

Thomas Zhang

Thomas13497@gmail.com • LinkedIn.com/in/thomaszhang97

Education:

University of Pittsburgh, Pittsburgh, PA

August 2015 – May 2019

Bachelor of Science: Biological Science; Minor: Chemistry, Economics

Certificate: Conceptual Foundations in Medicine

Research:

Research Associate II, Broad Institute of MIT and Harvard

June 2019 – Present

Lab of Gad Getz, PhD., Cambridge, MA

- Optimized protocol to isolate single nuclei from flash frozen rapid autopsy samples for single-nuclear RNA-seq
- Designed time-course drug treatment experiments to understand persister cells development under various drugs and concentrations using single-cell RNA-seq
- Investigated the role of methyl transferase *KMT2C* in drug resistance mechanisms in ER+ HER2- breast cancer
- Design and analyzed time-course drug treatment RNA-seq data of CRISPR mediated KO of *KMT2C* in CAMA1 cells
- Mentor new Research Associate in experimental technique and RNA-seq data analysis

Undergraduate Researcher, University of Pittsburgh, Department of Biological Sciences

May 2016 – June 2019

Lab of William Saunders, Ph.D., Pittsburgh, PA

- Investigated role of *KIF22* in focal adhesion assembly disassembly pathways in HeLa cells for cancer cell migration
- Investigated cellular uptake of nitrogen-doped carbon nano-cups as a potential substrate for protein delivery to trigger cellular divisional defects (collaboration with Star Lab in Department of Chemistry)
- Mentored undergraduate researcher with experimental design and data analysis
- Applied transfer learning to differentiate control and cytoskeleton disrupted immunofluorescence microscopy images

High School Researcher, Stevens Institute of Technology, Department of Chemical Engineering

May 2014 – June 2015

Lab of Henry Du, Ph.D., Hoboken, NJ

- Synthesized silver nanoparticles for use in Surface Enhanced Raman Spectroscopy to analysis kidney transplant patients' urine and predict rejection

Publications:

Griffith, A., **Zhang, T.**, Burkert, S., Adiguzel, Z., Ayhan, C., Star, A., Saunders, W. "Characterizing the Cellular Response to Nitrogen Doped Carbon Nanocups." *Nanomaterial* 2019, 9(6), 887. DOI: 10.3390/nano9060887

Leshchiner, I., Martin, E., Chen, C., Leshchiner, E., **Zhang, T.**, Pinto, C., ... Getz, G., Juric, D. "Convergent Mechanisms Define Novel Resistance Drivers in Advanced Breast Cancer and at Time of Autopsy." (In Preparation), 2021

Leshchiner, E., Panaiotou, R., **Zhang, T.**, ... Brugge, J., Getz, G. "Interaction of cancer cell populations drives ovarian cancer and chemoresistance." (In Preparation), 2021

Fellowships/Honors/Awards:

Summer Pitt HHMI Mentor Mentee Research Fellowship

Summer 2016/2017

Dean's List

Fall 2015/17/18 Spring 2016/18/19

Outside of the Classroom Curriculum Honor Society (non-academic experiences program)

December 2018

Honorable Mentions in Chemistry and Material Science, New Jersey Regional Science Fair

March 2015

Leadership:

Founder/Volunteer/President, Aldercare (non-profit), Pittsburgh, PA

March 2018 – Present

- Establish and organize programs to increase social interaction of seniors in senior living communities
- Designed Virtual Reality demo to incorporate research and account for disorientation
- Designed programs to teach computer and smartphone basics
- Grown to 2 campus chapters in Pennsylvania and Virginia

Board Member, UPMC Children's Hospital of Pittsburgh Youth Research Advisory Board, Pittsburgh, PA April 2017 – June 2019

- Cooperate with researchers to better conduct research regarding adolescents and young adults
- Provide feedback and advice on recruitment and research procedures

Vice President/Captain, Pittsburgh Fencing Association (college club), Pittsburgh, PA September 2015 – May 2019

- Organize team for national tournament and led 2 practices per week
- Raised available funds from \$8,000 to \$11,000

Tournament Committee Officer, US Association of Collegiate Fencing Club, Philadelphia, PA February 2018 – February 2019

- Assist with annual championship planning and design initiative to increase women's fencing in collegiate club fencing

Teaching/Science Outreach:

Broad Institute Campus Ambassador, Boston, MA November 2019 – Present

- Improve representation in science by connecting underrepresented students to research opportunities at the Broad Institute

Virtual Science Fair Judge, Mass STEM Hub, Boston, MA November 2019

Undergraduate TA, Neural Tube Defects Biology Lab, Pittsburgh, PA Fall 2017

- Help lead discussion for Neural Tube Defects Biology Lab

Tutor, Summerbridge Pittsburgh, Pittsburgh, PA January 2016 – May 2016

- Design lesson plans for high school physics. Improved HS junior physics grade from B to A

Poster/Talks/Conference Abstracts:

Leshchiner, I., Martin, E., Chen, C., Leshchiner, E., **Zhang, T.**, Pinto, C., ... Getz, G., Juric, D. (2021 April) "Convergence of resistance patterns in breast cancer after multiple lines of treatment through analysis of rapid autopsy samples [Conference abstract]." *Proceedings of the American Association of Cancer Research Annual Meeting 2021*. DOI: 10.1158/1538-7445.AM2021-37

Zhang, T., Leshchiner, E., Pinto, C., Juric, D., Fagre, C., Slowik, K., Getz, G. (2019, October). *Optimization of Single Nuclei Isolation from Frozen Tissue*. Poster presented at Massachusetts General Hospital Cancer Center Annual Retreat. Boston, MA.

Zhang, T., Griffith, A., Burkert, S., Star, A., Saunders, W. (2019, February). *Uptake of Protein Conjugated Nitrogen Doped Carbon Nanocups in HeLa Cells*. Poster presented at Biology Department Undergraduate Research Fair. Pittsburgh, PA.

Zhang, T., Griffith, A., Burkert, S., Star, A., Saunders, W. (2018, October). *Uptake of Nitrogen Doped Carbon Nano Materials and Its Use in Intracellular Protein Delivery*. Poster presented at Science 2018. Talk given at AMSA Annual Fall Research Fair. Pittsburgh, PA.

Zhang, T., Matson, T., Xu, L., Saunders, W. (2017, June/October). *A Novel Method and ImageJ Plugin for Signal Isolation in Image Analysis*. Poster presented at HHMI Summer Research Fellowship Fair and Science 2017. Pittsburgh, PA.

Zhang, T., Xu, L., Saunders, W. (2017, March). *A Novel Method for Quantitative Comparison of Co-Localization in the Cell*. Poster presented at Undergraduate Research Fair. Pittsburgh, PA.

Zhang, T., Xu, L., Saunders, W. (2016, August). *The Dynamic Turnover of Focal Adhesions*. Poster presented at HHMI summer Research Fellowship Fair. Pittsburgh, PA.

Zhang, T., Kaufmann, N. (2016, June). *AQP92531 is an Aquaporin Present in the Crop of Cabbage White Butterflies*. Poster presented at HHMI Summer Research Fellowship Fair. Pittsburgh, PA.

Zhang, T., Nguyen, M., Banerjee, V., Kaufmann, N., Hildebrand, J. (2016, April). *Effect of Rap1, Eb1, and Bazooka Genes on Eye Phenotype of Drosophila melanogaster with Shroom Overexpression*. Poster presented at Undergraduate Research Fair. Pittsburgh, PA.

Zhang, T., Du, H. (2015, March). *Changes in SERS Activity due to Varying Sizes of Silver Nanoparticle*. Poster presented at New Jersey Regional Science Fair and Junior Science and Humanities Symposium. New Brunswick, NJ.

Research Courses/Volunteer/Other Work:

Research Lab Course, Biochemistry Research Lab, University of Pittsburgh Spring 2018

Lab of Andrew VanDemark, PhD., Pittsburgh, PA

- Investigated unknown protein's function using computational analysis for structure prediction and comparisons with known crystalized proteins

Undergraduate Researcher, University of Pittsburgh, Department of Biological Sciences Summer 2016

Lab of Nancy Kauffmann, Ph.D., Pittsburgh, PA

• Investigated AQP 92531 localization using *Pieris rapae* as a model system during HHMI Fellowship introduction period
Research Lab Course, Foundations of Biology II Special Research Lab, University of Pittsburgh Spring 2016
Lab of Jeffrey Hildebrand, Ph.D., Nancy Kaufman, Ph.D., Pittsburgh, PA

- Investigated role of eb1 in shroom3 apical constriction pathway in *Drosophila melanogaster* eyes as a model for neural tube development

Member, Out @ Broad, Broad Institute of MIT and Harvard, Cambridge, MA June 2019 – Present

Bartender/Dining Room Assistant/Barback, Soba Lounge, Pittsburgh, PA September 2016 – March 2017

Volunteer, UPMC Montefiore Hospital, Pittsburgh, PA (Weekly) January 2016 – May 2016

Referee (US Fencing Rank 7), Pittsburgh Interscholastic Fencing Association, Pittsburgh, PA Winter 2015/2017/18

Violinist, Music Performance Club, University of Pittsburgh, Pittsburgh, PA September 2015 – May 2019

Entrepreneurial Competition:

Randall's Big Idea Competition, University of Pittsburgh Innovation Institute, Pittsburgh, PA February 2019 – March 2019

- Performed market analysis and understand FDA procedures for month long startup business pitch competition

Title: C-Nano (Finalist) – Use carbon nanotubes to deliver targeted cancer treatments

Title: VR-Realities (Semi-Finalist) – Use VR to create greater accessibility to art galleries and museums

Hack This Help Kids Hackathon - Children's Hospital of Pittsburgh Foundation, Pittsburgh, PA October 2018

Title: Use of Automation and Linear Program Optimization to reduce milk administration error in NICU

Other Skills:

Language: Mandarin Chinese (Fluent), Python (Intermediate), R (Intermediate), Java (Beginner)

Certifications: NREMT-B, CPR