

Huiqing (Jane) Zhou

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Education

2016	Ph.D. Biochemistry	<i>Duke University</i> <i>Advisor: Prof. Hashim Al-Hashimi</i>
2013	M.S. Chemistry	<i>University of Michigan at Ann Arbor</i>
2011	B.S. Chemistry	<i>Nankai University, China</i>

Research Experience

2020 – present	Assistant Professor of Chemistry, <i>Boston College</i>
2017 – 2020	Postdoctoral Scholar, He and Dickinson Research Groups, <i>University of Chicago</i> Advisors: Prof. Chuan He and Prof. Bryan Dickinson
2012 – 2016	Graduate Research Assistant, Al-Hashimi Research Group, <i>Duke University (2014-2016)</i> <i>University of Michigan at Ann Arbor (2012-2013)</i>
2010 – 2011	Undergraduate Research Assistant, Sun Research Group, <i>Nankai University, China</i>
2010	Undergraduate Research Assistant Lam Research Group, <i>The Chinese University of Hong Kong, Hong Kong.</i>

Publications

- Zhou, H.**; Rauch, S.; Dai, Q.; Cui, X.; Zhang, Z.; Nachtergaele, S.; Sepich, C.; He, C.; Dickinson, B.C. (2019) Evolution of A Reverse Transcriptase to Map N¹-Methyladenosine in Human mRNA. *Nature Methods*. 16, 1281-1288.
- Rauch, S.; He E.; Scienc M.; **Zhou, H.**; Zhang, Z.; Dickinson, B.C. (2019) Programmable RNA-Guided RNA Effector Proteins Built from Human Parts. *Cell*. 178, 8-9.
- Zhou, H.**; Sathyamoorthy, B.; Stelling, A.; Xu, Y.; Xue, Y.; Pigli, Y. Z.; Case, D.; Rice, P. A.; Al-Hashimi, H. M. (2019) Resolving crystallographic ambiguity in Watson-Crick versus Hoogsteen base-pairing in a DNA-protein complex using NMR and site-specifically ¹³C/¹⁵N labeled DNA. *Biochemistry*, 58, 1963-1974.
- Rangadurai, A.; **Zhou, H.**; Merriman, D.; Meiser, N.; Liu, B.; Shi, H.; Szymanski, E.; Al-Hashimi, H.M. (2018) Why are Hoogsteen base pairs energetically disfavored in A-RNA compared to B-DNA? *Nucleic Acids Res.*, 46, 11099-11114.
- Sathyamoorthy, B.; Shi, H.; **Zhou, H.**; Xue, Y; Rangadurai A.; Merriman D. K.; Al-Hashimi, H. M. (2017) Insights into Watson-Crick/Hoogsteen Breathing Dynamics and Damage Repair from the Solution Structure and Dynamic Ensemble of DNA Duplexes containing m¹A. *Nucleic Acids Res.*, 45, 5586-5601.
- Stelling, A.; Xu, Y.; **Zhou, H.**; Choi, S.; Clay, M.; Merriman, D.; Al-Hashimi, H. M. (2017) Robust IR Based Detection of Stable and Fractionally Populated G-C+ and A-T Hoogsteen Base Pairs in Duplex DNA. *FEBS Letters*, 591, 1770-1784.
- Zhou, H.**; Kimsey, I. J.; Nikolova, E. N.; Sathyamoorthy, B.; Grazioli, G.; McSally, J.; Bai, T.; Wunderlich, C. H.; Kreutz, C.; Andricioaei, I.; Al-Hashimi, H. M. (2016) m¹A and m¹G disrupt A-RNA structure through the intrinsic instability of Hoogsteen base pairs. *Nat. Struct. Mol. Biol.*, 23, 803-810.
- Zhou, H.**; Hintze B.J.; Kimsey, I. J.; Sathyamoorthy, B.; Yang S.; Richardson, J.S.; Al-Hashimi, H. M. (2015) New insights into Hoogsteen base pairs in DNA duplexes from a structure-based survey. *Nucleic Acids Res.*, 43, 3420-3433.
- Nikolova, E.N.; **Zhou, H.**; Gottardo F.L.; Alvey, H. S.; Kimsey, I. J.; Al-Hashimi, H. M. (2013) A Historical Account of Hoogsteen Base-Pairs in Duplex DNA. *Biopolymers*, 99, 955-968.

- Goh, G.B.; Hulbert B.S.; **Zhou, H.**; Brooks. C.L. 3rd. (2014) Constant pH molecular dynamics of proteins in explicit solvent with proton tautomerism. *Proteins*, 82, 1319-1331.
- Wei, C.; **Zhou, H.**; Zhou, J. (2010) Ultrasensitively sensing acephate using molecular imprinting techniques on a surface plasmon resonance sensor. *Talanta*, 83, 1422-1427.
- Wei, C.; **Zhou, H.**; Chen, C.; Li, Z.; Zhou, J. (2011) On-Line Monitoring ¹H-Indole-3-Acetic Acid in Plant Tissues Using Molecular Imprinting Monolayer Techniques on a Surface Plasmon Resonance Sensor. *Analytical Letters*, 44, 2911-2921.

Oral Presentations

- Zhou, H. et al.** "Evolution of A Reverse Transcriptase to Map N¹-Methyladenosine in Human mRNA" Gordon Research Seminar on Bioorganic Chemistry, Andover, US. 2019.
- Zhou, H. et al.** "Evidence for Increased Hoogsteen Base Pair Populations in Bent Regions of DNA within DNA-protein Complexes in Solution" International Society of Magnetic Resonance, Shanghai, China. 2015.
- Zhou, H. et al.** "Hoogsteen base pairs can form stably in B-DNA but not in A-RNA duplexes" Biochemistry Annual Research Symposium, Duke University, Durham, NC. 2014.
- Zhou, H. et al.** "Occurrence and Role of Hoogsteen Base-pairing in DNA-protein Complex" 2nd-year Graduate Student Seminar, University of Michigan, Ann Arbor, MI. 2012.

Poster Presentations

- Zhou, H. et al.** "Evolution of A Reverse Transcriptase to Map N¹-Methyladenosine in Human mRNA" Functions of Epitranscriptomics, Chicago, IL. 2019.
- Zhou, H. et al.** "Evolution of A Reverse Transcriptase to Map N¹-Methyladenosine in Human mRNA" Gordon Research Conference on Bioorganic Chemistry, Andover, NH. 2019.
- Zhou, H. et al.** "m¹A and m¹G Potently Disrupt A-RNA Structure due to the Intrinsic Instability of Hoogsteen Base Pairs." The RNA Modifications and Epitranscriptomics Conference, Chicago, IL. 2016.
- Zhou, H. et al.** "Site-directed NMR Chemical Shift Fingerprinting for Robustly Characterizing Hoogsteen Base-pairs in Large and Complex DNA Systems." The 55th Experimental Nuclear Magnetic Resonance Conference, Boston, MA. 2014.
- Zhou, H. et al.** "How Widespread are Hoogsteen Base-pairs in Duplex DNA?" the 57th Biophysical Society Annual Meeting, Philadelphia, PA. 2013.

Teaching Experience

2018	Guest Lecturer – Chemical Biology I, <i>University of Chicago</i>
2011 – 2012	Graduate Student Instructor – Chemistry 211 Organic Chemistry Laboratory <i>University of Michigan at Ann Arbor</i>

Awards & Fellowships

2019	The Kharasch Tavel Award, Chemistry Department, <i>University of Chicago</i>
2017 – 2019	The Chicago Fellows Fellowship
2015	Conference Travel Award, Biochemistry Department, <i>Duke University</i>
2013	Research Excellence Award, Chemistry Department, <i>University of Michigan at Ann Arbor</i>
2009 – 2010	Mong Man Wai Mainland-Hong Kong Student Exchange Scholarship
2009	China National Scholarship, National Ministry of Education <i>Nankai University, China</i>