

Chaogu ZHENG, Ph.D.

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WORK EXPERIENCE

- ❖ Assistant Professor (11/2018~present)
School of Biological Sciences, The University of Hong Kong, Hong Kong SAR, China
- ❖ Postdoctoral Research Scientist (08/2015~10/2018)
Department of Biological Sciences, Columbia University, New York, NY, U.S.A.
- ❖ Adjunct Assistant Professor (03/2016~12/2017)
Department of Natural Sciences, City University of New York, New York, NY, U.S.A.

EDUCATION

- ❖ Ph.D. in Biological Sciences (with distinction; top 10%) (09/2009~10/2015)
Columbia University
New York, NY, U.S.A.
Mentor: Dr. Martin Chalfie (2008 Nobel Laureate in Chemistry)
- ❖ M.S. in Biochemistry and Molecular Biology (09/2006~07/2009)
Institute of Biophysics, Chinese Academy of Sciences, Beijing, China
Mentor: Dr. Xiyun Yan (Member of the Chinese Academy of Sciences)
- ❖ B.S. in Biotechnology (09/2002~07/2006)
University of Science and Technology of China, Hefei, China

RESEARCH EXPERIENCE

Fields of interest: Neurobiology; Developmental Biology; Genetics; Genomics; Genetic Engineering; Cell Biology; Evolutionary Biology

- ❖ Columbia University, New York, NY (01/2010~10/2018) Dr. Martin Chalfie's lab
Studied the mechanisms of neuronal cell fate determination, the genetic basis of neuronal subtype diversification along the anterior-posterior axis, the mechanisms of neurite growth, and the role of histone modification in regulating terminal neuronal differentiation in the nematode *Caenorhabditis elegans*.
- ❖ Columbia University Medical Center, New York, NY (09/2009~01/2010) Dr. Oliver Hobert's lab
Identified the mechanism for neuronal cell fate reprogramming in *C. elegans* using genetics
- ❖ Institute of Biophysics, Chinese Acad. of Sci., Beijing, China (09/2006~07/2009) Dr. Xiyun Yan's lab
Elucidated the pro-angiogenic role of endothelial CD146 and its signaling cascade in tumor angiogenesis; developed novel anti-CEA monoclonal antibodies with tumor-suppressing activities.
- ❖ U of Sci. and Tech. of China, Hefei, China (04/2005~08/2006) Dr. Weihua Xiao's lab
Investigated the mechanism of chemoresistance in prostate cancer; identified transcription factor EGR1 as a target gene of E2F1 and uncovered an E2F1-induced cell survival pathway.

TEACHING EXPERIENCE

- ❖ Adjunct Assistant Professor, City University of New York, 03/2016 ~ 12/2017
Instructor for *General Biology* (12-week course), class size: 48
- ❖ Research Mentor for the Summer Undergraduate Research Fellowship (SURF) program and mentor for undergraduate students including two Columbia College Valedictorians (Margarete Diaz-Cuadros of 2014 and Felix Qiaochu Jin of 2016), Columbia University, 2011 ~ 2018

- ❖ Teaching assistant for the course of *Developmental Biology*, Columbia University, 2011
- ❖ Teaching assistant for the course of *General Physiology*, Columbia University, 2010

AWARDS AND HONORS

1. 2016 Peter Sajovic Memorial Prize awarded to a graduate student doing outstanding work in biology at the Department of Biological Science at Columbia University
2. 2015 Kavli Award for Distinguished Research in Neuroscience at Columbia University
3. PhD Graduation with Distinction, Department of Biological Sciences, Columbia University, 08/2015
4. Graduate student fellowship, Columbia University, 2009-2015
5. Outstanding Graduate Student Scholarship, Chinese Academy of Science, 2006-2009
6. Outstanding Bachelor's Graduation Thesis, U of Sci and Tech of China, 2006

PUBLICATIONS

Publications from the work of **Ph.D. and post-doctoral studies** at Columbia University

1. **Zheng, C.**, Jin, F.Q., Trippe, B.L., Wu, J., and Chalfie, M. Inhibition of cell fate repressors secures the differentiation of the touch receptor neurons of *Caenorhabditis elegans*. *Development*. 2018 Oct 5. pii: dev.168096. doi: 10.1242/dev.168096.
2. Shi, L.[#], **Zheng, C.**[#], Shen, Y., Chen, Z., Silveira, E.S., Zhang, L., Wei, M., Liu, C., de Sena-Tomas, C., Targoff, K., and Min, W. Optical Imaging of Metabolic Dynamics in Animals. *Nat Commun*. 2018 Aug 6;9(1):2995.
3. **Zheng, C.**, Diaz-Cuadros, M., Jao, S.L., Nguyen, K.C., Hall, D.H., and Chalfie, M. Distinct effects of tubulin isotype mutations on neurite growth in *Caenorhabditis elegans*. *Mol Biol Cell*. 2017 Oct 15;28(21):2786-2801 (Highlights from *MBoC* Selection)
4. **Zheng, C.**, Diaz-Cuadros, M., and Chalfie, M. GEFs and Rac GTPases control directional specificity of neurite extension along the anterior-posterior axis. *Proc Natl Acad Sci U S A*. 2016 Jun 21;113(25):6973-8.
5. **Zheng, C.** Chalfie, M. Securing Neuronal Cell Fate in *C. elegans*. *Curr Top Dev Biol*. 2016;116:167-80 (Invited review)
6. **Zheng, C.**, Diaz-Cuadros, M., Chalfie, M. Hox Genes Promote Neuronal Subtype Diversification through Posterior Induction in *Caenorhabditis elegans*. *Neuron*. 2015 Nov 4;88(3):514-27. (Previewed by *Neuron* journal)
7. **Zheng, C.**, Jin, F.Q., Chalfie, M. Hox Proteins Act as Transcriptional Guarantors to Ensure Terminal Differentiation. *Cell Rep*. 2015 Nov 17;13(7):1343-52. (Recommended to F1000 prime)
8. **Zheng, C.**, Diaz-Cuadros, M., Chalfie, M. Dishevelled attenuates the repelling activity of Wnt signaling during neurite outgrowth in *Caenorhabditis elegans*. *Proc Natl Acad Sci U S A*. 2015 Oct 27;112(43):13243-8 (Editor's Choice by *Science Signaling*)
9. Hu, F., Wei, L., **Zheng, C.**, Shen, Y., Min, W. Live-cell vibrational imaging of choline metabolites by stimulated Raman scattering coupled with isotope-based metabolic labeling. *Analyst*. 2014 Apr 15;139(10):2312-7
10. **Zheng, C.**, Karimzadegan, S., Chiang, V., Chalfie, M. Histone methylation restrains the expression of subtype-specific genes during terminal neuronal differentiation in *Caenorhabditis elegans*. *PLoS Genet*. 2013 Dec;9(12):e1004017

Publications from the work of **M.S. studies** at the Institute of Biophysics, Chinese Academy of Sciences

11. **Zheng, C.**, Feng, J., Lu, D., Wang, P., Xing, S., Coll, J.L., Yang, D., Yan, X. A Novel Anti-CEACAM5 Monoclonal Antibody, CC4, Suppresses Colorectal Tumor Growth and Enhances NK Cells-Mediated Tumor Immunity. *PLoS One*. 2011;6(6):e21146.

12. Luo, Y.[#], **Zheng, C.[#]**, Zhang, J., Lu, D., Zhuang, J., Xing, S., Feng, J., Yang, D., Yan, X. Recognition of CD146 as an ERM-binding protein offers novel mechanisms for melanoma cell migration. *Oncogene*. 2012 Jan 19;31(3):306-21. (# co-first author).
13. **Zheng, C.**, Qiu, Y., Zeng, Q., Zhang, Y., Lu, D., Yang, D., Feng, J., Yan, X. Endothelial CD146 is required for in vitro tumor-induced angiogenesis: The role of a disulfide bond in signaling and dimerization. *Int J Biochem Cell Biol*. 2009 Nov;41(11):2163-72.
14. Zhuang, J., Jiang, T., Lu, D., Luo, Y., **Zheng, C.**, Feng, J., Yang, D., Chen, C. and Yan, X. NADPH oxidase 4 mediates reactive oxygen species induction of CD146 dimerization in VEGF signal transduction. *Free Radic Biol Med*. 2010 Jul 15;49(2):227-36.
15. Zhang, B., Li, L., Feng, L., Zhang, Y., Zeng, X., Feng, J., Yang, D., **Zheng, C.**, and Yan, X. Elevated Levels of Soluble and Neutrophil CD146 in Active Systemic Vasculitis. *LabMedicine*. 2009 May, 40, 351-356
16. Zhang, Y.[#], **Zheng, C.[#]**, Zhang, J., Yang D., Feng, J., Lu, D., and Yan, X. Generation and Characterization of a panel of monoclonal antibodies against distinct epitopes of human CD146. *Hybridoma (Larchmt)*. 2008 Oct;27(5):345-52. (# co-first author).
17. Zhang, S.Y., Ma, X.F., **Zheng, C.G.**, Wang, Y., Cao, X.L., and Tian, W.X. Novel and potent inhibitors of fatty acid synthase derived from catechins and their inhibition on MCF-7 Cells. *J Enzyme Inhib Med Chem*. 2009 Jun;24(3):623-31
18. Zhang, S.Y., **Zheng, C.G.**, Yan, X.Y., and Tian, W.X. Low concentration of condensed tannins from catechu significantly inhibits fatty acid synthase and growth of MCF-7 cells. *Biochem Biophys Res Commu*. 2008 Jul 11;371(4):654-8.

Publications from **undergraduate studies** at the University of Science and Technology of China

19. **Zheng, C.**, Ren, Z., Wang, H., Zhang, W., Kalvakolanu, D.V., Tian, Z., and Xiao, W. E2F1 Induces tumor cell survival via nuclear factor-kappaB-dependent induction of EGR1 transcription in prostate cancer cells. *Cancer Res*. 2009 Mar 15;69(6):2324-31. (highlighted by *Nature China*)
20. Ren, Z., Kang, W., Wang, L., Sun, B., Ma, J., **Zheng, C.**, Sun, J., Tian, Z., Yang, X., Xiao, W. E2F1 renders prostate cancer cell resistant to ICAM-1 mediated antitumor immunity by NF-κB modulation. *Mol Cancer*. 2014 Apr 17;13:84.
21. Ma, J., Ren, Z., Ma, Y., Xu, L., Zhao, Y., **Zheng, C.**, Fang, Y., Xue, T., Sun, B., and Xiao, W. Targeted knockdown of EGR-1 inhibits IL-8 production and IL-8-mediated invasion of prostate cancer cells through suppressing EGR-1/NF-kappaB synergy. *J Biol Chem*. 2009 Dec 11;284(50):34600-6.
22. Zhang, W., Chen, Y., Wei, H., **Zheng, C.**, Sun, R., and Tian, Z. Anti-apoptotic activity of autocrine IL-22 and therapeutic effects of IL-22-siRNA on human lung cancer xenografts. *Clin Cancer Res* 2008 Oct 15;14(20):6432-6439

CONFERENCE PRESENTATION AND INVITED TALKS

1. Invited talk at Hong Kong University, Mar. 2018, Hong Kong, China
2. Invited talk at Zhejiang University, Jan. 2018, Hangzhou, Zhejiang Province, China
3. Invited talk at Hong Kong University of Science and Technology, Jan. 2018, Hong Kong, China
4. Invited talk at Southern University of Science and Technology, Jan. 2018, Shenzhen, China
5. Minisymposium talk at the 2017 ASCB | EMBO meeting, “Distinct effects of tubulin isotype mutations on microtubule stability and neurite growth in *Caenorhabditis elegans*”, Dec. 2017, Philadelphia, PA
6. Invited talk at University of Pennsylvania, Aug. 2017, Philadelphia, PA,
7. Parallel talk at the 21st International *C. elegans* meeting, “Distinct effects of tubulin isotype mutations on neurite growth in *Caenorhabditis elegans*,” June, 2017, Los Angeles, CA
8. Invited talk at Xiamen University, Apr. 2017, Xiamen, Fujian Province, China

Curriculum Vitae

9. Invited talk at Institute of Genetics and Developmental Biology, Apr. 2017, Beijing, China
10. Invited talk at University of Science and Technology of China, Jul. 2016, Hefei, China
11. Invited talk at the Institute of Biophysics, Chinese Academy of Science, Mar. 2016, Beijing, China
12. Poster presentation at the 20th International *C. elegans* Meeting, “Dsh-1/Dishevelled attenuates the repelling activity of Wnt signaling in neurite outgrowth” 2015, Los Angeles, CA
13. Poster presentation at the 20th International *C. elegans* Meeting, “The role of Hox genes in promoting both neuronal cell fate convergence and subtype diversification along the Anterior-Posterior axis” 2015, Los Angeles, CA
14. NeuroLunch Seminar at the Kavli Institute for Brain Science, Columbia University, 2015
15. Talk at the First Biennial Graduate Student Symposium, Department of Biological Science, Columbia University, 2014
16. Plenary talk at the 19th International *C. elegans* Meeting, “Epigenetic control of terminal neuronal differentiation in *Caenorhabditis elegans*,” 2013, Los Angeles, CA
17. Poster presentation at the 19th International *C. elegans* Meeting, “Genetic basis of subtype diversification of Touch Receptor Neurons in *C. elegans*,” 2013, Los Angeles, CA
18. Talk at the biannual retreat of the Department of Biological Science, Columbia University, 2011