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The Center for Bioinformatics and
Computational Biology
Department of Cardiovascular Sciences
Department of Oncology
Houston Methodist Research Institute
6670 Bertner AVE, R10-217
Houston, TX 77030

EDUCATION

2009.8 – 2014.5 **Ph.D. in Genetics and Genomics**
Graduate Program in Genetics and Genomics
Genetics Institute, College of Medicine
University of Florida, Gainesville, FL
Mentor: Frederic Kaye, M.D.

2009.8 – 2013.12 **M.S. in Statistics**
Graduate Program in Statistics
College of Liberal Arts and Sciences
University of Florida, Gainesville, FL
Mentor: Zhihua Su, Ph.D.

2004.9 – 2007.6 **M.S. in Biochemistry & Molecular Biology (Joint education)**
College of Bioscience and Biotechnology
Yangzhou University, Yangzhou, China
Shanghai Institutes for Biological Sciences (joint program)
Chinese Academy of Sciences, Shanghai, China

2000.9 – 2004 .6 **B.S. in Biotechnology**
College of Bioscience and Biotechnology
Yangzhou University, Yangzhou, China

RESEARCH EXPERIENCE

2019.11 – **Assistant Professor, Single Cell Genomics and Bioinformatics**
The Center for Bioinformatics and Computational Biology
Department of Cardiovascular Sciences
Department of Oncology
Houston Methodist Research Institute, Houston, TX

2014.8 – 2019.11 **Postdoctoral Fellow, Computational Biology and Statistics**
Department of Genetics
The UT MD Anderson Cancer Center, Houston, TX
Advisor: Nicholas Navin, Ph.D.

2009.8 – 2014.7 **Graduate Research Assistant, Genetics and Genomics**
Department of Hematology and Oncology

University of Florida, Gainesville, FL
Advisor: Frederic Kaye, M.D.

2008.4 – 2009.6 **Project Manager, Gene-To-Structure Studies**
Shanghai Medicilon Inc., Shanghai, China
Supervisor: Peter Rehse, Ph.D.

TEACHING EXPERIENCE

2018.4.26 **DNA Fingerprint Analysis in Forensics, Teacher**
The DNA Day Ambassador
The Harmony Science Academy-High School, Houston, TX

2018.1 – 2019.11 **Texas Single Cell Research Workshop (Biweekly), Coordinator**
Department of Genetics
The UT MD Anderson Cancer Center, Houston, TX

2018.1 – 2019.11 **Single Cell Computational Methods (Biweekly), Coordinator**
GSBS Graduate Course (GS01 1041)
Department of Bioinformatics and Computational Biology
The UT MD Anderson Cancer Center, Houston, TX

FELLOWSHIP/GRANT SUPPORT

1. **Susan G. Komen Grant – Basic/Translational and Clinical Research**
   Role: Principle Investigator
   Award: 2017~2020, 3 years, $180,000
   Title: Investigating Chemo-resistance in TNBC using Single Cell Transcriptomics

2. **AACR John and Elizabeth Leonard Family Foundation - Basic Cancer Research Postdoctoral Fellowship**
   Role: Principle Investigator
   Award: 2017~2018, 1 year, $50,000
   Title: Tracking Stromal Interactions in TNBC Chemo-resistance By Single Cell RNAseq

3. **The Center of Genetics and Genomics Scholar Award (New Postdoc Recruitment)**
   Award: 2014~2015, 1 year, $42,000

ACADEMIC AWARDS

2018	Bayer Award of Translational Research (MD Anderson)
2017	Awards for Achievement (MD Anderson)
2016	Odyssey Outstanding Research Publication Award (MD Anderson)
2011	Certificate of Outstanding Achievement (UF)
2006	Award for Excellent Graduate Student (YZU)

2004	Mr. Zhu Jingwen Scholarship (YZU)
2004	Award for Excellent Undergraduate Student (YZU)
2003	First Grade Scholarship for Excellent Undergraduate Student (YZU)
2000	China Construction Bank Fellowship (YZU)

INVITED TALKS

1. **Gao R** (2018). Delineating clonal evolution in breast cancer with single cell genomics. **Cold Spring Harbor Aisa: Frontiers in single cell genomics**, Suzhou, China.

2. **Gao R** (2018). Investigating phenotypic plasticity in breast cancer with high-throughput nanogrid single-nucleus RNA sequencing. **TaKaRa iCELL8 AACR workshop: single cell automation systems**, Chicago, IL.

3. **Gao R** (2016). Single cell sequencing revealed clonal stasis and punctuated copy number evolution in triple negative breast cancer patient. **Festival of genomics**, San Diego, CA.

4. **Gao R** (2016). High throughput single nuclei RNAseq for breast cancers using novel nanogrid technology. **MD Anderson G&D retreat**, Navasota, TX.

PUBLICATIONS

1. Davis A, **Gao R**, Navin N (2019). SCOPIT: sample size calculations for single-cell sequencing experiments. BMC Bioinformatics, 20(1): 566.

2. Jiang Y, **Gao R**, Cao C, Forbes L, Li J, Freeberg S, Fredenburg K, Justic J, Silver N, Wu L, Varma S, West R, Licht J, Zajac-Kaye M, Kentsis A, Kaye F (2019). MYB-activated models for testing therapeutic agents in adenoid cystic carcinoma. **Oral Oncology**, 98: 147-155.

3. Vijay GV, Zhao N, Hollander PD, Toneff MJ, Joseph R, Pietila M, Taube J, Sarkar TR, Ramirez-Pena E, Werden S, Shariati M, **Gao R**, Sobieski M, Stephan C, Sphyris N, Miura N, Davis P, Chang J, Soundararajan R, Rosen J, Mani S (2019). GSK3β regulates epithelial-mesenchymal transition and cancer stem cell properties in triple-negative breast cancer. **Breast Cancer Res**, 21: 37.

4. Kim C*, **Gao R***, Sei E, Brandt R, Hartman J, Hatschek T, Crosetto N, Foukakis T, Navin N (2018). Chemoresistance evolution in triple-negative breast cancer delineated by single cell sequencing. **Cell**, 173:879-893 (**equal contributions*).

5. Casasent A, Schalck A, **Gao R**, Sei E, Long A, Pangburn W, Casasent T, Meric-Bernstam F, Edgerton M, Navin N (2018). Multiclonal invasion in DCIS identified by topographic single cell DNA sequencing. **Cell**, 172: 205-217.

6. Beli E*, Yan Y*, Moldovan L, Vieira C, **Gao R**, Duan Y, Bhatwadekar A, White F, Townsend S, Chan L, Ryan C, Morton D, Moldovan E, Chu FI, Oudit G, Derendorf H,

Adorini L, Wang X, Evans-Molina C, Mirmira R, Boulton M, Yoder M, Li Q, Levi M, Busik J, Grant M (2018). Restructuring of the gut microbiome by intermittent fasting prevents retinopathy and prolongs survival in db/db mice. **Diabetes** (*https://doi.org/10.2337/db18-0158*).

7. **Gao R***, Kim C*, Sei E, Foukakis T, Crosetto N, Chan L, Srinivasan M, Zhang H, Meric-Bernstam F, Navin N (2017). Nanogrid Single-Nucleus RNA Sequencing Reveals Phenotypic Diversity in Breast Cancer. **Nature Commun**, 8: 228 (**equal contributions*).

8. Davis A, **Gao R**, Navin N (2017). Tumor evolution: linear, branched, neutral or punctuated? **BBA-Rev on Cancer**, 1867 (2): 151-161.

9. Yan Y, **Gao R**, Trinh T, Grant M (2017). Immunodeficiency in pancreatic adenocarcinoma with diabetes revealed by comparative genomics. **Clin Cancer Res**, 23(20): 6363-73.

10. Leung M*, Davis A*, **Gao R**, Casasent A, Wang Y, Sei E, Vilar E, Maru D, Kopetz S, Navin N (2017). Single cell DNA sequencing reveals a late dissemination model in metastatic colorectal cancer. **Genome Res**, 27: 1287-99 (**equal contributions*).

11. Pourebrahim R, Zhang Y, Liu B, **Gao R**, Xiong S, Lin P, McArthur M, Ostrowsi M, Lozano G (2017). Integrative genome analysis of somatic p53 mutant osteosarcomas identifies Ets2-dependent regulation of small nucleolar RNAs by mutant p53 protein. **Genes Dev**, 31(18): 1847-57.

12. **Gao R**, Davis A, McDonald T, Sei E, Shi X, Wang Y, Tsai PC, Casasent A, Waters J, Zhang H, Meric-Bernstam F, Michor F and Navin N (2016). Punctuated copy number evolution and clonal stasis in triple-negative breast cancer. **Nat Genet***,* 48: 1119-30.

13. Leung M*, Wang Y*, Kim C, **Gao R**, Jiang J, Sei E, Navin N (2016). Highly-multiplexed targeted DNA sequencing of single nuclei. **Nat Protocols**, 11(2): 214-35 (**equal contributions*).
14. Cao C, **Gao R**, Zhang M, Amelio AL, Fallahi M, Chen Z, GU Y, Hu C, Welsh EA, Engel BE, Haura EB, Cress WD, Wu L, Zajac-Kaye M, Kaye FJ (2015). Role of LKB1-CRTC1 on glycosylated COX-2 and response to COX-2 inhibition in lung cancer. **J Natl Cancer Inst**, 107(1): 1-11.

15. **Gao R**, Cao C, Zhang M, Yan Y, Maria-Cecilia L, Baker H, Renne R, Zajac-Kaye M, Chen Z, Wu L, Chen M, Mitani Y, Zhang L, El-Naggar A, Kaye F (2014). A unifying gene signature for adenoid cystic cancer identifies parallel MYB-dependent and MYB-independent therapeutic targets. **Oncotargets**, 5(24): 12528-42.

16. Chen Z, Chen J, Gu Y, Hu C, Li J, Lin S, Shen H, Cao C, **Gao R**, Li J, Ha P, Kaye F, Griffin J, Wu L (2014). Aberrantly activated AREG-EGFR signaling is required for the growth and

survival of CRTC1-MAML2 fusion-positive mucoepidermoid carcinoma cells. **Oncogene**, 33(29): 3869-77.

17. Zhao Y, Ding M, **Gao R**, Xu G, Zhao F (2008). Study the function and structure of a multi-functional cellulase from mollusca, *ampullaria crossean*. **Journal of Zhejiang Sci-Tec University***,* 25: 535-538.