SOUTH ASIAN UNIVERSITY

Faculty of Life Sciences and Biotechnology

organizes

LECTURE & INTERACTIVE SESSION

on

"Waging a War Against AMR"

By

Dr. Mrittika Sengupta

Associate Professor,
Centre for Life Sciences in Mahindra University

Join us on
Friday, March 15, 2024
From 3:00 PM
at LS001, Ground Floor

All are Cordially Invited

About the Speaker:

Dr. Mrittika Sengupta received her Ph.D from Illinois State University. Her research area during her PhD was deciphering the molecular mechanism of antimicrobial resistance and biofilm formation in MRSA. She did her postdoctoral research at the Miller School of Medicine, University of Miami. Following that, she joined the Regional Centre for Biotechnology as a research associate and was a recipient of the DBT BioCARe grant. Mrittika joined as a faculty at the Department of Biotechnology in Bennett University, where she worked from 2017 till 2023. Currently, she is employed as an associate professor at the Centre for Life Sciences in Mahindra University

Waging a War Against AMR

Waging a War Against AMR Antimicrobial resistance (AMR) claimed 1.27 million lives globally in 2019. India contributed to 297000 of those deaths. It is estimated that, if not checked immediately, the annual death toll from AMR can reach up to 10 million by 2050. The need of the hour is to combat AMR with a multipronged approach, such as investigating the molecular mechanisms underlying resistance development in bacterial pathogens, developing rapid diagnostic tools to detect AMR, and identifying novel therapeutics targeting specifically resistant bacteria. Currently, the 7 ESKAPEE pathogens, namely, Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumannii, Pseudomonas aeruginosa, Enterobacter spp., and Escherichia coli are the biggest threats that need to be addressed. Amongst these, methicillin-resistant Staphylococcus aureus (MRSA) is a significant global concern. In our laboratory, we investigate the regulatory mechanisms that control the expression of genes involved in cell wall-active antimicrobial resistance in MRSA through transcript analysis and CRISPR-based mutational analysis. Our work has recently identified a heme sensing system regulator HssR playing a significant role in MRSA antimicrobial resistance and biofilm synthesis. Along with our collaborator we also work in isothermal amplification based diagnostic tool development to detect AMR genes in biological fluids. In another branch of our research, we work on isolating bacteriophages against MRSA with the final goal of fabricating antimicrobial wound healing material. Together, our research focus towards combating AMR combines the three-pronged approach of identifying the root cause of the problem as well as detecting its presence in clinical samples and achieving a potential solution