**Your Name**

**Undergraduate Research Assistant**

   San Diego, CA

**Education**

**Bachelor of Science, Biotechnology**

California State University, San Marcos

Attendance Dates: January 2022 – May 2024 (Projected)

GPA: 3.56

Relevant Coursework: Organic Chemistry, Molecular Biotechnology, Cellular Biotechnology, Physics for Biology 1 and 2, Bioethics and Medical Ethics, Experimental Design and Statistical Analysis

**Biology for Transfer**

San Diego Community College District

Attendance Dates: January 2020 – December 2022

GPA: 3.3

**Associate of Arts, American Studies**

Coastline Community College

Attendance Dates: January 2013 – May 2019

GPA: 3.7

**Research Experience**

**Functional Analysis of Cellulase Enzyme Candidates from Cow Rumen Microbes for Biofuel Applications**

CSU San Marcos

August 2023 – Ongoing

* Employed DNA isolation, PCR amplification, and gene cloning to extract and characterize target genes.
* Utilized bacterial transformation techniques to express genes in E. coli, and subsequently induced protein expression.
* Conducted enzyme activity assays, specifically the CMC plate assay, and protein analysis using SDS PAGE for enzyme validation.

**Novel Culture Methodologies for Axolotl Cell Lines in Ranavirus Study**

August 2023 – Ongoing

CSU San Marcos

* Leading the design and development of unique culture conditions tailored for axolotl embryos, with the goal of homologous cell line creation.
* Systematically tested and adjusted variables in culture conditions, employing iterative feedback loops to improve embryo viability and growth.
* Utilized standard cell culture techniques, sterilization processes, and microscopy for real-time monitoring, ensuring the highest standards of precision and reproducibility in experimental conditions.
* Developing techniques for the differentiation of embryonic axolotl cells, laying the groundwork for the establishment of the first homologous cell lines in this species.

**Establishing a Novel Cell Co-Culture Model to Study Senescence and Cell Competition (SURP)**

May 2023 – July 2023   
University of Pittsburgh, School of Medicine

* Developed a cell culture model using a doxycycline-inducible lentivirus system for regulated expression of the p15INK4b gene in human Huh-7 cells.
* Conducted detailed confluency analysis for Ki-67 to assess cell proliferation rates.
* Engineered and distinguished p15INK4b-expressing cells in co-culture with non-transduced cells, using EGFP as a control marker in a separate line.
* Utilized specialized membrane culture dishes compatible with laser-capture microdissection for downstream RT-PCR phenotype analysis.
* The model may allow novel insights into cellular senescence and cell competition, with implications for understanding the activin A/p15INK4b axis in liver disease pathogenesis and therapy.

**Investigating Transcription-Associated Mutagenesis (TAM) in Yeast**

July 2022 - May 2023  
CSU San Marcos

* Explored the impact of high transcription levels on DNA mutation rates, a phenomenon known as transcription-associated mutagenesis (TAM).
* Built upon foundational research identifying TAM in bacteria and yeast, focusing on conditions that increase TAM in *Saccharomyces cerevisiae*.
* Generated knockout yeast strains deficient in REV1, REV3, and TOP1 to study their roles in DNA repair and the mitigation of transcription-induced mutations.
* Employed homologous recombination with hphMX4 marker for targeted gene disruption, confirming successful knockouts via PCR.
* Aim to further delineate the mechanisms of TAM and the influence of various repair enzymes and polymerases on genomic integrity.

**Conferences and Presentations**

**Rejuvenating Liver Function through Cellular Age Reversal: A Novel Approach to**

**End-Stage Liver Disease Therapy**

Poster Session: **Longevity Summit Dublin**

LEV Foundation

August 2023; Dublin, Ireland

**Establishing a Novel Cell Co-Culture Model to Study Senescence and Cell Competition**

Oral Presentation: **Summer Undergraduate Research Program (SURP)**

University of Pittsburgh  
July 2023; Pittsburgh, PA

**Investigating the Role of *REV1*, *REV3*, and *TOP1* on Transcription Associated Mutagenesis in *S. cerevisiae***

Poster Session: **West Coast Biological Sciences Undergraduate Research Conference**

Loyola Marymount University  
April 2023; Los Angeles, CA

**Investigating the Role of *REV1*, *REV3*, and *TOP1* on Transcription Associated Mutagenesis in *S. cerevisiae***

Oral Presentation: **CSU San Marcos 2023 Symposium on Student Research, Innovation, Creative Activities**

CSU San Marcos

March 2023; San Marcos, CA

**Investigating the Role of *REV1*, *REV3*, and *TOP1* on Transcription Associated Mutagenesis in *S. cerevisiae***

Poster Session: **Southern California Conference for Undergraduate Research**  
Pepperdine University

November 2022; Malibu, CA  
  
**Empowerment Through Education: The Impact of Minority Serving Institutions on Social Mobility and Recidivism Reduction**

Panelist: **Social Mobility Symposium**

CSU San Marcos

June 2022; San Marcos, CA

**Grants, Scholarships, and Stipends**

**Undergraduate Research Training Initiative for Student Enhancement (U-RISE) (T32)**

National Institutes of Health (NIH) and National Institute of General Medical Sciences (NIGMS)

Annual Stipend: $13,644 + annual conference expenses

**Summer Undergraduate Research Program (SURP)**

University of Pittsburgh School of Medicine

Stipend: $4,000

**RISE Scholarship**

CSU San Marcos

Scholarship: $3,733/semester

**Lt. Colonel AJ Pack Scholarship**

CSU San Marcos

Scholarship: $1,888/semester  
  
**Professional Development and Leadership**

**Undergraduate Research Training Initiative for Student Enhancement (U-RISE) (T32)**

The URISE program is characterized by an extensive workload designed to prepare students for successful entry into PhD programs. Participants are required to attend professional development and research methods classes, as well as a research seminar weekly to equip them with the skills and knowledge essential for PhD-level work.

**References**

Michael Oertel, Associate Professor of Pathology, Division of Experimental Pathology

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