Colleen McVay

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Collaborative and data-driven scientist with quantitative programming skills, technical laboratory experience, and a forward-thinking perspective. Excited to bridge my academic research experience and pharmaceutical industry knowledge to develop novel T-cell engineering techniques in Suzie Pun's Bioengineering laboratory.

EDUCATION:

University of California, Davis June 2021

Bachelor of Science, **Biotechnology Major** (**Bioinformatics** Specialization)

- GPA: 3.5/4.0
- Upper Div. GPA: 3.7/4.0 [Dean's Honor List: Spring 2020]

University of Edinburgh (Exchange) Fall 2019

Relevant Coursework: Biochemistry, Microbiology, Cell Biology, Computational Bioinformatics, Molecular Genetics, Protein Function & Structure, Functional Genomics, Organic Chemistry, Applied Statistics for Biological Sciences, Physics, Calculus, Bioenergetics/Metabolism, Advanced Molecular Biology

RELEVANT EXPERIENCE:

Associate Scientist August 2022 – Present

Bristol Myers Squibb

- Process development on CRISPR-Cas complexation parameters for allogenic T-cell therapies.
- Aseptic *ex-vivo* mammalian cell culture including passaging, expansion, electroporation, and inoculation of CD4+ and CD8+ T-cells to measure gene knock-out via flow cytometry and ddPCR.
- Investigate gRNA process-related impurities on gene knock-out performance. Establish purity release specifications from external CMO's and working parameters for gRNA quality.
- Process development lead of an if/then logic-gated CAR T drug candidate to treat non-small cell lung cancer. Utilized a dbDNA HDR-template, shRNA knock-down, and RNPs for gene editing.
- Direct manager of Summer intern.

Cell Therapy Rotational Associate (CTRP)

Bristol Myers Squibb August 2021 – July 2022

- *Rotation* 3: Develop analytical methodology in U/HPLC, differential scanning fluorimetry, zetapotential, and dynamic light scattering to correlate RNP attributes with downstream gene editing performance.
- *Rotation 2*: Process development of CTS Rotea Counterflow Centrifugation system for PBMC isolation, buffer exchange, and closed cell processing in next generation CAR-T therapies.
- *Rotation 1:* Implement Six Sigma tiered management methodologies for CAR-T cell manufacturing site.

Undergraduate Research Associate

Vector Genetics Laboratory (UC Malaria Initiative) April 2020 – June 2021

- Investigate the population genetic structuring of *Anopheles gambiae* for evaluation of insecticide resistance and genetic manipulation against the malarial parasite *Plasmodium falciparum.*
- Analyze microsatellites, genome-wide SNPs, and phenotypic variance to inform gene drive technology.
- Co-authorship of low-input DNA library preparation protocol for Illumina and PacBio Sequencing Technologies for genome assembly in field-site mosquitos.

Research Assistant

Campus Veterinary Services (UC Davis Office of Research: Veterinary Laboratory Medicine) Nov. 2018 – June 2021

- Aid in pre-natal surgical repair of myelomeningocele in sheep. Utilize cellular scaffolds and human placenta-derived mesenchymal stromal cells to investigate treatments of neural tube defects in utero.
- Perform pre- and post-operation procedures for biomedical research species such as IP and SQ injections, blood and tissue collection, drug administration, and tumor measurement.

PRESENTATIONS:

- *Precision Genome Engineering Conference* January 2024
  An Analytical Investigation of Ribonucleoprotein Performance
- *Bristol Myers Squibb Cell Therapy Rotational Program Symposium* July 2022
  Ribonucleoprotein (RNP) Process Attribute Investigation

SKILLS:

- ***In-Vivo*:** CRISPR-nuclease complexation, gDNA extraction, library amplification & preparation, PCR amplification, gel electrophoresis, mammalian cell culture, buffer preparation, spectrophotometry, NGS sequencing, liquid chromatography, dynamic light scattering, differential scanning fluorimetry, ddPCR, compound formulation.
- ***In-Vitro*:** Drug and fluid administration, tumor measurement, cauterization, oral gavage, blood collection, tissue collection, tissue homogenization, find-needle aspiration.
- **Technical:** Correlative analysis, experimental design, data verification, statistical modeling, Investigational New Drug (IND) report writing, QC release specifications for GMP manufacturing.
- **Programming:** Python, R, Graph-Pad, JMP, Logger Pro, Adobe, Microsoft Office.

LEADERSHIP & COMMUNITY INVOLVEMENT:

- BMS Internship Coordinator 2024
- Ski and Snowboard Instructor: Snoqualmie Snow Sports 2023-2024
- B-NOW (BMS Network of Women) Committee Member 2021-2023
- Cell Therapy Rotational Program Professional Development Sub-Team Lead 2022
- Cell Therapy Rotational Program Recruitment Coordinator 2022
- Volunteer Elementary Science Teacher: Davis Sprout-Up Club 2020-2021
- UC Davis Campus Judicial Board Member: 2020-2021
- Rock-Climbing and White-Water Rafting Guide: UC Davis Outdoor Adventures 2019-2021

REFERENCES:

- **Benjamin Tillotson, PhD**: Director of the Gene Delivery Process Development Department at Bristol Myers Squibb (benjamin.tillotson@bms.com)
- **Douglas Banda, PhD**: Senior Scientist in the Gene Delivery Process Development Department at Bristol Myers Squibb (douglas.banda@bms.com)
- **Betty Ma, DVM, DACLAM**: Associate Director of Campus Veterinary Services at UC Davis (bwma@ucdavis.edu)