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**Positions**

- 09/2017-            Tenure-track Assistant Professor  
                      Department of Human Genetics  
                      Emory University School of Medicine, Atlanta, GA
- 09/2012 –           Postdoctoral Fellow  
08/2017            Department of Human Genetics  
                      Emory University School of Medicine, Atlanta, GA  
                      Mentor: Peng Jin, Ph.D., Professor and Vice Chair, Department of Human Genetics

**Education**

- 2006-2012           Ph.D. in Molecular Cell Biology  
                      Interdisciplinary Program in Biomedical Sciences (IDP)  
                      Department of Oral Biology, College of Dentistry  
                      Department of Anatomy and Cell Biology, College of Medicine  
                      University of Florida, Gainesville, FL  
                      Mentor: Edward Chan, Ph.D., Professor
- 2002-2005           M.S. in Genetics  
                      College of Marine Life Science,  
                      Ocean University of China, Qingdao, China  
                      Mentor: Zhenmin Bao, Ph.D., Professor and Dean
- 1998-2002           B.S. in Biotechnology  
                      College of Marine Life Science,  
                      Ocean University of China, Qingdao, China

**Research Experience**

- 09/2012-present   Postdoctoral fellow in the laboratory of Dr. Peng Jin  
                          Department of Human Genetics  
                          Emory University  
                          *Research Projects:*
- (1) RNA binding protein hnRNP A2/B1 coordinates with Tet2 to regulate 5-hydroxymethylcytosine in Fragile X-associated Tremor/Ataxia Syndrome.
  - (2) Active N6-Methyladenine demethylation by DMAD regulates gene expression by modulating the binding dynamics of Polycomb protein in neurons.
  - (3) Stress-induced accumulation of DNA N6-methyladenine in the mouse prefrontal cortex.
  - (4) Ten-eleven translocation 2 interacts with Forkhead box O3 and regulates adult neurogenesis.

- 01/2009-07/2012 Graduate student in the laboratory of Dr. Edward Chan  
Department of Oral Biology, Dept. of Anatomy and Cell Biology,  
University of Florida  
*Research Projects:*  
(1) Divergent GW182 functional domains in the regulation of translational silencing  
(2) Defining a new role for GW182 in maintaining miRNA stability
- 09/2006-12/2008 Graduate student in the laboratory of Dr. Keith Robertson  
Department of Biochemistry and Molecular Biology,  
University of Florida (current position: Professor at Mayo Clinic)  
*Research Project:* DNMT1 and DNMT3B modulate distinct Polycomb-mediated histone modifications in colon cancer
- 09/2005-07/2006 Research scientist in the laboratory of Dr. Lei Zhou  
Department of Molecular Genetics and Microbiology,  
University of Florida  
*Research Project:* Epigenetic blocking of an enhancer region controls irradiation-induced proapoptotic gene expression in *Drosophila* embryos
- 09/2002-07/2005 Masters student in the laboratory of Dr. Zhenmin Bao  
College of Marine Life Science,  
Ocean University of China  
*Research Project:* Genetic variation in two sea cucumber (*Apostichopus japonicus*) stocks revealed by ISSR markers

### **Awards and Fellowships**

- 2016 **2016 American Society of Human Genetics/Charles J. Epstein Trainee Award for Excellence in Human Genetics Research – Semifinalist**, Vancouver, BC, Canada.
- 2016 **Outstanding Postdoctoral Research Award**, *Association of Chinese Geneticists in America*
- 2016 **Travel Fellowship**, *National Ataxia Foundation Investigator meeting*, Orlando, FL.
- 2015 **Keystone Symposium Fellowship**, *Neuroepigenetics*, Santa Fe, NM.
- 2014 **Travel fellowship**, *National Ataxia Foundation Investigator meeting*, Las Vegas, NV.
- 2014 **National Ataxia Foundation Postdoctoral fellowship**, 2014-2015
- 2013 **Outstanding Postdoctoral Research Award**, *Association of Chinese Geneticists in America*
- 2011 **Bronze Award**, University of Florida College of Medicine, *Medical Guild Graduate Student Research Competition*
- 2011 **First Place**, Molecular Cell Biology concentration, *Medical Guild Graduate Student Research Competition*
- 2009-2010 **HHMI Science for Life Graduate Student Award** for outstanding mentoring of undergraduate students leading to research and scholarly publications

### **Grant Support**

- 2019-2023 NIH R01 grant MH117122, Epigenetic Roles Of DNA Adenine Methylation In Stress Response

2019-2020	Emory I3 Wow! Research Awards!
2018-2019	Emory University Alzheimer's Diseases Research Center pilot grant
2016-2017	National Ataxia Foundation Young Investigator Research Grant
2014-2015	National Ataxia Foundation Postdoctoral fellowship

### **Professional Services**

2018	Poster Judge, American Society of Human Genetics 2018 annual conference. San Diego, CA.
2017	Poster Judge, American Society of Human Genetics 2017 annual conference. Orlando, FL.
2017	Moderator, Session 102. Enhancers and Human Disease, American Society of Human Genetics 2017 annual conference. Orlando, FL.
2010-2012	Editor or <i>ad hoc</i> reviewers for Nature Biotechnology, Genome Research, Nucleic Acids Research, EMBO reports, PLOS ONE, Frontiers in Genetics, Arthritis Research & Therapy, Stem Cells and Development, FEBS letter, BMC Cell Biology

### **Teaching Experience**

2018	Course Co-director GMB 515, Special topics in genetics Genetics and Molecular Biology Graduate Program Emory Laney Graduate School
2018	Course Co-director GMB 706: Responsible Conduct in Science Genetics and Molecular Biology Graduate Program Emory Laney Graduate School
2018	Lecturer IBS746 Graduate Human Genetics Genetics and Molecular Biology Graduate Program Emory Laney Graduate School
2010-2012	Teaching assistant Department of Oral Biology University of Florida Teaching assistant to Professor Edward Chan for the graduate course GMS5905/DEN8290, RNA interference and microRNAs: from advances in cell biology to therapeutic applications in the treatment of human diseases

### **Mentoring Experience**

2018	Nishant Patil, <b><i>High school student</i></b> . Current Position: Undergraduate student at Georgia Institute of Technology
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- 2018- Janise Kuehner, B.S. **Graduate Assistant**, Genetics and Molecular Biology Program
- 2018- Feng Wang, Ph.D. **Postdoctoral Fellow**
- 2017- Emily Bruggeman, Ph.D. M.Sc. **Research Specialist Lead**
- 2014-2015 Max M. Song, **High school student**. Current Position: Undergraduate student at Brandeis University
- 2012-2013 Jian Li, **Graduate Student**. Current Position: Chief Resident in Neurosurgery, Xiangya Hospital, China
- 2012-2013 Ronac Dave, **High school student**. Current Position: Undergraduate student at Williams College
- 2010-2012 Hyun-Min Jung, **Graduate Student**. Current Position: Postdoctoral Fellow at NIH
- 2010-2012 Lan La, **Undergraduate student**. Current Position: DMD student at the University of Pennsylvania
- 2009-2011 Grant Abadal, **Undergraduate student**. Current Position: MD student at the University of Florida College of Medicine. **HHMI Science for Life Graduate Student Award** for outstanding mentoring of undergraduate students leading to research and scholarly publications

### **Bibliography (research)**

1. **Yao B.\***, Li Y\*, Chen L., Poidevin M., Zhang C., Lin L., Bao H., Wang Z., Jiao B., Huang L., Phillips BL., Moberg KH., Wu H. and Jin P. (2018) Active N6-Methyladenine demethylation by DMAD regulates gene expression by coordinating with Polycomb protein in neurons. ***Molecular Cell***. 6;71(5):848-857.
2. **Yao B.\***, Cheng Y\*, Wang Z., Li Y., Chen L., Huang L., Zhang W., Chen D., Wu H., Tang B. and Jin P. (2017) DNA N6-methyladenine is dynamically regulated in the mouse brain following environmental stress. ***Nature Communications***. 24;8(1):1122.
3. Li X\*, **Yao B.\* (Co-first author)**, Chen L., Cheng Y., Lin L., Li Y., Pan F., Dai Q., Wu H., Shu Q., Qin Z., He C., Xu M. and Jin P. (2017) Ten-eleven translocation 2 interacts with Forkhead box O3 and regulates adult neurogenesis. ***Nature Communications***. 29;8:15903.
4. **Yao B.,** Bao H., Chen L., Poidevin M., Yang S., Li X., Stoyas C., La Spada A., Ayhan F., Ranum L., Duvick L., Orr H., Zalewski Z., Nelson D., Wu H. and Jin P. hnRNP a2/b1 coordinates with Tet proteins to regulate 5-hydroxymethylcytosine in repeat expansion diseases. (In preparation. *Abstracts were invited for oral presentations in 2016 National Ataxia Foundation investigator meeting and 2016 American Society of Human Genetics meeting*).
5. Qian X., Nguyen H.N., Song M.M., Hadiono C., Ogden S.C., Hammack C., **Yao B.,** Hamersky G.R., Jacob F., Zhong C., Yoon K., Jeang W., Lin L., Li Y., Thakor J., Berg D.A., Zhang C.,

- Kang E., Chickering M., Nauen D., Ho C., Wen Z., Christian K.M., Shi P.Y., Maher B.J., Wu H., Jin P., Tang H., Song H. and Ming G.L. (2016) Brain-region-specific organoids using mini-bioreactors for modeling ZIKV exposure. **Cell**. 165(5):1238-54
6. Tang H., Hammack C., Ogden S.C., Wen Z., Qian X., Li Y., **Yao B.**, Shin J., Zhang F., Lee E.M., Christian K.M., Didier R. A., Jin P., Song H. and Ming G.L. (2016) Zika virus infects human cortical neural progenitors and attenuates their growth. **Cell Stem Cell**. 18(5):587-90
  7. Sun M., Song M.M., Wei B., Gao Q., Li L., **Yao B.**, Chen L., Lin L., Dai Q., Zhou X., Tao J., Chen J., He C., Jin P. and Xu Z. (2016) 5-Hydroxymethylcytosine-mediated alteration of transposon activity associated with the exposure to adverse in utero environments in human. **Human Molecular Genetics**. pii: ddw089.
  8. Zeng Y\*, **Yao B. (Co-first author)**, Shin J., Lin L., Kim N., Song Q., Liu S., Su Y., Guo J., Huang L., Wan J., Wu H., Qian J., Cheng X., Zhu H., Ming G.L., Jin P. and Song H. (2016) Lin28A Binds Active Promoters and Recruits Tet1 to Regulate Gene Expression. **Molecular Cell**. 61(1):153-60 (**Cover Story**) (previewed by Tan and Yeo: [http://www.cell.com/molecular-cell/fulltext/S1097-2765\(15\)00974-0](http://www.cell.com/molecular-cell/fulltext/S1097-2765(15)00974-0))
  9. Zhang C., Robinson B.S., Xu W., Yang L., **Yao B.**, Zhao H., Byun P.K., Jin P., Veraksa A., Moberg K.H. (2015) The ecdysone receptor coactivator Taiman links Yorkie to transcriptional control of germline stem cell factors in somatic tissue. **Developmental Cell**. 34(2):168-80
  10. Wu H., Xu T., Feng H., Chen L., Li B., **Yao B.**, Qin Z., Jin P., Conneely K.N. (2015) Detection of differentially methylated regions from whole-genome bisulfite sequencing data without replicates. **Nucleic Acids Research**. 2;43(21):e141
  11. Xu T., Li B., Zhao M., Szulwach K.E., Street R.C., Lin L., **Yao B.**, Zhang F., Jin P., Wu H., and Qin Z. (2015) Base-resolution methylation patterns accurately predict transcription factor bindings in vivo. **Nucleic Acids Research**. 11;43(5):2757-66
  12. Irier, H., Street C., Dave R., Lin L., Cai C., Davis T., **Yao, B.**, Cheng Y and Jin, P. (2014) Environmental enrichment modulates 5-hydroxymethylcytosine dynamics in hippocampus. **Genomics**. 104(5):376-82.
  13. **Yao, B.**, Lin, L., Street, R.C., Zalewski, Z.A., Galloway, J. N., Wu, H., Nelson, D. L. and Jin, P. (2014) Genome-wide alteration of 5-hydroxymethylcytosine in a mouse model of fragile X-associated tremor/ataxia syndrome. **Human Molecular Genetics**. **23**, 1095-1107.
  14. Guo J., Szulwach K.E., Su Y., Li Y., **Yao B.**, Xu Z., Shin J.H., Xie B., Gao Y., Ming G.L., Jin P., Song H (2014) Genome-wide antagonism between 5-hydroxymethylcytosine and DNA methylation in the adult mouse brain. **Frontiers in Biology**, **9**, 66-74
  15. Nahid, M.A., **Yao, B.**, Dominguez-Gutierrez, P.R., Kesavalu, L., Satoh, M. and Chan, E.K. (2013) Regulation of TLR2-mediated tolerance and cross-tolerance through IRAK4 modulation by miR-132 and miR-212. **The Journal of Immunology**, **190**, 1250-1263.
  16. **Yao, B.**, La, L.B., Chen, Y.C., Chang, L.J. and Chan, E.K. (2012) Defining a new role of GW182 in maintaining miRNA stability. **EMBO Reports**, **13**, 1102-1108.

17. **Yao, B.**, Li, S., Jung, H.M., Lian, S.L., Abadal, G.X., Han, F., Fritzler, M.J. and Chan, E.K. (2011) Divergent GW182 functional domains in the regulation of translational silencing. ***Nucleic Acids Research***, **39**, 2534-2547.
18. Patel, R.S., Jakymiw, A., **Yao, B.**, Pauley, B.A., Carcamo, W.C., Katz, J., Cheng, J.Q. and Chan, E.K. (2011) High resolution of microRNA signatures in human whole saliva. ***Archives of Oral Biology***, **56**, 1506-1513.
19. Carcamo, W.C., Satoh, M., Kasahara, H., Terada, N., Hamazaki, T., Chan, J.Y., **Yao, B.**, Tamayo, S., Covini, G. and von Mühlen, C.A. (2011) Induction of cytoplasmic rods and rings structures by inhibition of the CTP and GTP synthetic pathway in mammalian cells. ***PLOS One***, **6**, e29690.
20. Jin, B., **Yao, B.**, Li, J.-L., Fields, C.R., Delmas, A.L., Liu, C. and Robertson, K.D. (2009) DNMT1 and DNMT3B modulate distinct polycomb-mediated histone modifications in colon cancer. ***Cancer Research***, **69**, 7412-7421.
21. Zhang, Y., Lin, N., Carroll, P.M., Chan, G., Guan, B., Xiao, H., **Yao, B.**, Wu, S.S. and Zhou, L. (2008) Epigenetic Blocking of an Enhancer Region Controls Irradiation-Induced Proapoptotic Gene Expression in Drosophila Embryos. ***Developmental Cell***, **14**, 481-493.
22. Qiu, J., Ai, L., Ramachandran, C., **Yao, B.**, Gopalakrishnan, S., Fields, C.R., Delmas, A.L., Dyer, L.M., Melnick, S.J. and Yachnis, A.T. (2008) Invasion suppressor cystatin E/M (CST6): high-level cell type-specific expression in normal brain and epigenetic silencing in gliomas. ***Laboratory Investigation***, **88**, 910-925.
23. **Yao, B.**, Hu, X., Bao, Z., Lu, W. and Hu, J. (2007) Genetic variation in two sea cucumber (*Apostichopus japonicus*) stocks revealed by ISSR markers. ***Chinese Journal of Oceanology and Limnology***, **25**, 91-96.
24. Zhan, A., Bao, Z., **Yao, B.**, Wang, X., Hui, M. and Hu, J. (2006) Polymorphic microsatellite markers in the Zhikong scallop *Chlamys farreri*. ***Molecular Ecology Notes***, **6**, 127-129.
25. Liu, G., Bao, Z., Hu, J., Wang, S., **Yao, B.** and Zhan, A. (2006) ISSR Analysis of Two Species of Scallop (*Chlamys farreri*, *C. nobilis*) and Their Intra- and Inter-Species Mating Descendants. ***Periodical of Ocean University of China***, **1**, 013.
26. Wang, S., Bao, Z., Pan, J., Zhang, L., **Yao, B.**, Zhan, A., Bi, K. and Zhang, Q. (2004) AFLP linkage map of an intraspecific cross in *Chlamys farreri*. ***Journal of Shellfish Research***, **23**, 491-500.

(\* , equal contribution).

#### **Bibliography (review articles and book chapters)**

1. Bruggeman, E.C. and **Yao, B.** (2019). DNA Methylation in Neuronal Development and Disease. ***Springer book DNA, RNA and Histone Methylomes***. In Press.
2. Kuehner, J., Bruggeman, E.C., Wen, Z. and **Yao, B.** (2019) Epigenetic Regulations in Neuropsychiatric Disorders. ***Frontiers in Genetics***. In Press.

3. **Yao B.**, Christian K.M., He C., Jin P., Ming G.L. and Song H. (2016) Epigenetic mechanisms in neurogenesis. ***Nature Review Neuroscience***. 17(9):537-49.
4. **Yao, B.** and Jin, P. (2014) Unlocking epigenetic codes in neurogenesis. ***Genes and Development***. 28 (12):1253-1271.
5. **Yao, B.** and Jin, P. (2013) Cytosine modifications in neurodevelopment and diseases. ***Cellular and Molecular Life Sciences***, 1-14.
6. **Yao, B.**, Li, S. and Chan, E.K. (2013), Function of GW182 and GW Bodies in siRNA and miRNA Pathways. ***Ten Years of Progress in GW/P Body Research***. Springer, pp. 71-96.
7. Chan, E.K., **Yao, B.** and Fritzler, M.J. (2013), Reflections on Ten Years of History of, and Future Prospects for, GW182 and GW/P Body Research. ***Ten Years of Progress in GW/P Body Research***. Springer, pp. 261-270.
8. **Yao, B.**, Li, S., Lian, S.L., Fritzler, M.J. and Chan, E.K. (2011), *Argonaute Proteins*. Springer, pp. 45-62.
9. Ceribelli, A., **Yao, B.**, Dominguez-Gutierrez, P.R., Nahid, M.A., Satoh, M. and Chan, E. (2011) MicroRNAs in systemic rheumatic diseases. ***Arthritis research & therapy***, 13, 229.
10. Ceribelli, A., **Yao, B.**, Dominguez-Gutierrez, P.R. and Chan, E.K. (2011) Lupus T cells switched on by DNA hypomethylation via microRNA? ***Arthritis & Rheumatism***, 63, 1177-1181.

(\* , co-first authors).

### **Conference presentations**

1. **Yao B.**, Bao H., Chen L., Lin L., Podevin M., Yang S., Li X., Stoyas C., La Spada A., Ayhan F., Ranum L., Duvick L., Orr H., Zalewski Z., Nelson D., Wu H. and Jin P. (2016) 5-hydroxymethylcytosine-mediated Epigenetic Dysregulation in Cerebellar Degeneration. ***American Society of Human Genetics Annual Meeting***, Vancouver, BC, Canada. **Oral presentation.**
2. **Yao B.**, Bao H., Chen L., Lin L., Podevin M., Yang S., Li X., Stoyas C., La Spada A., Ayhan F., Ranum L., Duvick L., Orr H., Zalewski Z., Nelson D., Wu H. and Jin P. (2016) 5-hydroxymethylcytosine-mediated Epigenetic Dysregulation in Cerebellar Degeneration. ***National Ataxia Foundation Investigator meeting***, Orlando, FL. **Oral presentation.**
3. **Yao B.**, Lin L., Podevin M., Nelson D. and Jin P. (2015) HnRNP A2/B1 interacts with Tet2 and modulates epigenetic dynamics and neurodegeneration. ***National Ataxia Foundation Investigator meeting***, Santa Fe, NM. **Keystone travel fellowship.**
4. **Yao B.**, Lin L., Street. R., Zalewski Z., Galloway J., Wu H., Nelson D. and Jin P. (2014) Global reduction of 5-hydroxymethylcytosine in a FMR1 premutation mouse model. ***Abcam Neuroepigenetics meeting***, Arlington, VA. **Oral presentation.**
5. **Yao B.**, Lin L., Street. R., Zalewski Z., Galloway J., Wu H., Nelson D. and Jin P. (2014) Genome-wide alteration of 5-hydroxymethylcytosine in a mouse model of fragile X- associated tremor/ataxia syndrome. ***National Ataxia Foundation Investigator meeting***, Las Vegas, NV. **Travel fellowship.**

6. **Yao B.**, Lin L., Street. R., Zalewski Z., Galloway J., Wu H., Nelson D. and Jin P. (2013) Genome-wide alteration of 5-hydroxymethylcytosine in a mouse model of fragile X- associated tremor/ataxia syndrome American Society of Human Genetics Annual Meeting, Boston, MA. **Oral presentation.**
7. **Yao B.**, La L., Chen Y., Chang L., and Chan EKL. (2011) Role of GW182 in regulating miRNA stability. Cell symposia Regulatory RNAs, Chicago, IL.
8. **Yao B.**, La L., Nahid A. and Chan EKL. (2011) Selective secretion of miR-146a containing exosomes in lipopolysaccharide induced monocytes. Mechanism and Biology of Silencing, Keystone Symposia, Monterey, CA.
9. **Yao B.**, Li S., Jung H., Lian S., Abadal G., Han F., Fritzler M. and Chan EKL. (2010) Divergent GW182 functional domains in the regulation of translational repression. RNA society meeting, Seattle, WA.
10. **Yao B.**, Li S., Lian S., Abadal G., Han F., Fritzler M. and Chan EKL. (2009) Defining divergent GW182 functional domains in the regulation of translational repression. ASCB annual meeting, San Diego, CA.

**Other Experience and Professional Memberships**

2009-2010	Member, American Society of Cell Biology
2010-2011	Member, RNA society
2013-present	Member, American Society of Human Genetics