Personal Report

(SPARC-GIANT Program 2025)

Theertha K P

I am sincerely thankful for the opportunity to work in the research group of Prof. Claudia Höbartner as part of the SPARC-GAINT program from October to December 2025. This research stay provided an excellent platform to gain hands on experience in an international and highly collaborative scientific environment. From the very beginning, I was warmly welcomed by all members of the group, which helped me integrate smoothly into the laboratory and research activities.

I would like to express special appreciation to Maria for her continuous guidance, patience, and encouragement throughout the duration of my project. Her support was exceptional in helping me understand experimental procedures, refine my research approach, and overcome technical challenges.

During this period, I initiated my work on RNA aptamers with a specific focus on their interaction with the ligands and tau-ligand interactions. This project introduced me to advanced experimental techniques and strengthened my understanding of RNA. Overall, this research experience significantly broadened my research perspective, and laid a strong foundation for my future work in RNA biology and related interdisciplinary research.

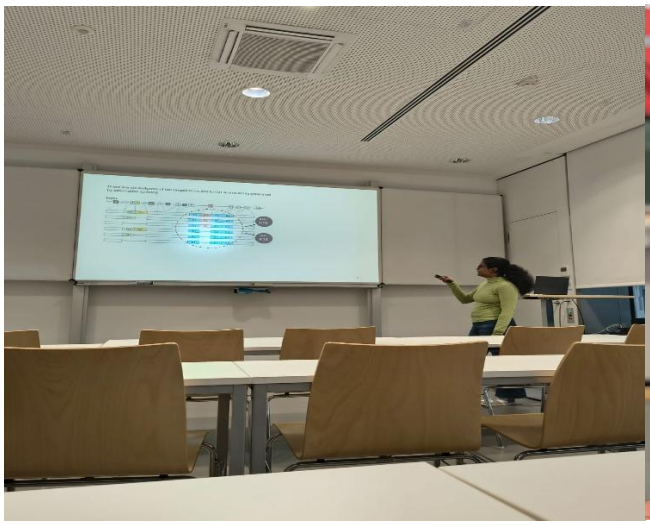
The cross-cultural hybrid workshop between Germany and India was a highly enriching and insightful experience for all GAINT participants. The session provided a valuable platform to openly discuss cultural variations, workplace norms, and communication styles, which helped in identifying and clarifying common misunderstandings that can arise in international collaborations. Through guided discussions and interactive activities, participants were encouraged to share their perspectives and experiences, fostering an atmosphere of mutual respect and openness.

The workshop enabled us to better understand how cultural backgrounds influence professional behavior, expectations, and decision-making processes. By actively engaging with colleagues from different cultural contexts, we were able to develop greater empathy and adaptability, which are essential for effective global teamwork. The hybrid format further enhanced participation, allowing seamless interaction between participants based in Germany and India.

On December 3, 2025, I presented a workshop focusing on the role of nucleic acid aptamers and their ligand interactions. Aptamers are short, single-stranded nucleic acids that fold into unique three-dimensional structures, enabling high specificity and affinity toward diverse ligands.

A comparative study of multiple nucleic acid aptamers (chili, clivia, lettuce and spinach) is conducted to evaluate their ability to interact with compatible chromophores and generate fluorescence. These aptamers are designed to mimic GFP like fluorescence through ligand induced structural stabilization.

In addition, the workshop covered tau fibril–ligand interactions, which are of significant interest in neurodegenerative disease research. Tau fibrils, implicated in Alzheimer's disease, present structured binding sites that can be targeted by ligands.



I was extremely pleased to receive a New Year gift from Prof. Höbartner. The thoughtful gesture was greatly appreciated and contributed to a positive and motivating start to the year. Such encouragement reflects a supportive academic environment and is sincerely valued.