

Jingxin Wang, Ph.D.

Assistant Professor
Department of Medicinal Chemistry
School of Pharmacy, University of Kansas
www.wangchembio.org

wang.jingxin@ku.edu
(785) 864-1254 (office)
2034 Becker Drive
Lawrence, KS 66047

Education

- 2006–2011 Ph.D. in Chemistry from University of Maryland, College Park (Advisor: Herman O. Sintim)
2002–2006 B.Sc. in Chemistry from Peking University, Beijing, China (Advisor: Zhi-Xiang Yu)

Professional Appointments

- 2019–present Assistant Professor at the University of Kansas, Lawrence
2014–2009 Postdoc Associate at the Scripps Research, La Jolla, California (Advisor: Peter G. Schultz)
2011–2014 Postdoc Researcher at the Johns Hopkins University, Baltimore, Maryland (Advisor: Jun O. Liu)

Research Focus

1. RNA-binding molecules for modulating RNA splicing, transcription, and translation.
2. New molecules for activation or suppression of human immunity.

Publications (# equal contribution, * corresponding author)

Publications in undergraduate, graduate, and postdoc studies

1. A computationally designed Rh(I)-catalyzed two-component [5+2+1] cycloaddition of enevinylcyclopropanes and CO for the synthesis of cyclo-octenones. [J. Am. Chem. Soc. 129\(33\):10060-10061](#). (2007) Wang Y, **Wang J**, Su J, Huang F, Jiao L, Liang Y, Yang D, Zhang S, Wender PA, Yu ZX.
2. Biological screening of a diverse set of AI-2 analogues in *V. harveyi* suggests that receptors which are involved in synergistic agonism of AI-2 and analogues are promiscuous. [Chem. Commun. 45:7033-5](#). (2009) Smith JAI, **Wang J**, Nguyen-Mau SM, Lee VT, Sintim HO.
3. Efforts towards the identification of simpler platensimycin analogs, the total synthesis of oxazinidinyl platensimycin. [Chem. Eur. J. 15\(12\):2747-50](#). (2009) **Wang J**, Lee VT, Sintim HO.
4. Paradigm shift in discovering next-generation anti-infective agents: targeting quorum sensing, c-di-GMP signaling and biofilm formation in bacteria with small molecules. [Future Med. Chem. 2\(6\):1005-35](#). (2010) Sintim HO, Smith JAI, **Wang J**, Nakayama S, Yan L.
5. Remote C–H functionalization; using atom-economical tethers to switch between 1,5- and the rare 1,7-C–H insertions. [Angew. Chem. Int. Ed. 49\(23\):3964-8](#). (2010) **Wang J**, Stefane B, Jaber D, Smith JA, Vickery C, Diop M, Sintim HO.
6. Synthetic analogs tailor native AI-2 signaling across bacterial species. [J. Am. Chem. Soc. 132\(32\):11141-50](#). (2010) Roy V, Smith JAI, **Wang J**, Stewart JE, Bentley WE, Sintim HO.
7. Dialkylamino-2,4-dihydroxybenzoic acids as easily synthesized analogues of platensimycin and platencin with comparable antibacterial properties. [Chem. Eur. J. 17\(12\):3352-7](#). (2011) **Wang J** & Sintim HO.
8. C-di-GMP can form remarkably stable G-quadruplexes at physiological conditions in the presence of some planar intercalators. *Chem. Commun.* 47(16): 4766-8. (2011) Nakayama S, Kelsey I, **Wang J**, Sintim HO.
9. Thiazole orange-induced c-di-GMP quadruplex formation facilitates a simple fluorescent detection of this ubiquitous biofilm regulating molecule. [J. Am. Chem. Soc. 133\(13\):4856-64](#). (2011) Nakayama S, Kelsey I, **Wang J**, Roelofs K, Stefane B, Luo Y, Lee VT, Sintim HO.
10. DNA-based peroxidation catalyst—What is the exact role of topology on catalysis and is there a special binding site for catalysis? *Chem. Eur. J.* 17(20): 5691-8. (2011) Nakayama S, **Wang J**, Sintim HO.

11. Differential radial capillary action of ligand assay for HTS detection of protein-metabolite interactions. [PNAS 108\(37\): 15528-33.](#) (2011) Roelofs KG, **Wang J**, Sintim HO, Lee VT.
12. Conservative change to the phosphate moiety of cyclic diguanylic monophosphate remarkably affects its polymorphism and ability to bind DGC, PDE, and PilZ proteins. [J. Am. Chem. Soc. 133\(24\):9320-90.](#) (2011) **Wang J**, Zhou J, Donaldson GP, Nakayama S, Yan L, Lam YF, Lee VT, Sintim HO.
13. Effects on membrane lateral pressure suggest permeation mechanisms for bacterial quorum signaling molecules. *Biochemistry* 50(32): 6983-93. (2011) Kamaraju K, Smith J, **Wang J**, Roy V, Sintim HO, Bentley WE, Sukharev S.
14. Altering the communication networks of multispecies microbial systems using a diverse toolbox of AI-2 analogues. *ACS Chem. Biol.* 7(6): 1023-30. (2012) Gamby S, Roy V, Guo M, Smith JAI, **Wang J**, Stewart JE, Wang X, Bentley WE, Sintim HO.
15. Inhibitors of fatty acid synthesis in prokaryotes and eukaryotes as anti-infective, anticancer and anti-obesity drugs. [Future Med. Chem. 4\(9\):1113-51. \(2012\)](#) **Wang J**, Hudson R, Sintim HO.
16. Endo-S-di-GMP analogues-polymorphism and binding studies with class I riboswitch. *Molecule* 17(11): 13376-89. (2012). Zhou J, Sayre DA, **Wang J**, Pahadi N, Sintim HO.
17. Selective binding of 2'-F-di-GMP to Ct-E88 and Cb-E43, new class I riboswitches from *C. tetani* and *C. botulinum* respectively. *Mol. BioSys.* 9(6): 1535-9. (2013) Luo Y, Zhou J, **Wang J**, Dayie K, Sintim HO.
18. Potent suppression of c-di-GMP synthesis via I-site allosteric inhibition of diguanylate cyclases with 2'-F-di-GMP, [Bioorg. Med. Chem. 21\(14\), 4396-404.](#) (2013) Zhou J, Watt S, **Wang J**, Nakayama S, Sayre DA, Lam YF, Lee VT, Sintim HO.
19. Octameric G8 c-di-GMP is an efficient peroxidase and this suggests that an open G-tetrad site can effectively enhance hemin peroxidation reactions. [RSC Adv. 3\(18\): 6305-10.](#) (2013) Roembke BT, **Wang J**, Nakayama S, Zhou J, Sintim HO.
20. Essential roles of methionine and SAM in the autarkic lifestyle of *Mycobacterium tuberculosis*. *PNAS* 112(32): 10008-13. (2015) Berney M, Berney-Meyer L, Wong KW, Chen B, Chen M, Kim J, **Wang J**, Harris D, Parkhill J, Chan J, Wang F, Jacobs WR.
21. Oligoribonuclease is the primary degradative enzyme for pGpG in *P. aeruginosa* that is required for cyclic-di-GMP turnover. *PNAS* 112(36): E5048-57. (2015) Orr MW, Donaldson GP, Severin GB, **Wang J**, Sintim HO, Waters CM, Lee VT.
22. Mechanistic studies of a small molecule modulator of SMN2 splicing, [PNAS, 115\(20\): E4604-12.](#) (2018) **Wang J**, Schultz PG, Johnson K. DOI: 10.1073/pnas.1800260115
23. Using In Vitro and In-cell SHAPE to Investigate Small Molecule Induced Pre-mRNA Structural Changes. (2019) *J. Vis. Exp.*(143), e59021. **Wang J**, Hammond J, Johnson KA.
24. Rapafucins, rapamycin-inspired macrocycles with new target specificity. (2019) [Nat. Chem.,11\(3\):254-63.](#) Guo ZF[#], Hong SY[#], **Wang J**[#], Rehan S, Liu W, Peng H, Das M, Li W, Bhat S, Peiffer B, Ullman BR, Tse CM, Tarmakova Z, Schiene-Fischer C, Fischer G, Coe I, Paavilainen VO, Sun Z, Liu JO. (# = co-first authors).
25. Discovery of a potent GLUT inhibitor using rapafucin 3D microarrays. (2019) [Angew. Chem. Int. Ed. 58,17158-62.](#) Guo ZF[#], Cheng Z[#], **Wang J**[#], Liu W, Peng H, Wang Y, Rao AVS, Li RJ, Ying X, Korangath P, Liberti MV, Li Y, Xie Y, Hong SY, Schiene-Fischer C, Fischer G, Locasale JW, Sukumar S, Zhu H, Liu JO.

Independent publications at the University of Kansas

26. The RNA Architecture of the SARS-CoV-2 3'-Untranslated Region. (2020) [Viruses](#) 12(12), 1473. Zhao J, Qiu J, Aryal S, Hackett JL, **Wang J***. DOI: 10.3390/v12121473.
27. RNA-Targeting Splicing Modifiers: Drug Development and Screening Assays. (2021) [Molecules](#) 26(8), 2263. Tang Z, Zhao J, Pearson ZJ, Boskovic ZV, **Wang J***. DOI: 10.3390/molecules26082263

28. Recognition of single-stranded nucleic acids by small-molecule splicing modulators. (2021) [Nucleic Acids Res.](#) 49(14), 7870–83. Tang Z, Akhter S, Ramprasad A, Wang X, Reibarkh M, Wang J, Aryal S, Thota SS, Zhao J, Douglas JT, Gao P, Holmstrom ED, Miao Y*, **Wang J***. DOI: 10.1093/nar/gkab602.
29. High throughput screening identifies inhibitors for parvovirus B19 infection of human erythroid progenitors. (2021) Ning K, Roy A, Cheng F, Xu P, Kleiboeker S, Escalante C, **Wang J**, and Qiu J*. [J. Virol.](#) JVI0132621. DOI: 10.1128/JVI.01326-21.
30. Inhibition of SARS-CoV-2 by targeting conserved viral RNA structures and sequences. (2021) [Front. Chem.](#) 9, 802766. Hegde S[#], Tang Z[#], Zhao J, **Wang J***. DOI: 10.3389/fchem.2021.802766.
31. CRISPR-mediated Enzyme Fragment Complementation Assay for Quantification of the Stability of Splice Isoforms. (2022) [ChemBioChem.](#) e202200012. Tang, Z.[#], Hegde, S.[#], Zhao, J.[#], Zhu, S., Lorson, C. L., Johnson K. A., **Wang, J.*** DOI: 10.1002/cbic.202200012.
32. Cellular Target Deconvolution of Small Molecules using a Selection-based Genetic Screening Platform. (Submitted; manuscript under review) Zhao, J., Tang, Z.[#], Selvaraju, M.[#], Johnson K. A., Douglas, J., Gao, F., Petrassi, M., **Wang, J.***

Patents

1. Liu JO, **Wang J**, Guo Z *et al.* (2012) Hybrid cyclic libraries and screens thereof. WO 2012/075048.
2. Liu JO, **Wang J**, Sun Z, Hong S. (2017) Rapadocins, inhibitors of equilibrative nucleoside transporter 1 and uses thereof. WO2017/136717.
3. Liu JO, **Wang J**, Guo Z. (2017) Rapaglutins, novel inhibitors of GLUT and use thereof. WO2017/136731.

List of Courses Taught

Course #	Program	Title	Semester/Year	% Taught
MDCM 710	Graduate	Chemistry of Drug Action I	Fall 2020–2021	15
MDCM 790	Graduate	Chemistry of Drug Action II	Spring 2020–2022	20
MDCM 603	Pharm.D.	Medicinal Biochemistry II	Spring 2020–2022	33
MDCM 626	Pharm.D.	Medicinal Chemistry II: Homeostatic Agents	Spring 2021–2022	15

Book Chapter

Sintim HO & **Wang J** (2008) **e-EROS Encyclopedia of Reagents for Organic Synthesis**, Update on AlH₃ reactions; Update on BocN₃ reactions.

Invited Talk

1. **Wang, J.** (2022) **Invited Talk:** New RNA-targeting Approach to Combat Viruses. *Comeback KC Showcase* (Organizer: Jill Meyer). University of Missouri at Kansas City (UMKC), MO. May 18, 2022.
2. **Wang, J.** (2022) **Invited Talk:** Regulating Gene Expression by using Splicing Modulators. Pittsburg State University, Department of Chemistry (Organizer: James McAfee). Pittsburg, KS. March 5, 2022
3. **Wang, J.** (2022) **Invited Talk:** Regulating Gene Expression by using Splicing Modulators. *Frontiers in Biological Chemistry, BK-BRL International Symposium* (Organizer: Minseob Koh). University of Pusan, Korea (Online). February 16, 2022
4. **Wang, J.** (2021) **Invited Talk:** Antiviral Compounds Against SARS-CoV-2. *Whiteboard2Boardroom Technology Snapshots and Webinars* (Organizer: James Baxendale). University of Missouri at Kansas City (UMKC), MO (Online). December 9, 2021
5. **Wang, J.** (2021) **Invited Talk:** Antiviral Compounds Against SARS-CoV-2. *MidWest Drug Development Conference* (Organizer: Matthew Boehm). University of Nebraska Medical Center, NE (Online). October 4–5, 2021
6. **Wang, J.** (2021) **Invited Talk:** Modulating RNA Splicing by Small Molecules. KU Center for Computational Biology (Organizer: Yinglong Miao). Lawrence, KS (Online). May 4, 2021.
7. **Wang, J.** (2020). **Invited Talk:** Mechanistic studies of small-molecule modulators in gene splicing. University

of Kansas Medical Center, Department of Molecular & Integrative Physiology (Organizer: John Stanford).
Kansas City, KS. February 24, 2020.

Award

New Faculty General Research Funding (NFGRF) Award, University of Kansas, Lawrence, 10/30/2019

Grants

Active and pending

1. Wang, J. (Project Leader) **National Institute of Health (NIGMS) COBRE: Center for Molecular Analysis of Disease Pathways (CMADP) Research Project**, *Novel Target Deconvolution in cGAS-STING Pathway*. (Number: P20GM103638, PI: Lunte, S.) February 1, 2020 – June 30, 2022.
2. Wang, J. (PI). **University of Kansas: General Research Funds**. *Development of Antiviral RNA Degrading Chimeras*. July 1, 2022 - June 30, 2023.
3. Wang, J. (Project Leader). **National Institute of Health (NIGMS) K-INBRE Bridging Award**, *Inhibition of SARS-CoV-2 by RNA-binding molecules*. (Number: P20GM103418, PI: Wright D.) July 1, 2022 – April 30, 2023.

Completed

1. Wang, J. (PI). **Patton Trust Foundation**, *Small Molecule-Oligonucleotide Conjugate for the Treatment of Spinal Muscular Atrophy (SMA) with Improved Specificity*. (Number: KC 20-3) August 1, 2020 – September 30, 2021.
2. Wang, J. (PI). **J. R. & Inez Jay Fund**. *Mechanistic Study of RNA-Splicing Modulation by Small Molecules*. July 1, 2020 – June 30, 2021.
3. Wang, J. (PI). **University of Kansas: General Research Funds**. *Inhibition of Influenza A Virus by Modulating RNA Splicing of the Matrix Protein Gene*. (Number: 2506035) June 14, 2020 - June 19, 2021.
4. Wang, J. (PI). **University of Kansas: New Faculty General Research Funds**. *Elucidation of the Nature of Small Molecule-RNA Interaction*. October 30, 2019 - October 30, 2020.

Professional Society and Services

2009–present	American Chemical Society, Member
2020–present	RNA Society, Member
2022	Early Career Reviewer, SBCB study section, National Institute of Health

Journal Editing/Review

ACS Central Science, Chemical Sciences, Scientific Reports, Frontiers in Chemistry, Frontiers in Molecular Biosciences, Expert Opinion on Drug Discovery, Viruses, Tetrahedron