Kai Martell

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Education

Tufts University Medford, MA

- Bachelor of Science in Biomedical Engineering C/O 2025
- GPA: 3.58, Dean's List All Semesters
- Relevant coursework: Biomechanics, Circuits, Engineering Design, Biophotonics, Biothermodynamics, Robotics

San Francisco University High School San Francisco, CA

Experience

Systems Engineering Intern | Thermo Fisher Scientific | May 2024 - Aug 2024

- Ideated and developed calibration tooling system for precise microscope motor alignment
- Engineered and prototyped mechanical and electrical models, integrating a range of sensors and encoders
- Developed with python and CircuitPython for sensor integration, data collection, and automation processes
- Improved existing calibration methods, achieving more than 40% improvement in accuracy

Biology Research Intern | Jasper Therapeutics

May 2023 - Aug 2023

- Designed and executed Colitis disease mouse model for an anti-c-kit antibody
- Researched Colitis progression, pathways, and colon anatomy to optimize chemically induced models with haptenating agents
- Data analysis using FIJI (ImageJ), Graphpad Prism, and histology sampling
- Mouse handling techniques: scruffing, weighing, ear punching, tail bleeding, anesthesia administration, rectal injections intraperitoneal injections (IP), retro-orbital injections (RO), euthanasia, and dissection

May 2022 - Aug 2022

- Headed second half and experimental analysis sections for a Lupus disease model
- Collected, processed, and diluted mouse serum samples for ELISAs
- Ran numerous assays for 5 different auto-antibody indicators, analysis using Molecular Devices' SpectraMax iD3
- Analyzed and compiled data with Graphpad Prism, compared with blood chimerism data

Engineering Intern | Encellin | Aug 2020 - Aug 2021

- Operated a multi-step production line for Encellin's soft cell encapsulation device
- Refined and innovated the cell encapsulation device for structure and optimal cell growth
- Implemented and maintained a documentation system detailing protocol technicalities and production records

Publications

Chang, C. et al., (2024). Amelioration Of Mrgprb2-Mediated Anaphylactoid Drug Reactions With Briquilimab, An Anti-CD117 Antibody, Through Mast Cell Depletion In Mice Expressing Chimeric Human And Mouse CD117. Journal of Allergy and Clinical Immunology, 153(2), AB241. https://doi.org/10.1016/j.jaci.2023.11.775

The 49th Annual Meeting of the European Society for Blood and Marrow Transplantation: Physicians - Oral Session O058 (Anti-CD-117 Antibody and Low Dose Total Body Radiation enables Allogeneic Hematopoietic Stem Cell Engraftment and Reverses Autoimmune Disease in Systemic Lupus Erythematosus (SLE) Mouse Models). *Bone Marrow Transplant* 58 (Suppl 1), 20–152 (2023). https://doi.org/10.1038/s41409-023-02055-8

Skills & Abilities

Languages and Technologies: C++, Python, MicroPython, CircuitPython, JS, API frameworks, MATLAB, Stata, SolidWorks
Additional Tools and Skills: Fluent in Mandarin (12 years of study), soldering, laser cutting, 3D printing

Activities & Interests

Interior Technical Lead | Tufts Engineers Without Borders

- Oversaw design aspects of the product through QFDs, design matrices, and iterative prototype testing
- Direct and teach technical skills to a group of engineers for greenhouse project
- Demonstrate expertise in woodworking techniques and CAD design to create functional furniture pieces
- Manage project timelines, budgets, and resources to ensure timely completion and cost-effectiveness