

---

# Zi-Ming Zhao, PhD

---

## ❖ CONTACT INFORMATION

Address: 10 Discovery Drive, Farmington, CT 06032  
Phone: 860-837-2130  
Email: [Ziming.Zhao@jax.org](mailto:Ziming.Zhao@jax.org)  
Website: [www.jax.org/research-and-faculty/faculty/research-scientists/zi-ming-zhao](http://www.jax.org/research-and-faculty/faculty/research-scientists/zi-ming-zhao)

## ❖ EDUCATION

**2012** Ph.D. in Bioinformatics, Georgia Institute of Technology, Atlanta, Georgia, US  
**2006** B.S. in Biotechnology, University of Science & Technology Beijing (USTB), China

## ❖ ACADEMIC POSITION

**2017-current** Research Scientist, The Jackson Laboratory for Genomic Medicine, Farmington, CT  
**2016-2017** Associate Research Scientist, Biostatistics, Yale University, New Haven, CT  
**2012-2016** Postdoctoral Associate, Biostatistics, Yale University, New Haven, CT

## ❖ RESEARCH INTERESTS

Computational Biology and Bioinformatics, Cancer Clinical Genomics, Biostatistics, Precision Medicine, Infectious Diseases, Comparative Genomics, Molecular Evolution, and Population Genetics

## ❖ PUBLICATIONS

- Z.-M. Zhao, J. Wang, U. C. Ugwuowo, L. Wang, and J. P. Townsend. *Primary hepatic neuroendocrine carcinoma: report of two cases. BMC Clinical Pathology*, 2018.
- V. L. Cannataro, S. G. Gaffney, C. Stender, Z.-M. Zhao, M. Philips, A. Greenstein, J. P. Townsend. *Heterogeneity and mutation in KRAS and associated oncogenes: evaluating the potential for the evolution of resistance to targeting of KRAS G12C. Oncogene*, 2018.
- E. B. Claus, S. Greenhalgh, S. G. Gaffney, K. Bilguvar, L. Calvocoressi, L. Lu, O. Al-Mefty, Z.-M. Zhao and J. P. Townsend. *The somatic genetic architecture of radiation-associated meningioma. Journal of Neurosurgery* (Accepted).
- Z.-M. Zhao, M. C. Campbell, N. Li, Z. Zhang, and J. P. Townsend. *Detection of regional variation in selection intensity within protein-coding genes using DNA sequence polymorphism and divergence. Molecular Biology and Evolution*, 2017.
- K Hastings, J Choi, A Wurtz, Z Walther, G Cai, I Oliva, Z.-M. Zhao, S Gaffney, etc. *MA16. 02 Mutational Landscape of TKI Naïve and Resistant EGFR Mutant Lung Adenocarcinomas. Journal of Thoracic Oncology*, 2017.
- Z.-M. Zhao, B. Zhao, Y. Bai, A. Iamarino, S.G. Gaffney, J. Schlessinger, R.P. Lifton, D.L. Rimm, and J.P. Townsend. *Early and multiple origins of metastatic lineages within primary tumors. Proceedings of the National Academy of Sciences*. 2016.
- M. Choi, H. Kadara, J. Zhang, E. P. Cuentas, J. R. Canales, S. G. Gaffney, Z.-M. Zhao, C. Behrens, J. Fujimoto, C-W. Chow, N. Kalhor, C. Moran, D. Rimm, S. Swisher, D. Gibbons, J. Heymach, E. Kaftan, J. P. Townsend, T. J. Lynch, J. Schlessinger, J. J. Lee, R. P. Lifton, R. S. Herbst, I. I. Wistuba. *Mutation and immune profiles in early-stage lung squamous cell carcinoma. Annals of Oncology*, 2016.
- H. Kadara, M. Choi, J. Zhang, E.P. Cuentas, J.R. Canales, S.G. Gaffney, Z.-M. Zhao, C. Behrens, J. Fujimoto, C-W. Chow, N. Kalhor, C. Moran, D. Rimm, S. Swisher, D. Gibbons, J. Heymach, E. Kaftan, J.P. Townsend, T.J. Lynch, J. Schlessinger, J.J. Lee, R.P. Lifton, I.I. Wistuba, R.S. Herbst. *Whole-exome sequencing and immune profiling of early-stage lung adenocarcinoma. Annals of Oncology*, 2016.
- B. O. Veleva-Rotse, J. L. Smart, A. F. Baas, B. Edmonds, Z.-M. Zhao, A. Brown, L. R. Klug, K. Hansen, G. Reilly, A. P. Gardner, K. Subbiah, E. A. Gaucher, H. Clevers, A. P. Barnes. *STRAD Pseudokinases Regulate Axogenesis and LKB1 Stability. Neural Development*, 2014.
- R. Perez-Jimenez, A. Inglés-Prieto, Z.-M. Zhao, I. Sanchez-Romero, J. Alegre-Cebollada, P. Kosuri, S. Garcia-Manyes, J. M. Sanchez-Ruiz, E. A. Gaucher; J. M. Fernandez. *Paleoenzymology at the single-molecule level: probing the chemistry of resurrected enzymes. Nature Structure and Molecular Biology*, 2011.
- Z.-M. Zhao, A. B. Reynolds, and E. A. Gaucher. *The evolutionary history of the catenin gene family during metazoan evolution. BMC Evolutionary Biology*, 2011. (\* Highly accessed)

- X.-F. Wan, M. Emch, and Z.-M. Zhao. *Advances in molecular evolution of influenza A viruses*. In Global View at Fight against Influenza, edited by Mitrasinovic. 2009. (Book Chapter)
- X.-F. Wan, T. Nguyen, T. C. Davis, C. B. Smith, Z.-M. Zhao, M. Carrel, S. Jadhao, A. Balish, F. Luo, M. Emch, Y. Matsuoka, N. J. Cox, A. Klimov, and R. O. Donis. *Evolution of Highly Pathogenic H5N1 Avian Influenza Viruses in Vietnam between 2001 and 2007*. *PLoS One*, 2008.
- Z.-M. Zhao, K. F. Shortridge, M. Garcia, Y. Guan and X.-F. Wan. *Genotypic diversity of H5N1 highly pathogenic avian influenza viruses*. *Journal of General Virology*, 2008.

#### ❖ PRESENTATIONS

- 2017** *Metastasis can arise early and exhibit multiple genetic origins within primary tumors*. The Jackson Laboratory, ME.
- 2016** **(All Invited)** *Estimation of the timing and effects of somatic mutations during cancer evolution*. The Jackson Laboratory, CT.
- 2016** **(All Invited)** *Unravelling genetic origins of metastases to understand cancer biology and guide targeted therapies*. Department of Mathematical Sciences, University of Texas El Paso, TX.
- 2016** *Cancer Selection Intensity via Model Averaged Clustering*. 2016 International Society for Evolutionary, Medicine & Public Health (ISEMPH) meeting, Durham, North Carolina.
- 2014** *Regions within coding gene sequences experience diverse intensities of natural selection inferred from polymorphism and divergence*. Society for Molecular Biology and Evolution Conference (SMBE), San Juan, Puerto Rico.
- 2012** **(All Invited)** *A peek of Bioinformatics*. FameLab Astrobiology, Washington, DC.
- 2012** **(All Invited)** *Ancestral genome reconstruction and genome evolution of Mycoplasma species*. Gordon Research Seminar—Origin of Life, Galveston, TX.
- 2012** *Using Ancestral Genome Reconstruction to Infer the Minimal Genome*. NASA Astrobiology Science Conference, Atlanta, GA.
- 2011** **(All Invited)** *Ancestral genome reconstruction and genome evolution of Mycoplasma species*. NASA—Paleobiology During the Genomics Era workshop, in J. Craig Venter Institute, San Diego, CA.
- 2010** *Application of Bioinformatics in Evolutionary Studies*. Department of Biological Science and Technology, USTB, Beijing, China.
- 2007** *Emergence of Gs/Gd/96-like Avian Influenza Virus—the precursor of current H5N1 threat*. Ohio Collaborative Conference on Bioinformatics, Oxford, OH.

#### ❖ POSTERS

- 2017** *Mechanisms of Recurrence: Paired Analysis of Primary and Metastatic Triple Negative Breast Cancer*. San Antonio Breast Cancer Symposium 2017. San Antonio, TX. (Spotlight poster)
- 2017** *Extrahepatic, intrahepatic, and gallbladder cholangiocarcinoma exhibit different mutation burdens*. 2017 Cholangiocarcinoma Foundation Annual Conference. Salt Lake City, UT.
- 2014** *Cancer ‘Drivers’ identified by selection intensity using CSI-MAC (Cancer Selection Intensity via Model Averaged Clustering)*. SMBE, San Juan, Puerto Rico.
- 2013** *Cancer ‘Drivers’ identified by profiling selection intensity using Model Averaged Clustering—Poisson Random Field*. SMBE, Chicago, IL.
- 2012** *Phylogenetic Inference of a Cancer-related Protein Family*. SMBE—Phylomedicine Symposium, Tempe, AZ.
- 2011** *Ancestral genome reconstruction and genome evolution of Mycoplasmas*. The 8th Georgia Tech, Emory and the Oak Ridge National Laboratory International Conference: "From Genomics to Synthetic Biology", Atlanta, GA.
- 2011** *The evolutionary history of the catenin gene family during metazoan evolution*. Georgia Tech Research and Innovation Conference, Atlanta, GA.
- 2010** *The evolutionary history of the catenin gene family during metazoan evolution*. Bioinformatics Workshop by the PanAmerican Bioinformatics Institute, Atlanta, GA.
- 2010** *The evolution of the catenin protein family*. Southeastern Ecology and Evolution Conference, Atlanta, GA.
- 2007** *Current H5N1 Pandemic Threats: a Consequence from Active Reassortments*. The 6th Georgia Tech—ORNL International Conference on Bioinformatics, Atlanta, GA.

---

## ❖ TEACHING AND MENTORING EXPERIENCE

- 2017-current** **Mentor** of students with Dr. Jeff Chuang at Jackson Laboratory  
2017 Sherry Zhang, Computer Science, Summer Student Intern
- 2012-2017** **Mentor** of students with Dr. Jeffrey Townsend at Yale University  
2016-2017 Ugochukwu Ugwuowo, Public Health, Postgraduate fellowship  
2016-2017 Daniel Lee, Biophysics, Student Intern  
2015-2016 Xinru Ren, Biostatistics, Master Degree Thesis  
2015-2016 Justin Young, Ecology and Evolutionary Biology, Senior Thesis  
2014-2015 Aquiel Warner, Ecology and Evolutionary Biology, Senior Thesis  
2014-2015 Gadareth Higgs, Computational Biology and Bioinformatics, rotating student  
2012-2013 Chelsea Savit, Ecology and Evolutionary Biology, Senior Thesis  
2012-2013 Lindsey Hiebert, Global Affairs and Biology, Student Intern
- 2015** **Mentors** of high school students at Yale Science Outreach and for Student Minors
- 2012** **Mentor** of high school students in NASA Astrobiology Science Conference
- 2011** **Lecturer** of Biological Principle Lab at Georgia Tech
- 2011, 2009** **Mentor** of new Graduate Students at Georgia Tech
- 2007** **Mentor** of Atlanta high school students at Georgia Tech Science Outreach

## ❖ ACADEMIC SERVICE

- 2011-current** **Reviewer** for 36 manuscripts of the 13 following journals:  
2017- Nature Method  
2017- Scientific Reports  
2015- Human Genomics  
2014- Genome Biology and Evolution  
2014- Mycologia  
2014- The 25th International Conference on Genome Informatics  
2014- Journal of Genomics, Proteomics & Bioinformatics  
2014- The Scientific World Journal  
2013- Yale Journal of Biology and Medicine  
2012- BMC Evolutionary Biology  
2012- Trends in Evolutionary Biology  
2011- Journal of Molecular Evolution  
2011- PLoS ONE
- 2017** **Judge** for 2017 Annual Scientific Symposium at The Jackson Lab, Bar Harbor, ME
- 2012** **Chair** for ‘Minimal and Ancestral Genomes’ in NASA Astrobiology Science Conference
- 2011** **Judge** for President’s Undergraduate Research Awards at Georgia Tech
- 2011** **Judge** for Undergraduate Research Symposium at Georgia Tech
- 2010** **Judge** for the DeKalb Regional Science & Engineering Fair, Atlanta, GA

## ❖ WORKSHOPS AND PROFESSIONAL TRAININGS

- 2017-** The Jackson Laboratory–Maine Cancer Genomics Initiative Genomic Tumor Board
- 2017** Course: 26th Annual Short Course on Experimental Models of Human Cancer, The Jackson Laboratory, Bar Harbor, ME
- 2017** Workshop: Mathematical Methods in Cancer Evolution and Heterogeneity, Princeton, NJ
- 2016** Workshop: Writing/Designing Winning NIH Proposals, Yale University, CT
- 2016** Course: Professional Development for Women in Academia, Yale University, CT
- 2015** Symposium: A Personalized Medicine Approach to Cancer Care, Yale University, CT
- 2014** Workshop: How to Write a Teaching Statement, Yale University, CT
- 2012** Conference: Beyond the Genome 2012, Harvard Medical School, Boston, MA
- 2011** Workshop: Molecular Evolution, Marine Biological Laboratory, Woods Hole, MA

## ❖ AWARDS AND FELLOWSHIPS

- 2011** Thank A Teacher Certificate, by Center for the Enhancement of Teaching and Learning, Georgia Institute of Technology
- 2011** Graduate Student Travel Award, by School of Biology, Georgia Institute of Technology
- 2007-2008** Oak Ridge Institute for Science and Education (ORISE) Research Fellowship
- 2003-2005** Undergraduate Scholarship by University of Science and Technology Beijing, China