

MEIXUE DUAN

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EDUCATION

Georgia Institute of Technology

Ph.D in Bininformatics

2018.Jan - 2022.Aug

M.S. in Bioinformatics, **GPA: 3.95/4.0**

2016.Aug - 2017.Dec

M.S. in Statistics, **GPA: 4.0/4.0**

2017.Aug - 2020.Jan

University of Electronic Science and Technology of China

B.Eng in Biomedical Engineering, **GPA: 3.91/4.0, Grade Rank: 1st/79**

2011.Sept - 2015.July

COMPUTATIONAL SKILLS

- Proficient in programming using R, Python, JMP; Experienced with SQL, Shell, Matlab and C.
- Proficient in computational analysis of NGS data, including bulk RNA-seq, whole genome bisulfite sequencing (WGBS), **single cell (sc)** RNA-seq, VDJ-seq, CITE-seq and **spatial transcriptomic** data processing.
- Familiar with Git version control, Snakemake workflow language and Docker container.
- Experienced in data mining, statistical analysis, building database, and machine learning (ML).
- Proficient in Unix, windows, high-performance computing (HPC) and Google cloud platforms.

EXPERIENCE

[Immunitas Therapeutics](#), Waltham, MA

2022.Sept - 2023.May

Computational biology scientist (Manager: Ming (Tommy) Tang)

Immunitas is a start-up company (around 50 people), utilized a discovery engine combines deep expertise in single-cell genomics with ML approaches to build a robust pipeline of immuno-oncology antibody-based therapeutics.

Georgia Institute of Technology, Atlanta, GA

2018.Jan - 2022.Aug

Graduate Research Assistant (PIs: Dr. Greg Gibson and Dr. Frances Eun-Hyung Lee at Emory University)

- Developed a pipeline for scRNA-seq data analysis implemented in **Python** and **R**
- Applied scRNA-seq and scVDJ-seq for **Program 1**) to explore the underlying mechanisms of human bone marrow plasma cell (BMPC) heterogeneity and maturation trajectories (As the only first author, the paper has been accepted to **Cell Reports**; selected as **oral presentation** at Keystone conference 2022).
- **Program 2**) to understand the underlying mechanism of a novel pro-survival factor in support of BMPC survival and antibody secretion by ligand-receptor and network analysis using **R** and **Cytoscape** (All the functional assays were completed, manuscript is in preparation and expected to submit this June, provisional patents have been filed for drug target).
- Completed a pilot study and built a computational pipeline for Intervertebral disc disease (IDD) project using scRNA-seq data.

Georgia Institute of Technology, Atlanta, GA

2016.Aug - 2017.Dec

Graduate Research Assistant (PI: Dr. Greg Gibson)

- Analyzed bulk RNAseq data generated from multi-condition cardiomyocytes derived from human iPS cells (hiPSC-CMs) to understand whether inhibition of HIF-1 α pathway could enhance FAO in hiPSC-CMs and improve the maturation of hiPSC-CMs in 3D culture.
- Led the computational analysis for bulk RNA-seq data generated from 800 samples (200 healthy people sampled at 4 time points) in **Python**, **R** and **Shell** for [Center for Health Discovery and Well Being \(CHDWB\)](#).
- Created a [ShinyApp](#) to visualize more than 100 clinically measured indices on Atlanta metropolitan map.
- Performed computational analyses for *Individualized Transcriptional Resolution of Complicated Malaria in a Colombian Study* using **R** and **JMP** (As a co-first author, the paper was published at **J. Pers. Med**).

State Key Laboratory of Biotherapy, Sichuan University, Sichuan, China

2015.July - 2016.July

Research Assistant (Manager: Dan Xie)

- Performed computational analyses for [Integrated personal omics profiles \(ipop\) project](#), including analyzed longitudinally generated human whole genome methylation (WGBS) and transcriptomic (RNA-seq) data in **R**.

AWARDS AND HONORS

- Computational Biology Faculty Research Award (2017.Jan - 2017.May, 2017.May - 2017.Aug & 2017.Aug - 2017.Dec)
- Graduated with honor (2015.July)
- National Encouragement Scholarship (2014.Nov)
- State Excellent Student Scholarship Outstanding Prize by Sichuan Province (2012.Nov & 2013.Nov)

SELECTED PUBLICATIONS

[Google scholar for the full publication lists](#)

- **M. Duan**, D. C. Nguyen, C. J. Joyner, C. L. Saney, C. M. Tipton, J. Andrews, S. Lonial, C. Kim, I. Hentenaar, A. Kusters, E. Ghosn, A. Jackson, S. Knechtle, S. Maruthamuthu, S. Chandran, T. Martin, R. Rajalingam, F. Vincenti, C. Breeden, I. Sanz, G. Gibson, F. E. Lee (2023). "Understanding Heterogeneity of Human Bone Marrow Plasma Cell Maturation and Survival Pathways by Single Cell Analyses". *Cell Reports* (accepted)
- **M. Duan**^{*}, D. C. Nguyen^{*}, C. J. Joyner, C. L. Saney, I. Sanz, G. Gibson, F. E. Lee (2023), "XXX AS AN AUTOCRINE PRO-SURVIVAL FACTOR SUPPORTS THE SURVIVAL OF ASC VIA XXX RECEPTOR". (in preparation)
- Nguyen, D. C., **M. Duan**, M. Ali, A. Ley, I. Sanz and F. E. Lee (2021). "Plasma cell survival: The intrinsic drivers, migratory signals, and extrinsic regulators." *Immunol Rev* 303(1): 138-153.
- Rojas-Pena, M. L. ^{*}, **M. Duan**^{*}, D. Arafat, L. Rengifo, S. Herrera, M. Arevalo-Herrera and G. Gibson (2018). "Individualized Transcriptional Resolution of Complicated Malaria in a Colombian Study." *J Pers Med* 8(3).
- Chen, R., L. Xia, K. Tu, **M. Duan**, K. Kukurba, J. Li-Pook-Than, D. Xie and M. Snyder (2018). "Longitudinal personal DNA methylome dynamics in a human with a chronic condition." *Nat Med* 24(12): 1930-1939.
- Li, T. ^{*}, **M. Duan**^{*}, K. Li, G. Yu and Z. Ruan (2015). "Bedside monitoring of patients with shock using a portable spatially-resolved near-infrared spectroscopy." *Biomed Opt Express* 6(9): 3431-3436.

^{*} **Co-first author, equal contribution**