

KRISTINE TAN

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Education

08/2016 – present	UC Berkeley – UCSF Graduate Program in Bioengineering Doctor of Philosophy, Bioengineering	Berkeley, CA
09/2010 – 12/2014	University of California, San Diego Bachelor of Science, Bioengineering: Biotechnology	La Jolla, CA

Work Experience

05/2017 – present; 01/2017 – 03/2017	Graduate Student Researcher, Bioinstrumentation for Quantitative Biology and Medicine Bioengineering, UC Berkeley Advisor: Dr. Amy Herr, PhD <ul style="list-style-type: none">Design and develop microfluidic tools for quantitative biology research<u>Rotation Project</u>: Designed and developed a system to enable the characterization of the partition coefficient of multiple solute-gel interactions at once	
03/2017 – 05/2017	Graduate Rotation Student, Sohn Research Lab Mechanical Engineering, UC Berkeley Advisor: Dr. Lydia Sohn, PhD <ul style="list-style-type: none"><u>Rotation Project</u>: Utilized microfabrication techniques to design and develop a microfluidic device for single-cell analysis of the mechanical phenotypes of a heterogeneous cell population	
10/2016 – 12/2017	Graduate Rotation Student, Huang Lab Pharmaceutical Chemistry, Biochemistry and Biophysics, UC San Francisco Advisor: Dr. Bo Huang, PhD <ul style="list-style-type: none"><u>Rotation Project</u>: Implemented expansion microscopy protocol and experimental set-up as an alternative imaging method for the lab	
01/2015 – 07/2016	Consumables Manufacturing Process Development Engineer Illumina, Inc., San Diego, CA <ul style="list-style-type: none">Supported production of DNA microarray technology and implemented processes for transfer of new products to manufacturing in collaboration with R&D, Manufacturing, Supply Chain, and Quality teamsSustained critical processes, such as fluidic systems and fluorescence imaging systems, by troubleshooting and resolving daily manufacturing issues, monitoring yield and real time performance of process steps and conducting follow-up investigations if neededDesigned and executed controlled experiments (including DOEs) within production environment to optimize processEnsured cross-site alignment and copy-exact facilities between San Diego and Singapore manufacturing sites	
06/2014 – 11/2014	New Dye Development R&D Intern BD Biosciences, San Diego, CA <ul style="list-style-type: none">Developed and tested fluorescent dyes to be used in flow cytometry applicationsDetermined the proper shelf life of over 50 isotypes of dyes of various colorsPrepared various tissues and cells for testing the dyes, including human lysed whole blood, isolating human peripheral blood mononuclear cells (PBMCs), mouse splenocytes, mouse lymph nodes, and isolating mouse plateletsCultured mouse splenocytes for Concanavain A (ConA) activation	
06/2012 – 09/2012	Pacific RIM Experiences for Undergraduates Summer Scholar, Tissue Engineering Lab Biomedical Engineering, Doshisha University, Kyotanabe, Japan Advisor: Dr. Nozomu Inoue, MD, PhD <ul style="list-style-type: none">Performed high-resolution μCT imaging on over 50 samples of the vertebral body endplate samplesImproved methodologies and determined optimal scanning parameters for high resolution image acquisitionUsed Mimics 3D Visualization Software to create 3D models of vertebral endplate vascular structure to analyze nutrient pathway differences with respect to location, age, gender, and degree of degeneration	

- 12/2011 – 06/2012; 09/2012 – 03/2014 **Undergraduate Research Assistant, Skeletal Translational Research Lab**
 Department of Orthopaedic Surgery, UCSD School of Medicine
 Advisor: Dr. Koichi Masuda, MD
- Assisted in experiments and procedures studying intervertebral disc degeneration
 - Used Mimics 3D Visualization Software to create 3D models of μ CT images for analysis
 - Assisted in rat, mouse, and rabbit surgeries
- 06/2011 – 03/2012 **Calit2 Summer Undergraduate Research Scholar**
 UCSD Division of Cardiovascular Medicine, UCSD School of Medicine
 Advisor: Dr. Neil Chi, MD, PhD
- Investigated the role of non-coding RNAs on heart development
 - Analyzed the University of California, Santa Cruz (UCSC) Genome Browser to identify gene targets to study
 - Designed PCR primers and performed PCR experiments to identify and replicate target transcripts in desired tissue
 - Verified tissue-specific expression of targets using qPCR and other molecular biology techniques
- 09/2010 – 06/2011 **Undergraduate Research Assistant**
 UCSD Division of Cardiovascular Medicine, UCSD School of Medicine
 Advisor: Dr. Neil Chi, MD, PhD
- Performed and imaged zebrafish embryo *in situs* to investigate target gene expression
 - Crossed (mated) adult zebrafish and sorted embryos based on immunofluorescence
 - Made agarose gels for gel electrophoresis, and lysogeny broth (LB) agar plates used for cloning

Abstracts and Publications

- **Tan, K**; Bae, WC; Yamaguchi, T; Xu, K; Shieh, I; He, J; Sah, RL; Inoue, N; Masuda, K *Quantitative Analysis of Vascular Canals in Vertebral Endplate*. 2014 ORS Annual Meeting
- Fujiwara, T; Yamaguchi, T; Pichika, R; Bae, WC; Taborek, A; He, J; Shieh, I; **Tan, K**; Lenz, M; Masuda, K. *The Intradiscal Injection of NF κ B Decoy Attenuated Proinflammatory Molecular Changes in Rabbit Discs and the Degenerated Disc-Induced Pain Generation in the Xenograft Radiculopathy Rat Model* 2013 ORS Annual Meeting

Presentations

- 04/2014 2014 UC San Diego Undergraduate Research Conference, La Jolla, CA
Quantitative Analysis of Vascular Canals in Vertebral Endplate
- 03/2014 Orthopaedic Research Society 2014 Annual Meeting, New Orleans, LA
Quantitative Analysis of Vascular Canals in Vertebral Endplate, Spotlight Session Presentation
- 08/2012 6th International Symposium of the UCSD-Doshisha Medical Imaging Research Center, Kyotanabe, Japan
Vascular Channels in the Endplates of Vertebral Bodies in Human Lumbar Spine
- 09/2011 2011 Calit2 Summer Scholars Poster Session, UC San Diego, La Jolla, CA
Mechanisms of Cardiac Differentiation through Long Non-Coding RNAs, Poster Presentation

Awards and Honors

- 2014 UC San Diego Latin Honors
- 2014 Warren College Undergraduate Travel Award
- 2014 UC San Diego Bioengineering Undergraduate Travel Award
- 2012 Pacific RIM Undergraduate Experiences for Undergraduates Scholar
- 2012, 2013 Julia Brown Undergraduate Research Scholarship,
 2011 Calit2 Summer Undergraduate Research Scholar
- 2010-2014 Provost Honors
- 2010-2014 University of California, San Diego Regents Scholarship
- 2010-2014 Baxter International Foundation Scholarship
- 2010-2011 Thomas H. Garrett St. Jude Medical Scholarship

Leadership Activities and Volunteering

- 12/2016 – present **Bioengineering Association of Students (BEAST), Retreat Committee, UC Berkeley-UCSF**
- Organize the annual Bioengineering Retreat for current students, faculty, and alumni to network and share the diverse research of the UC Berkeley-UCSF Graduate Program in Bioengineering
- 10/2016 – present **Bay Area Scientists in Schools (BASIS), UC Berkeley**
- Volunteer at local elementary schools to teach a hands-on science lesson, titled "Unblock My Heart," about the cardiovascular system to promote interest in science and engineering

Tau Beta Pi, Engineering Honor Society, UC San Diego Chapter

05/2014 –
12/2014

As Co-President

- Co-lead a team of 21 officers to plan chapter activities for over 80 members
- Compiled annual project report of over 100 individual event summaries to submit to headquarters
- Hosted information sessions for over 100 new eligible students
- Coordinated and participated in variety of Community Service, Social, and Professional Development events
- Collaborated with other San Diego chapters of TBP to co-host joint events for members and candidates

05/2013 –
05/2014

As Vice President, Internal

- Responsible for initiating over 50 new members into the honor society
- Acquired eligibility lists, contacted eligible students, held information sessions, and ensured that the interviews and the formal initiation ceremony ran smoothly
- Coordinated and participated in variety of Community Service, Social, and Professional Development events
- Maintained and updated the information on the website on a day-to-day basis

10/2012 –
05/2013

As House Leader

- Hosted smaller events during the initiation cycle for new initiates to foster a sense of community

05/2012 –
05/2013

Professional Development Chair, Triton Engineering Student Council, UC San Diego

- Managed the committee that planned the student-managed annual Disciplines in Engineering Career Fair
- Assured timely completion of both logistics and business needs
- Coordinated with company representatives and UC San Diego's Career Services Center to set-up workshops for students

Scholars' Society Overnight Stay Program Committee, UC San Diego

01/2013 –
04/2013

As Volunteer/Host/Participant Coordinator

- Recruited and trained volunteers and hosts for the two-day event
- Organized approximately 100 participant and host pairings based on personality and interests
- Gathered feedback from participants, hosts and volunteers for future improvement of the program

01/2011 –
04/2012

As Activities Coordinator

- Planned the activities itinerary for a two-day event to host prospective UCSD Regents Scholars
- Coordinated with UCSD faculty, fellow students and various organizations to set-up lab tours, faculty lectures, student-org performances, and a campus-wide scavenger hunt

Qualifications and Skills

- **Lab Skills:** Gel electrophoresis, PCR, RT-PCR, DNA purification, RNA extraction, bacterial cloning, *in situ* hybridization, recombinant DNA techniques (ligation and digestion), μ CT imaging, liquid-liquid extraction, purification through crystallization of organic molecules, thin layer, column and gas chromatography, and distillation, animal (rat, mouse, rabbit) surgeries
- **Software Skills:** Data analysis using R, Utilization of genome sequence databases, 3D modeling using Mimics Software, introductory C/C++ experience, proficient with Microsoft Office Word, Excel, and PowerPoint
- **Statistical Analysis:** DOE design, t-score, ANOVA, MANOVA, introductory JMP experience