





# Hanchao Zhao, Ph.D.

## Technology Specialist, Patent Agent

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## Overview

### About Hanchao

Hanchao Zhao is a technology specialist and patent agent in the Boston office of Fish & Richardson P.C. His practice focuses on patent drafting, prosecution and counseling in broad aspects of life sciences, including biochemistry, biophysics, molecular biology, cell biology, microbiology, structural and computational biology, small-molecule drug discovery, antibody development, cancer therapies and high-throughput sequencing technologies.

Dr. Zhao received his Ph.D. in biochemistry from the University of Illinois at Urbana-Champaign, where he collaborated with pharmaceutical companies and academic labs to investigate small-molecule drug inhibition mechanisms, using both experimental and theoretical methods. He also developed and optimized a platform to efficiently track protein/nucleic acid movement in bacteria by ultracentrifugation. Upon finishing his Ph.D., Dr. Zhao was recruited to Scripps Research in La Jolla, California, to continue his research on RNA-interacting proteins. At Scripps, he developed bio-analytical and cell-based methods to understand host-microbe communications. Dr. Zhao has co-authored multiple research articles in top-tier journals and given presentations/posters at international conferences. His previous experience also includes working at Tsinghua University in Beijing and collaborating at the University of Tokyo in Japan.

## Focus Areas

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### Services

- Patent

### Industries

- Life Sciences

## Education

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Ph.D., Biochemistry, University of Illinois at Urbana-Champaign (2016)

B.S., Biological Sciences, Tsinghua University (2010)

## Insights

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### Selected Publications

Kim, J.H.; Lee, C.L.; Wang, H.; Kim, K.; Seung, J.P.; Yoon, I.; Jang, J.; Zhao, H.; Kim, H.K.; Kwon, N.H.; Jeong, S.J.; Yoo, H.C.; Kim, J.H.; Yang, J.S.; Lee, M.Y.; Lee, C.W.; Yun, J.; Oh, S.J.; Kang, J.S.; Martinis, S.A.; Hwang, K.Y.; Guo, M.; Han, G.; Han, J.M.; Kim, S, "Control of leucine-dependent mTORC1 pathway through chemical intervention of leucyl-tRNA synthetase and RagD interaction." *Nature Communications*. 2017, 8(1), 732.

Buechler, A.K.; Zhao, H.; Lieu, D.J.; Blanke, S.R.; Martinis, S.A. "Escherichia coli tRNA induces mammalian cell migration and socialization." *The FASEB Journal*. 2017, 31 (1 Supplement), 622.14.

Zhao, H.; Martinis, S.A. "Isolation of bacterial compartments to track movement of protein synthesis factors." *Methods*. 2017, 113, 120-126.

Zhao, H.; Palencia, A.; Seiradake, E.; Ghaemi, Z.; Cusack, S.; Luthey-Schulten, Z.; Martinis, S.A. "Analysis of the resistance mechanism of a benzoxaborole inhibitor reveals insight into the leucyl-tRNA synthetase editing mechanism." *ACS Chemical Biology*. 2015, 10 (10): 2277-85.

Shan, S.; Chen, X.; Liu, T.; Zhao, H.; Rao, Z.; Lou, Z. "Crystal structure of 4-diphosphocytidyl-2-C-methyl-Derythritol-kinase (IspE) from *Mycobacterium tuberculosis*." *The FASEB Journal*. 2011, 25

(5):1577-84.

### **Selected Presentations/Posters**

Zhao, H.; Buechler, A.K.; Martinis, S.A. (2017, October) Re-purposing of leucyl-tRNA synthetase for Nutritional stress responses. Conference Talk at 2017 IUBMB focused Meeting on Aminoacyl-tRNA Synthetases (AARS2017). Clearwater Beach, FL.

Martinis, S.A.; Zhao, H.; Buechler, A.K. (2017, October) Re-purposing of ancient protein synthesis enzyme and RNAs for cell signaling. Conference Talk at Spiegelman Symposium, Urbana, IL.

Buechler, A.K.; Zhao, H.; Lieu, D.J.; Blanke, S.R.; Martinis, S.A. (2017, April) Escherichia coli tRNA induces mammalian cell migration and socialization. Conference poster at ASBMB annual meeting, Chicago, IL.

Zhao, H.; Martinis, S.A. (2015, October) Escherichia coli secretion of leucyl-tRNA synthetase. Conference Talk at 10th International symposium on Aminoacyl-tRNA Synthetases (AARS2015) Barcelona, Spain.

Zhao, H.; Martinis, S.A. (2015, February) Trafficking of leucyl-tRNA synthetase in E. coli. Conference Talk at Gordon Research Conference: Translation Machinery in Health & Disease. Ventura, CA.

Banerjee, A.; Zhao, H.; Martinis, S.A.; Saks, M.E. (2014, September) Intra-organism variation in tRNA structural type. Poster at the 25th tRNA Conference, Kyllini, Greece.

Zhao, H.; Palencia, A.; Cusack, S.; Luthey-Schulten, Z.A.; Martinis, S.A. (2013, October) Regulation of post-transfer editing by a tyrosine switch. Conferences talk at 9th International Symposium on Aminoacyl-tRNA Synthetases (AARS2013), Hakone, Japan.

Zhao, H.; Martinis, S.A. (2012, December) Post-transfer editing of Candida albicans leucyl-tRNA synthetase is sensitive to a lysine that is distal to the editing pocket. Poster at the 24th tRNA Conference, Olmue, Chile.

### **Languages**

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- English
- Mandarin Chinese