Anup K. Prasad

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Date: 24/04/2024
Prof. Anastassia Vorobieva
Group Leader,
VIB-VUB Center for Structural Biology (Belgium)

Dear Professor,

I am writing to express my interest in a postdoctoral opportunity within your esteemed research team. I defended my PhD thesis on "Amyloid Formation in Antimicrobial Peptides: Exploring the Role of Helical Intermediates" at IITB-Monash Research Academy (IIT Bombay and Monash University Australia). My research expertise spans both computational and experimental biology. Notably, I identified a key finding: a helical intermediate that significantly modulates peptide self-assembly, increasing amyloid fibrillation seven-fold in a low membrane mimetic.

My main areas of interest are protein dynamics and protein-protein and protein-membrane interactions in different environments. Currently, I am working on a project whose objective is to find connections between amyloidogenicity and antimicrobial activity in peptides. This project consists of two stages: the first is the development of an **AI generative model**, and the second is the **MD simulation** studies of generated peptides with bacterial membranes. I am proficient in a variety of computational and experimental techniques, including **NAMD** (protein modelling and simulation), visualisation and data analysis on **VMD, MDAnalysis** (python library), protein docking, proteomics through **Biopython** (python library for bioinformatics), circular dichroism (**CD**), Plate Reader (**ThT assay**) and **TIRF microscopy**, PCR, formulations of various lipid vesicles, etc.

One of my key strengths is the ability to develop algorithms and write programs in **Python and TCL** for complex data analysis. In addition to my technical skills, I possess excellent communication and collaboration abilities, as demonstrated by my track record of presenting research findings at **three international conferences**, publishing **three research papers** in peer-reviewed journals, and **mentoring an intern** from B.Tech in computer science.

I am confident that my past experiences in protein dynamics, peptide-membrane interaction, and skills in molecular modelling, machine learning and fluency in Python and TCl scripting for complex data analysis make me a strong candidate for this position. Enclosed is my CV, which provides additional details about my academic background, research experience, and

publications. I would welcome the opportunity to discuss how my skills and expertise align with the needs of your research team. Thank you for considering my application. I look forward to the possibility of contributing to the groundbreaking work being done in your lab.

Sincerely,

Anup K. Prasad