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EDUCATION

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

PROFESSIONAL APPOINTMENTS

2026– Associate Professor, Department of Medicine, University of Chicago, Chicago, Illinois
2025– Committee on Genetics, Genomics and Systems Biology, University of Chicago
2024–2026 Assistant Professor, Department of Medicine, University of Chicago, Chicago, Illinois
2019–2023 Assistant Professor, Department of Medicinal Chemistry, University of Kansas, Lawrence, Kansas
2014–2019 Postdoc Associate, Scripps Research Institute, La Jolla, California (Advisor: Peter G. Schultz)
2011–2014 Postdoc Fellow, Johns Hopkins University, Baltimore, Maryland (Advisor: Jun O. Liu)

AWARDS

2023 Parkinson's Foundation, Bill and Amy Gurley Impact Award
2022 NIH Maximizing Investigators' Research Award (MIRA, R35)
2022 W. M. Keck Foundation Grantee

RESEARCH AREA

My research group focuses on developing innovative bioactive molecules and chemical probes to study human disease states, as well as creating novel methods and platforms for studying drug mechanisms. Our work currently emphasizes two main directions: (1) designing new molecules and elucidating pharmacological mechanisms to control RNA splicing, and (2) developing chimeric molecules capable of targeted RNA degradation.

PUBLICATIONS

(* corresponding author, # equal contribution)

Publications since independent appointment

1. Depleting prion protein using splice-switching small molecules. Liu B, Fair B, Kuang Z, Tang Z, Zhao J, Zhou L, Kong Q, Solanki A, Kenny C, Mastrianni JA*, Zhao R*, Li YI*, **Wang J***. [bioRxiv](https://doi.org/10.64898/2026.06.26.734742). PMID: 42395399. <https://doi.org/10.64898/2026.06.26.734742>
2. Targeted α -synuclein mRNA degradation by PMO-based RNA-degrading chimeras. Wang N, Hegde S, Tang Z, Liu H, Feng G, Niu L, Liu B, Li H, Zhang X, Gadhave K, Kumbhar R, Jiang L, Liu Y, Luo M, Zhang S, Dawson TM, Pantelyat A, Rosenthal LS, Ying M, Mao X*, **Wang J***. [PNAS](#), 123(29):e2526461123. PMID: 42446976
3. The U1 snRNP protein U1C and Helix H of U1 snRNA are critical for small molecule splicing modulator function. Kuang Z, Kosmyrna B, Li X, Tang Z, Shi S, Lambert K, Zhang W, Giovinazzo J, Effenberger KA, Sierra J, Ying L, Barraza SJ, Li W, **Wang J**, Trotta CR*, Zhao R*. [Nat. Commun.](#), 17(1). PMID: 42463664
4. Mechanistic Studies of Small Molecule Ligands Selective to RNA Single G Bulges. (2025) Hegde S, Akhter S, Tang Z, Qi C, Yu C, Lewicka A, Liu Y, Koirala K, Reibarkh M, Battaile KP, Cooper A, Lovell S, Holmstrom ED, Wang X, Piccirilli JA, Gao Q*, Miao Y*, **Wang J***. [Nucleic Acid Res.](#), 53(12):gkaf559. PMID: 40557870

5. Genome-Wide Identification of Stable RNA Secondary Structures Across Multiple Organisms Using Chemical Probing Data: Insights into Short Structural Motifs and RNA-Targeting Therapeutics. **Wang J***. (2025) [Biochemistry](#), 64(8):1817–27. PMID: 40131856.
6. Chemical-Guided SHAPE Sequencing (cgSHAPE-seq) Informs the Binding Site of RNA-Degrading Chimeras Targeting SARS-CoV-2 5' Untranslated Region. (2025) [Nat. Commun.](#), 16(1):483. Tang Z, Hegde S, Hao S, Selvaraju M, Qiu J, **Wang J***. PMID: 39779694
7. N⁶-Methyladenosine Modification of a Parvovirus-Encoded Small Noncoding RNA Facilitates Viral DNA Replication Through Recruiting Y-Family DNA Polymerases. (2024) [PNAS](#), 121(25):e2320782121. Ning K, Zhao J, Feng Z, Park SY, McFarlin S, Cheng F, Yan Z, **Wang J**, Qiu J*. PMID: 38875150
8. Mechanism of Ligand Binding to Theophylline RNA Aptamer. (2024) [J. Chem. Inf. Model.](#) 64(3):1017–29. Akhter S, Tang Z, Wang J, Haboro M, Holmstrom ED, **Wang J***, Miao Y*. PMID: 38226603
9. Selected Humanization of Yeast U1 snRNP Leads to Global Suppression of Pre-mRNA Splicing and Mitochondrial Dysfunction in the Budding Yeast. (2024) [RNA](#), 30(8):1070–88. Chalivendra S, Shi S, Li X, Kuang Z, Giovinazzo J, Zhang L, Rossi J, Saviola AJ, **Wang J**, Welty R, Liu S, Vaeth K, Zhou ZH, Hansen KC, Taliaferro JM, Zhao R*. PMID: 38688558
10. Global Impact of Unproductive Splicing on Human Gene Expression. (2024) [Nat. Genet.](#), 56(9):1851–61. Fair B, Abad Najar CB, Zhao J, Lozano S, Reilly A, Staley J, **Wang J**, Li YI*. PMID: 39223315.
11. Structural Evaluations of a Selective Human STING^{A230} Agonist and Its Use in Macrophage Immunotherapies. (2024) [ACS Med. Chem. Lett.](#), 15(5):653–8. Tang Z[#], Zhao J[#], Li Y[#], Tomer S, Selvaraju M, Tien N, Sun D, Johnson DK, Zhen A*, Li P*, **Wang J***. PMID: 38746895
12. Cellular Target Deconvolution of Small Molecules using a Selection-Based Genetic Screening Platform. (2022) [ACS Cent. Sci.](#), 8(10):1424–34. Zhao J, Tang Z[#], Selvaraju M[#], Johnson KA, Douglas J, Gao F, Petrassi M, **Wang J***. [highlighted as issue cover] PMID: 36313155
13. CRISPR-mediated Enzyme Fragment Complementation Assay for Quantification of the Stability of Splice Isoforms. (2022) [ChemBioChem](#) 23(9):e202200012. Tang Z[#], Hegde S[#], Zhao J[#], Zhu S, Lorson CL, Johnson KA, **Wang J***. PMID: 35235240
14. 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***. [review] PMID: 35004621
15. High Throughput Screening Identifies Inhibitors for Parvovirus B19 Infection of Human Erythroid Progenitors. (2021) [J. Virol.](#) 96(2):e0132621. Ning K, Roy A, Cheng F, Xu P, Kleiboeker S, Escalante C, **Wang J**, and Qiu J*. PMID: 34669461
16. 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***. PMID: 34283224
17. RNA-Targeting Splicing Modifiers: Drug Development and Screening Assays. (2021) [Molecules](#) 26(8):2263. Tang Z, Zhao J, Pearson ZJ, Boskovic ZV, **Wang J***. [review] PMID: 33919699
18. 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***. PMID: 33371200

Publications prior to independent appointment

19. Identification of Rapaglutin E as an Isoform-specific Inhibitor of Glucose Transporter 1. (2025) [ACS Chem. Biol.](#) 20(5):1004–9. Guo ZF, Rao AVS, Peng H, **Wang J**, Ma Z, Cordelia SF, Fischer G, Liu JO*. PMID: 40226990
20. 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.
21. 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.

22. 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.
23. 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
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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.
31. 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.
32. 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.
33. 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\(24\):9320-30](#). (2011) **Wang J**, Zhou J, Donaldson GP, Nakayama S, Yan L, Lam YF, Lee VT, Sintim HO.
34. 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.
35. 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.
36. 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.
37. 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.
38. 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.
39. 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.
40. 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.

41. 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.
42. 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.
43. 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.
44. A computationally designed Rh(I)-catalyzed two-component [5+2+1] cycloaddition of ene-vinylcyclopropanes 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.

PATENTS

1. Liu JO, **Wang J**, Guo Z, Li W, Bhat S, Das M. (2012) Hybrid cyclic libraries and screens thereof. WO2012/075048.
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.
4. **Wang J**, Tang Z. (2024) Antiviral compounds useful against SARS-CoV-2. WO2024/006287.

INVITED TALKS

1. Westlake University, Hangzhou, China. CAPA Annual Conference. 7/17/2026.
2. ReviR Therapeutics, Brisbane, CA. 5/21/2026.
3. Johns Hopkins University, Baltimore, MD. Department of Physiology, Pharmacology & Therapeutics. 3/3/2026.
4. University of Maryland, College Park, MD. Department of Chemistry and Biochemistry. 3/2/2026.
5. University of Notre Dame, Notre Dame, IN. Department of Chemistry/CBBI Program. 2/5/2026.
6. Purdue University, West Lafayette, IN. Depart. of Medicinal Chemistry & Molecular Pharmacology. 1/29/2026.
7. University of Illinois–Chicago, Chicago, IL. School of Pharmacy. 11/18/2025.
8. Northwestern University. Chemistry of Life Processes Institute. Evanston, IL. 3/3/2025.
9. University of Colorado, Anschutz, CO. Department of Biochemistry and Molecular Genetics, 8/20/2024.
10. ACS National Meeting, Division of Medicinal Chemistry, Denver, CO. 8/18/2024.
11. 19th Annual Drug Discovery Chemistry, RNA-Modulating Small Molecule Drugs. San Diego, CA. 4/1/2024.
12. Wichita State University. Department of Chemistry. Wichita, KS. 10/4/2023.
13. University of South Florida. CAPA Symposium. Tampa, FL. 12/22/2022.
14. University of Missouri. Comeback KC Showcase. Kansas City, MO. 5/18/2022.
15. Pittsburg State University. Department of Chemistry. Pittsburg, KS. 3/5/2022.
16. University of Pusan, Korea. Frontiers in Biological Chemistry, BK-BRL International Symposium. 2/16/2022.
17. University of Nebraska Medical Center. MidWest Drug Development Conference. Omaha, NE. 10/4/2021.
18. University of Kansas Medical Center. Department of Molecular and Integrative Physiology. Kansas City, KS. 2/24/2020.

FUNDING

Current

NIH Maximizing Investigators' Research Award (MIRA) R35-GM147498. **PI**. Modulating Gene Expression by RNA-Targeting Chimeras. 8/1/22-5/31/27.

Creutzfeldt-Jakob Disease Foundation (CJDF) Research Grant. **PI**. Development of RNA Splicing Modulators for the Treatment of Creutzfeldt-Jakob Disease (CJD). 1/23/26-1/22/28.

NIH R21-AI196149. **PI.** Identification of Novel Targets for Enhancing Targeted RNA Degradation in Antiviral Discovery. 2/5/26-1/31/28.

Chicago Biomedical Consortium (CBC) Director's Funds Award. **PI.** Identification of therapeutically actionable targets using RNA splicing modulators. 6/1/26-5/31/27.

NIH R21-AI199121. **PI.** Development of Selective Antiviral RNA-Degrading Chimeras Mimicking Ribonuclease Activity. 6/9/26-5/31/28.

NIH R21-TR006398. **PI.** Development of splicing modulators and their combinations to target undruggable genes. 8/1/26-7/31/28.

NIH UG3-NS149353. **PI.** Development of a Splicing Modulator for the treatment of Creutzfeldt-Jakob Disease (CJD). 9/1/26-8/31/27.

NIH R01-AG101102. **PI.** Mechanistic Studies of a Prion Protein-Lowering Splicing Modulator. 9/1/26-5/31/31.

Past (selected)

NIH Centers of Biomedical Research Excellence (COBRE). P20-GM103638. **Project PI** (Contact PI: S. Lunte). Novel Target Deconvolution in cGAS-STING Pathway. 2/1/20-6/30/22.

W. M. Keck Foundation: Systematic identification of splicing modulating regulatory elements. 7/1/22-6/30/25.

PROFESSIONAL SOCIETY AND SERVICES

2025 External Reviewer: Czech Science Foundation, Standard Research Grant

2022 NIH Peer Review Committee: Synthetic and Biological Chemistry B (SBCB) Study Section (Early Career Reviewer)

2022 European Research Council (ERC) Advanced Grant Reviewer

2020–present RNA Society, Member

2009–present American Chemical Society, Member

JOURNAL EDITING/REVIEW

2025–2026 Guest Editor for npj Drug Discovery

Peer reviewer for scientific journals

Nature Chemical Biology, Nature Communications, Journal of the American Chemical Society, Proceedings of the National Academy of Sciences, ACS Central Science, Chemical Sciences, ACS Synthetic Biology, ACS Chemical Biology, Bioconjugate Chemistry, Scientific Reports, British Journal of Pharmacology, Journal of Molecular Biology, Biochemistry, Frontiers in Chemistry, ChemBioChem, Expert Opinion on Drug Discovery, Viruses