MOTIVATION LETTER

Friedrich Schiller University Jena

Medical Photonics

Winter Intake

From the beginning of my academic life, I had a keen interest towards life science subject. The mechanism and functioning of living things, the human body, animals, plants and obviously microorganisms were always mesmerising to my eyes and remained the reason behind the choice of my career. Therefore, I pursued master’s degree in biotechnology, where I learned various practical applications and theoretical aspects of microorganisms and living things, around the world. Moreover, my interest also fueled by the opportunity to contribute in improving patient outcomes and enhancing the quality of medical care through technological advancements. Hence, I am fascinated the light-based technologies to revolutionize medical diagnostics and treatments which is why I choose a post graduate program in Medical Photonics in a German educational institution.

My name is Anjana Unnikrishnan, and I am from India. I am very curious about studying the Master’s program in Medical Photonics at Friedrich Schiller University Jena. Even though, Photonics and its application have boomed worldwide, its rapid advancement in medical field cannot be overlooked. As a graduate in life science, I am inquisitive in learning and understanding both physical properties of light and its application in medical setting.

Medical Photonics is a diverse field with excellent opportunities and wide career options. I have an intense and eager enjoyment to study how light and other electromagnetic radiation are used in medical diagnostics and treatment. It will not only widen my knowledge base but also help me to comprehend different sorts of advanced techniques involved in clinical practice. Furthermore, application of photonics plays a crucial role in imaging, therapeutics, diagnostics, surgery, and optical sensing. Overall, this field continues to advance with ongoing research and technical developments, offering innovative solutions for medical diagnosis, treatment and monitoring.

I completed my post-graduation in Biotechnology from Mahatma Gandhi University, Kerala, India with 76% marks. My graduation in Bachelor's degree was also from Mahatma Gandhi University, Kerala, India, and scored 70.5%. Throughout my studies, I have gained an extensive knowledge of theoretical and practical experiences in various fields such as Microbiology, Biochemistry, Immunology, Genetics, Enzymology & Metabolism, Cancer biology, Molecular Biology and rDNA technology, under perfect guidance and advanced laboratory facilities. During my academic journey, I have attended seminars, workshops and conferences related to Biotechnology, through which I got chances to network with professionals in the field and learn about the latest developments.

The fundamentals of practical experience in Biotechnology helped me in gaining skills and understanding the complexities of biotechnology applications in various fields such as medicine, agriculture, and environment science. During my lab tenure, I have gone through DNA isolation, SDS PAGE, PCR, Gel electrophoresis, Paper chromatography, Quantitative analysis of protein and Carbohydrates, various staining methods, Microscopy, Antigen antibody interaction, Card and tube tests, different plating methods (spreading, pouring, streaking, Antibody sensitivity test) and plant tissue culture.

During my final semester undergraduate degree, I did a project thesis on ‘’Characterization and Antibacterial study of green synthesized iron oxide nanoparticles from plant leaf extracts of Lawsonia inermis and Gardenia jasminoides”. In this project, the leaf extracts of both medicinal plants were collected and dried under sunlight. After grinding the leaf extracts, the nanoparticles were separated and different purification techniques were carried out. The antibacterial activity of these synthesized nanoparticles was evaluated against both gram-positive and gram-negative bacteria. The antibacterial study was conducted by Antibody sensitivity test, in which ampicillin, amoxicillin, Gentamicin and pencillin antibiotics were used. According to the project I found out that some strains were sensitive to ampicillin and penicillin respectively. After completion of my final year project thesis, I experienced a sense of achievement which leads to valuable lessons and skill development. As a part of my post-graduation, I worked on a project entitled “Targetting Brain Derived Neurotrophic Factor in Alzheimer’s Disease using Flavonoids of Acorus calamus”. Through this study, I got familiarized to the major Phytochemicals of Acorus plant involving flavonoids, phenols, alkaloids, terpenes, tannins and saponins. Moreover, I gained a better comprehension on the antioxidant and anti-inflammatory effects of these phytochemicals, which have multiple potential neuroprotective approaches which contribute to therapeutic benefit for pathogenesis of neurodegenerative diseases. During the project work, I learned to handle different types of instruments such as Autoclave, Hot air oven, Centrifuge, Incubator, micropipettes, weighing machine and Microscope under strict instruction and safety protocols.

I showcased my academic knowledge and workplace skills by working in Molecular Biology lab, on a short-term basis, at Rajagiri Hospital, Aluva, a super speciality tertiary care hospital, with NABL, NABH & JCI accreditation. My hand-on experience in sample preparation and Gel electrophoresis was a hallmark in my life. During Covid-19 pandemic, I also gained a real experience in performing PCR reactions to amplify specific DNA sequences for further analysis. This internship provided me a platform for applying theoretical knowledge, which I gained in the classroom to real-world scenarios, reinforcing learning and understanding. Additionally, working in this laboratory setting improved my problem-solving skills by encountering and overcoming challenges and obstacles.

During the journey of my higher education, I took my IELTS test and secured an overall band score of 6.5. To ensure proficiency in German, I am planning to learn A1 and A2 level soon. I hope this would help me to ease my contact with the German community.

Personally, Friedrich Schiller University Jena is one of my best options in pursuing Master’s program in Medical photonics. The paramount reason for my choice is its strong academic reputation and recognition both nationally and internationally, which can enhance the value of a master’s degree obtained from the institution, opening doors to career opportunities and further academic pursuits. By exhaustive investigation, I understand that Friedrich Schiller University Jena offers valuable mentorship and guidance throughout the master’s program. Additionally, I learned the funding system is more affordable, especially considering the low or no tuition fees for the students which is another factor of attraction towards this University. Finally, the university offers numerous research opportunities, with well-equipped facilities and collaborations with industry that would help me to network with expert professionals in research institutions.

Overall, Germany is a popular destination for higher education due its quality education, affordable costs, and post-study opportunities. German culture is rich and diverse compared to other countries, immersing myself in German culture and language can be an enriching experience. I believe pursuing education there can offer a wealth of opportunities for my personal and academic growth.

As a workaholic individual, my career goals likely revolve around making significant contributions to scientific advancement and innovations. I am eager to develop new approach that can revolutionize how the photonics technological processes are conducted in clinical setting, improving efficiency, accuracy, and scalability. Therefore, after completing my post graduate degree abroad, I plan to return to my hometown with a commitment to making a meaningful impact. I aim to utilize the skills and knowledge gained during my studies to address local challenges, contribute to community development initiatives, and foster positive change through collaboration and innovation. I would also explore job opportunities related to my field of study, network with professionals in my area, or even consider starting my own venture if that aligns with my goals.

To conclude, my exploration in biotechnology has instilled in me a profound appreciation for the field’s potential to address pressing global challenges. Through rigorous academic training and hands-on research experiences, I have cultivated a strong foundation in biotechnological principles and methodologies. With an unwavering passion for innovation and a commitment to making a positive impact, I am eager to embark on the next phase of my academic journey. I am confident that pursuing graduate studies at this esteemed institution will not only broaden my knowledge but also provide me with the tools and opportunities to realize my aspirations of contributing meaningfully to the advancement of biotechnology. I trust this statement of purpose will aid me in attaining my advanced education at your esteemed establishment.

Thank you.

Regards,

Anjana Unnikrishnan