropyl)-5*H*-indeno[1,2-*c*]isoquinoline-5,11-(6*H*)dione (AM6–36), a Promising Rexinoid Lead Compound for the Development of Cancer Chemotherapeutic and Chemopreventive Agents. *J. Med. Chem.*, **2012**, *55*, 5965–5981
19. Nguyen, T. X.; Morrell, A.; **Conda-Sheridan, M.**; MArchand, C.; Agama, K.; Bermingham, A.; Stephen, A. G.; Chergui, A.; Naumova, A.; Fisher, R.; O'Keefe, B. R.; Pommier, Y.; Cushman, M. Synthesis and Biological Evaluation of the First Dual Tyrosyl-DNA Phosphodiesterase I (Tdp1)–Topoisomerase I (Top1) Inhibitors. *J. Med. Chem.*, **2012**, *55*, 4457–4478
20. Park, E. J.; Kiselev, E.; **Conda-Sheridan, M.**; Cushman, M.; Pezzuto, J. M. Induction of Apoptosis by 3-Amino-6-(3-aminopropyl)-5,6-dihydro-5,11-dioxo-11*H*-indeno[1,2-*c*]isoquinoline via Modulation of MAPKs (p38 and Jun *N*-terminal Kinase) and c-Myc in HL-60 Human Leukemia Cells. *J. Nat. Prod.*, **2012**, *75*, 378–384
21. Zhang, K. **Conda-Sheridan, M.**; Cooke, S. R.; Louie, J. *N*-Heterocyclic Carbenes Bound to Nickel(I) Complexes and Their Role in Catalysis. *Organometallics*, **2011**, *30*, 2546–2552
22. Park, E. J.; Kondratyuk, T.P.; Morrell, A.; Kiselev, E.; **Conda-Sheridan, M.**; Cushman, M.; Ahn, S.; Choi, Y.; White, J.J.; van Breemen, R. B.; Pezzuto, J. M. Induction of Retinoid X Receptor Activity and Consequent Up-regulation of p21^{WAF1/CIP1} by Indenoisoquinolines in MCF7 Cells. *Can. Prev. Res.* **2011**, *4*, 592–607
23. Marler, L.; **Conda-Sheridan, M.**; Cinelli, M.A.; Morrell, A.E.; Cushman, M.; Chen, L.; Huang, K.; Van Breemen, R.; and Pezzuto, J. M. Cancer Chemopreventive Potential of Aromathecins and Phenazines, Novel Natural Product Derivatives. *Anticancer Res.* **2010**, *30*, 4873–4882
24. **Conda-Sheridan, M.**; Marler, L.; Park, E. J.; Kondratyuk, T. P.; Jermihov, K.; Mesecar, A. D.; Pezzuto, J. M.; Asolkar, R. N.; Fenical, W.; Cushman, M. Potential Chemopreventive Agents Based on the Structure of the Lead Compound 2-Bromo-1-hydroxyphenazine, Isolated from *Streptomyces* Species, Strain CNS284. *J. Med. Chem.* **2010**, *53*, 8678–8689
25. Wang, S. C.; Troast, D. M.; **Conda-Sheridan, M.**; Zuo, G.; LaGarde, D.; Louie, J.; Tantillo, D. J. Mechanism of the Ni(0)-Catalyzed Vinylcyclopropane–Cyclopentene Rearrangement. *J. Org. Chem.* **2009**, *74*, 7822–7833
26. Gardner, J. S.; **Conda-Sheridan, M.**; Smith, D. N.; Harrison, R. G.; Lamb, J. D. Anion Binding by a Tetradipicolylamine-Substituted Resorcinarene Cavitand. *Inorg. Chem.* **2005**, *44*, 4295–4300
27. Nowak, I.; **Conda-Sheridan, M.**; Robins, M. J. Nucleic Acid Related Compounds. 127. Selective *N*-Deacylation of *N*,*O*-Peracylated Nucleosides in Superheated Methanol *J. Org. Chem.* **2005**, *70*, 7455–7458

Patents

1. Cushman, M.; Nguyen, T. X.; **Conda-Sheridan, M.** Synthesis and use of dual tyrosyl-DNA phosphodiesterase I (tdp1)- topoisomerase I (top1) inhibitors. US 2013-13834652. Dec 26, **2013**

Book Chapters

1. **Conda-Sheridan, M.** Self-assembling biomaterials as nanocarriers for the targeted delivery of drugs for cancer. *Self-assembling Biomaterials: Molecular Design, Characterization and Application*

in Biology and Medicine. 1st ed. Helena S. Azevedo, Ricardo M. P. da Silva Eds.; Woodhead Publishing, 2018, Ch 23; pp 495-532

Editorials

1. **Conda-Sheridan, M.** Editorial page, special issue honoring Professor Mark Cushman. *Med. Res. Rev.* 2019, 39, 1233-1234

Scientific Service

1. Reviewer, AAAS, Research Competitiveness program. March, 2019
2. Reviewer, NIH, ZGM1 RCB-6 Study section. November 2018
3. Reviewer, NIH, DMP Study section. June 2018
4. Reviewer, AAAS, Research Competitiveness program. Feb and May, 2018
5. Reviewer, NSF, Division of Materials Research (DMR), BMAT panel. Oct, 2015; Oct, 2016
6. Reviewer, ACS, Petroleum Research Found (PRF), Committee 10. February 2016
7. Judge, Midwest Student Biomedical Research Forum. March, 2016
8. Member Faculty Development Section, AACP, 2016
9. Journal Reviewer for: ACS Applied Bio Materials; ACS Applied Materials and Interfaces; ACS Infectious Diseases; Angewandte Chemie International Edition; Anti-Cancer Agents in Medicinal Chemistry; Bioorganic Chemistry; ChemMedChem; Bioorganic and Medicinal Chemistry; European Journal of Medicinal Chemistry; Heliyon; Journal of Agricultural and Food Chemistry; Journal of the Chemical Society of Pakistan; Journal of Heterocyclic Chemistry; Letters in Drug Design and Discovery; Nanomedicine: Nanotechnology, Biology, and Medicine; Peptide Science, Small.

Invited Lectures

1. Peptide Amphiphiles, Microbiology and Structural Characteristics of a Promising Class of Biomaterials. Federal Fluminense University, Brazil, October 25, 2019. Host: Fabio Alves
2. Design and Synthesis of Heterocycles as New Antibacterial Agents. Federal University of Itajuba, Brazil, October 22, 2019. Host: Mauricio Santos
3. Peptide Amphiphiles, Microbiology and Structural Characteristics of a Promising Class of Biomaterials. Federal University of Itajuba, Brazil, October 22, 2019. Host: Mauricio Santos
4. Peptide Amphiphiles, Microbiology and Structural Characteristics of a Promising Class of Biomaterials. Kansas State University, October 15, 2019. Host: Jeffrey Comer
5. Nanostructures as Antibacterial Agents. Role of Supramolecular Morphology in Biological Action. Georgia State University, April 23, 2019. Host: Binghe Wang
6. Nanostructures as Antibacterial Agents. Role of Supramolecular Morphology in Biological Action. University of Illinois at Chicago, April 3, 2019. Host: Richard Gemeinhart
7. Design, Synthesis, and Evaluation of Amphiphilic Peptides as New Antimicrobial Agents. Wichita State University, October 3, 2018. Host: Dennis Bruns
8. The Development of Small Molecule Antibacterials. DePaul University, September 14, 2018. Host: Charles Rubert Perez
9. Synthesis, Biological Evaluation, and Metabolic Studies of Phenazines, 2018 ACS-National Meeting, August 20, 2018. Host: Kyung Myung
10. Development of Self-Assembling Biomaterials with Biomedical Applications. Center of Investigations in Biosciences (CIBION), Argentina, August 1, 2018. Host: Leonardo Lizarraga
11. Design and Development of Self-Assembling Biomaterials. University of Buenos Aires-INQUIMAE, Argentina, July 30, 2018. Host: Mario Tagliazucchi
12. Design and Development of Self-Assembling Biomaterials. University of San Martin, Argentina, July 27, 2018. Host: Fernanda Cardinal

13. Development of Self-Assembling Biomaterials with Biomedical Applications. University of Chile, Chile, July 4, 2018. Host: Dante Miranda
14. Design and Development of Self-Assembling Biomaterials. University of Sao Paulo-Ribeirao Preto, Brazil, June 23, 2018. Host: Flavio Da Silva Emery
15. Antimicrobial Activity of Amphiphilic Peptides-Composition and Structure. Federal University of Grande Dourados, Brazil, June 20, 2018. Host: Eduardo Arruda
16. Antimicrobial Activity of Amphiphilic Peptides. Federal University of Mato Grosso do Sul, Brazil, June 19, 2018. Host: Adilson Beatriz
17. Small Molecules, Peptides, and Nanostructures; Where Can We find the Next Antibacterial? University of Nebraska at Lincoln, April 10, 2017. Host: LiangChen Du
18. Synthesis and Development of Novel Self-assembling Biomaterials. University of Nebraska at Omaha, October 5, 2015. Host: Andy Zhong