

ANUP PARAJULI

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EDUCATION

Soka University of America ◇ Aliso Viejo, CA, USA Bachelor of Arts in Liberal Arts Life Sciences Concentration <u>Relevant Courses:</u> Genetics, Genetic Engineering, Biochemistry, Bioinformatics, Biostatistics, Cell Biology Project-Based Lab, Microbiology, Organic Chemistry I & II, Differential Calculus, Discrete Mathematics, Introduction to Computer Science, GIS, Physics <i>Spring 2026:</i> Biochemistry Project-Based Lab, 3D Printing in Ceramics	Expected Graduation: 05/2026 GPA: 3.84/4.00
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University of Barcelona ◇ Barcelona, Spain Study Abroad Program Spanish Language Courses	01/2025 – 05/2025
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RESEARCH EXPERIENCE

In Silico Structural Analysis of Cancer-Associated Nit1 Mutations <u>Mentor:</u> Dr. Susan Walsh ◇ Undergraduate Capstone Project ◇ Aliso Viejo, CA	09/2025 – Present
<ul style="list-style-type: none">Assessment of <i>NIT1</i> mutations using in silico functional impact scoring tools (CHASMplus, Mutation Assessor, PhastCons, PROVEAN) to predict pathogenicityDevelopment of a computational workflow to predict structural effects of Nit1 mutations linked to tumor suppression, integrating COSMIC mutation data with ChimeraX-based structural modeling	

Tandem Repeat Reflectin Protein Synthesis & Characterization <u>Supervisor:</u> Dr. Robert Levenson ◇ Aliso Viejo, CA	06/2024 – Present
<ul style="list-style-type: none">Synthesized tandem repeat reflectin constructs using a novel optimized methodPurified reflectin proteins using FPLC and HPLC, and employed DLS to map the conditions that determine the driving forces for tunable reflectin assembly	

COURSE-BASED UNDERGRADUATE RESEARCH EXPERIENCE (CURE)

Sox21a Nuclear Localization Study <u>Supervisor:</u> Dr. Susan Walsh ◇ Aliso Viejo, CA	09/2024 – 12/2024
<ul style="list-style-type: none">Investigated nuclear import mechanisms of zebrafish Sox21a WT, NLS-only, and Δ NLS constructs using HeLa cell transfectionsCharacterized nuclear import of zebrafish Sox21a variants by nuclear fractionation and western blot analysis, discovering NLS-independent pathways that contrast with canonical Sox2 import mechanisms	

Biostatistical Analysis of Cross-Sectional Area in Pulmonary Conditions <u>Supervisor:</u> Dr. Marie Nydam ◇ Aliso Viejo, CA	09/2024 – 12/2024
<ul style="list-style-type: none">Performed statistical evaluation of airway geometry in asthma and cystic fibrosis using CSA datasetsApplied ANOVA and regression to evaluate airway CSA as a predictor of disease severity in asthma and cystic fibrosis, and created visualizations in R (dplyr, ggplot2) including histograms, Q-Q plots, box plots, and scatter plots to assess assumptions and group differences	

Novel Gene Discovery: SLF1 Ortholog in <i>Paguma larvata</i> <u>Supervisor:</u> Dr. Marie Nydam ◇ Aliso Viejo, CA	02/2024 – 05/2024
<ul style="list-style-type: none">Discovered and characterized a novel SLF1 gene ortholog using BLAST-based comparative genomicsPerformed multiple sequence alignments (MAFFT, MUSCLE, CLUSTALW) and constructed phylogenetic trees in MEGA11 to assess evolutionary conservation	

Venom Characterization & Antimicrobial Assays <u>Supervisor:</u> Dr. Patrick Spencer, Dr. Guilherme Coelho, Dr. Susan Walsh ◇ Instituto Butantan, Brazil	01/2024 (3 weeks)
<ul style="list-style-type: none">Characterized venoms of <i>Bitis nasicornis</i> and <i>Pseudechis colletti</i> using MALDI-TOF, Zymography, Gel Filtration, and HPLC	

- Performed antimicrobial assays showing inhibition of *Staphylococcus aureus* (MIC <100 µg/mL), *Candida albicans* (MIC 400–800 µg/mL), and *E. coli* (MIC >1000 µg/mL)

TEACHING & LABORATORY EMPLOYMENT

Chemistry Laboratory Teaching Assistant

09/2023 – 05/2024

Supervisor: Dr. Robert Levenson ◇ Aliso Viejo, CA

- Helped students operate analytical instruments including IR spectroscopy, UV/Vis spectroscopy, Microplate Reader, and Melting Point Analyzer
- Guided students through laboratory protocols, experimental design, chemical analysis, and safety procedures

PRESENTATIONS & CONFERENCES

American Society for Cell Biology (ASCB) National Conference ◇ San Diego, CA

2024

Poster: Production of Total Amino Acid Replacement Reflectin Mutants

Soka Learning Cluster Fair 2024 ◇ Aliso Viejo, CA

2024

Poster: Antimicrobial activity of *Bitis nasicornis* and *Pseudechis colletti* (Group)

Soka Summer Student Research Poster Session ◇ Aliso Viejo, CA

2025

Poster: Understanding the molecular basis of tunable reflectin assembly (Group)

MANUSCRIPT IN PREPARATION

Aslam, M. H., **Parajuli, A.**, Chiriatev, I., and Levenson, R. H., Sequence Determinants of Dynamic and Reversible Reflectin Assembly. *In preparation.*

SKILLS

Molecular Genetics: Western Blot, PCR, Cloning, Bacterial Culture, Tissue Culture, Gel Electrophoresis, Mini-prep, Nuclear Fractionation, CRISPR

Protein Purification and Characterization: FPLC, HPLC, DLS

Microscopy: Confocal Microscopy, Immunofluorescence Microscopy

Statistical: Regression Analysis, Hypothesis Testing, Data Cleaning, Normality Assessment, Data Transformation, and Visualization

Chemistry Laboratory: NMR, IR spectroscopy, UV/Vis spectroscopy, Thin Layer Chromatography

Computational: ChimeraX, Python (Pandas, Matplotlib, NumPy, Tkinter, NetworkX), R (dplyr, ggplot2), Jupyter Notebook, Linux Command Shell, Image Lab, MEGA 11, Benchling, Galaxy, ImageJ, ChemDraw, Microsoft Excel, L^AT_EX, Photoshop, Illustrator

Additional Skills: Creative Writing, Front-end Web Development, Video Editing, Guitar, Cooking

Languages: Nepali (Native), English (Fluent), Spanish (Intermediate), Hindi (Fluent)

HONORS AND AWARDS

John Stauffer Charitable Trust Summer Research Fellowship | Soka University of America

2024

- Competitively awarded a summer research fellowship including a stipend and travel support to a national conference

Dean's List | Soka University of America

Fall 2022 | Fall 2023 – Present

- Awarded to academically outstanding students who achieve a GPA greater than 3.75/4.00 each semester

Soka Opportunity Grant | Soka University of America

2022 – Present

- Awarded a full tuition undergraduate scholarship

Soka Merit Award | Soka University of America

2022 – Present

- Awarded in addition to full tuition scholarship for other academic needs

EXTRACURRICULAR ENGAGEMENT

Co-President, First Gen ◇ Aliso Viejo, CA

09/2024 – Present

- Revitalized the First Gen Affinity Group and advocated for the academic and social support needs of first-generation college students
- Partnered with the Office of Financial Aid to guide peers through FAFSA and financial aid applications
- Created a responsive website using HTML, CSS, JavaScript, and CampusGroup API <[view website](#)>

Secretary, Code Soka ◇ Aliso Viejo, CA

09/2022 – Present

- Organized weekly workshops on algorithms and coding in Python for game development and website building
- Facilitated coding projects and peer learning by debugging code, troubleshooting IT issues, and guiding software environment setup
- Created a game in Python (graphics.py) and website to reinforce biology vocabulary <[play game](#)>

Organizer, Google Developer Groups - Soka University ◇ Aliso Viejo, CA

09/2024 – 12/2024

- Co-organized the DevFest 2024 - Greater LA Area event (more than 350 participants)