Subodh Niroula

sniroula@soka.edu | (949) 685-7465 | Github | Website

Education

Bachelor of Arts, Soka University of America, Aliso Viejo, CA — Anticipated 05/2026
Life Sciences Concentration, Focus on Biology and Mathematics — GPA: 3.902/4.0

Study Abroad, Universitat de Barcelona, Barcelona, Spain — 01/2025 – 05/2025
Spanish Language Study

Relevant Courses: Genomics and Bioinformatics, Biostatistics, Project-Based Lab: Cell Biology, Genetics, Biochemistry, Genetic Engineering, Organic Chemistry I and II, Integrated Biology and Chemistry, Intro to Computer Science, Intro to Data Science, Discrete Mathematics, Linear Algebra, Differential Calculus, Physics, Intro to GIS | *Spring 2026*: Modeling and Simulation with Python, 3D Printing in Ceramics

Research Experiences

Comparative Transcriptomic Analysis of UHRF1 Loss in Small Cell Lung Cancer and Osteosarcoma
Undergraduate Capstone Project, Soka University of America — 08/2025 – Present
Supervisor: Dr. Marie Nydam, Dr. Claudia Andrea Benavente — Aliso Viejo, CA

- Developed an RNA-seq pipeline for quality control, quantification, differential expression, gene ontology and pathway analysis to identify cancer-specific and shared transcriptional programs regulated by UHRF1
- Conducted a literature review on UHRF1's structure, epigenetic functions, and oncogenic roles to contextualize its downstream regulatory mechanisms across cancers

UHRF1-GATA2-ST6GALNAC5 Axis in Small Cell Lung Cancer Metastasis — 06/2025 – 08/2025
Chao Family Comprehensive Cancer Center, UCI Health — Irvine, CA
Supervisor: Dr. Claudia Andrea Benavente

- Generated and characterized UHRF1-knockout small-cell lung cancer clones to establish a model system for studying UHRF1-mediated metastatic mechanisms
- Validated reduced ST6GALNAC5 protein levels in UHRF1-deficient cells, identifying it as a downstream effector of UHRF1
- Assisted a PhD student in creating volcano plots and heatmaps in R to visualize differential gene expression across UHRF1 domain mutants

Characterization of Amino Acid Similarity across Allorecognition Proteins in Marine Invertebrate Species
Soka University of America — 09/2024 – 05/2025
Supervisor: Dr. Marie Nydam — Aliso Viejo, CA

- Analyzed FuHC raw gene sequences using MEGA11 and CodonCode Aligner to identify exon-specific amino acid variation across species
- Generated publication-quality visualizations in R and Python and contributed the corresponding results and discussion to the ongoing research project

Eco-Friendly Imine Synthesis Using Water as a Solvent — 01/2024 – 05/2024
Soka University of America — Aliso Viejo, CA
Supervisor: Dr. Duminda Liyanage

- Synthesized over 50 bioactive imines from diverse aldehydes and ketones using sonication and water as a solvent
- Characterized synthesized structures with NMR and IR spectroscopy, and submitted samples for biological assays

Remediation of Soil Contaminated With Silver Nanoparticles Using Biochar — 01/2023 – 06/2023
Soka University of America — Aliso Viejo, CA
Supervisor: Dr. Zahra Afrasiabi

- Evaluated arylamidase enzyme activity *in vitro* in soils contaminated with silver ions and nanoparticles following treatment with biochar and thiol-modified biochar

- Analyzed the effectiveness of sulfur functionalization on biochar through three different thiolation procedures to enhance silver nanoparticle remediation
- Co-authored a manuscript currently in preparation

Work Experiences

Engineering Intern, Equilibr.io, Inc. 09/2023 – 08/2024
Supervisor: Dr. Disha Sheth Aliso Viejo, CA

- Assisted in investigating the performance of electrochemical sensors, conducting experiments such as open circuit potential and chronopotentiometry to evaluate reference electrode health
- Analyzed Gamry data using statistical tools including JMP, Gamry Echem Analyst, and Python

Organic Chemistry Tutor, Soka University of America 01/2024 – 05/2024
Supervisor: Dr. Duminda Liyanage Aliso Viejo, CA

- Provided personalized instruction in organic chemistry concepts, reaction mechanisms, and interpretation of NMR data
- Developed study strategies and problem sets to enhance problem-solving skills and prepare students for exam

Computational Projects

Cardiovascular Risk Factor Analysis – R 2024

- Analyzed cardiovascular risk factors by examining correlations between cholesterol levels and resting blood pressure across gender groups using UC Irvine Machine Learning Repository data
- Performed ANOVA tests and linear regression analysis to evaluate statistical significance and model relationships among health variables

Chemical Reaction Pathfinder – Python 2024

- Designed a program to model chemical reactions as weighted graphs, where nodes represent compounds and edges represent reaction pathways with associated costs (energy or yield)
- Implemented Dijkstra's algorithm to compute the most efficient reaction route between compounds, optimizing chemical synthesis pathways

Molecular Structure Drawing Tool – Python 2023

- Developed a Streamlit-based web app using RDKit and py3Dmol for real-time conversion and visualization of SMILES strings into 2D and 3D molecular structures
- Designed the tool to teach basic chemistry concepts by visualizing molecular geometry and structure interactively

Presentations

University of California Undergraduate Summer Research Symposium 08/2025
UHRF1-GATA2-ST6GALNAC5 Axis in Small Cell Lung Cancer Metastasis Irvine, CA

Soka University Undergraduate Summer Laboratory Research Symposium 10/2024
Eco-Friendly Imine Synthesis Using Water as a Solvent Aliso Viejo, CA

Honors and Awards

Dean's List, Soka University of America 2022 – 2025
Awarded to students achieving high scholarships with a G.P.A above 3.7 at the end of each session

Pacific Basin Research Center Junior Scholar, Soka University of America 2023 – 2024
Award for students investigating topics leading to humanistic welfare of the Pacific Basin region and beyond

Soka Merit Award and Opportunity Grant, Soka University of America 2022 – 2025
Received a full-tuition scholarship for four years of undergraduate study

Opportunity Fund Grantee, EducationUSA Advising Center (USEF-Nepal) 2022
Selected for the highly competitive U.S. Department of State Opportunity Funds Program, which covers upfront costs of applying to U.S. colleges for students from disadvantaged backgrounds

Leadership and Community Service

Treasurer, Code Soka, Soka University of America 2022 – Present

Organizer and Co-President, Soka Google Developer Club, Soka University of America 2023 – Present

Active Member, Dohori (Nepali Cultural Club), Soka University of America 2022 – Present

Skills

- **Computational and Programming:** Python (NumPy, Pandas, Matplotlib, SciPy, scikit-learn), R (ggplot2, dplyr, DESeq2, clusterProfiler, Reactome), Bash, HPC3 cluster usage, RNA-seq analysis (QC, alignment, differential expression, enrichment), Microsoft Office, JMP, MEGA11, CodonCode Aligner, Adobe Illustrator, ChemDraw, ArcGIS
- **Statistical Methods:** Regression analysis, ANOVA, Linear modeling, Experimental design, Data visualization
- **Lab:** IR, UV-Vis, NMR, In-vitro cell culture, Gel electrophoresis, SDS-PAGE, Western Blotting, PCR, Immunofluorescence, CRISPR-Cas9
- **Languages:** English (Fluent), Hindi (Intermediate), Nepali (Native), and Spanish (Intermediate)