

CONINIKA GUHA

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PROFESSIONAL EXPERIENCE

The Martin Luther University of Halle-Wittenberg

Nov 2022 - Present

PhD Researcher

Project 1: Oxidative Stress & Phase Separation in SFPQ

- Investigated redox regulation of low-complexity domains (LCDs) in SFPQ, a paraspeckle-associated protein, relevant to cancer and neurodegeneration.
- Demonstrated that H₂O₂-induced methionine oxidation disrupts liquid-liquid phase separation (LLPS), reversible with reducing agents.
- Employed mass spectrometry for residue-level oxidation mapping; used fluorescence microscopy, DIC, DLS, and SAXS for structural and phase behavior analysis.

Project 2: Intramolecular Interactions in Parathyroid Hormone

- Explored interactions between the disordered C-terminal (PTH 35–84) and helical N-terminal (PTH 1–34) domains of PTH.
- Applied Fluorescence Cross-Correlation Spectroscopy (FCCS), nanosecond Fluorescence Correlation Spectroscopy (nsFCS), and dual-color FCCS to assess conformational dynamics and domain interplay.
- Gained insights into intrinsically disordered regions (IDRs) and their potential functional significance in therapeutic peptide design.
- Led experimental design, data analysis, and manuscript preparation across both projects, contributing to interdisciplinary research on protein biophysics and therapeutic targeting.

The Martin Luther University of Halle-Wittenberg

Nov 2022 - Present

Teaching Assistant - Praktikum Proteinbiochemie

- Delivered lectures and practical sessions for MSc students in protein biochemistry.
- Trained students on IGOR Pro software, FCS data acquisition, model fitting, and statistical correlation analysis.
- Guided over 10 students on fluorescence spectroscopy techniques and confocal volume measurements.

Amazon Pvt. Ltd.

2020 - 2021

Amazon Prime Student Ambassador

- Awarded Top Student Ambassador for leading strategic campus marketing initiatives.
- Managed cross-functional projects in planning, execution, and reporting, boosting student engagement.

Serum Institute of India

2019 - 2020

Quality Control Intern

- Participated in QC and GMP production of 6+ bacterial and 8+ viral vaccines.
- Drafted technical protocols and collaborated with teams to troubleshoot production challenges.
- Adapted to the fast-paced environment of mass vaccine production, gaining valuable experience in confocal imaging and immunoprecipitation techniques

Apollo Hospitals

2018 - 2019

Microbiology Intern

- Conducted microbiological and serological testing using SPSS in a hospital diagnostic lab, contributing to accurate patient diagnoses
- Operated HPLC equipment and ensured accurate documentation of data, improving the reliability of lab results
- Managed lab maintenance and tracked supply inventory, ensuring efficient lab operations and preventing shortages

Reliance Life Sciences

2018

Analytical Intern

- Acquired hands-on experience with HPLC, LC-MS, ELISA, and UV-Vis spectroscopy, enhancing analytical skills and contributing to accurate experimental results
- Developed and updated SOPs for analytical procedures, ensuring compliance and improving laboratory efficiency

SCIENTIFIC & TECHNICAL SKILLS

- **Experimental Techniques:** Fluorescence cross-correlation spectroscopy (FCCS), PCR, ELISA, HPLC, LC-MS, UV-Vis spectroscopy, Gel Electrophoresis, Fluorescence Microscopy, Confocal Imaging, Protein Purification, Histopathology
- **Software & Tools:** IGOR Pro, SPSS, QuPath, Microsoft Office and Macintosh
- **Molecular Biology:** Cell Culture, Cloning, Transfection, Immunoprecipitation
- **Project & Data Management:** Experimental Design, Statistical Analysis, SOP Development
- **Other Interests:** Travel, blogging about gourmet and cultural experiences, painting, writing short fiction
- **Volunteer :** Blue Cross Animal Shelter, Hyderabad, India.

EDUCATION

PhD **Nov '22 - Present**

The Martin Luther University of Halle-Wittenberg | Halle(Saale),Germany

Field(s) of study: Biotechnology and Biophysics

Thesis: Intramolecular Interactions in Parathyroid Hormone and the mechanistic role of LCDs in the formation of nuclear condensates under oxidative Stress in SFPQ.

MSc. **Sep '21 - Sep '22**

University of Glasgow | Glasgow,United Kingdom

Field(s) of study: Cancer Research and Precision Oncology

Thesis: Early detection of epithelium-to- mesenchymal transition in colorectal polyp microenvironment

Cancer Research Distinguished Seminar Series, Core Skills in Cancer Research, Cancer Stem Cells, Metastasis and the Microenvironment, Cancer Drug Discovery, Drug Development and Clinical Trials, Immunotherapy and Precision Oncology

Bachelors in technology **Jun '17 - Jun '21**

SRM Institute of Science and Technology | Tamil Nadu,India

Field(s) of study: Biotechnology

Thesis: Curcumin induced Oxidative Stress Mediates Chemosensitization in Doxorubicin Resistant Colon Cancer Cell Line

Specialization:Cellular and Molecular Neuroscience, Enzyme Engineering Technology, Cancer Genetics and Cancer Biology. Worked as a team member in the project titled “Comparison of Green Synthesized Silver Nanoparticles from different fruit juices”.

Thesis: on Warburg effect in Tumorigenesis and its implications in Targeted Cancer Therapy

LANGUAGES

- English (Fluent (C1)), Hindi & Bengali (Native)