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*Evaluation of De Novo Fatty Acid Biosynthesis as a Narrow-Spectrum Approach for Clostridioides difficile Infection*

Dr. Dureja is a passionate molecular microbiologist, dedicated to improving people's lives through translational research in infectious diseases. Her research focuses on unraveling the molecular pathways that govern the emergence and dissemination of AMR in pathogenic microorganisms. Her commitment stems from the belief that a comprehensive understanding of these mechanisms is crucial for developing effective interventions to preserve antibiotic efficacy. She is currently working as a postdoctoral research associate at Texas A & M, IBT, Houston. Her key research objectives include understanding molecular mechanisms of antimicrobial resistance and their impact on patient care and to investigate the therapeutic potential of new anti-*C. difficile* agents. Throughout her postdoctoral research, she has co-authored many articles. Recently her work was accepted in Nature Communications, where they unraveled the mechanism of metronidazole resistance in *C. difficile*. This work has revised the paradigm by which epidemic *C. difficile* spread around the world, showing that epidemic strains co-evolved resistance to fluoroquinolone and metronidazole.

Holding a Ph.D. from Jawaharlal Nehru University, New Delhi, India, her doctoral research significantly contributed to understanding how commensal *E. coli*, isolated from individuals with no prior antibiotic exposure, served as a reservoir for antimicrobial resistance genes. This research shed light on the complex dynamics of antibiotic resistance and its implications for public health. As a university topper, she continues to push the boundaries of scientific knowledge.

In collaboration with industry sponsors, she played a pivotal role in the groundbreaking discovery of anti-infective molecules for drug-resistant *M. tuberculosis*. These molecules have progressed to advanced preclinical studies, with the goal of becoming treatments for TB disease.

Beyond her research, she is deeply involved in fostering a culture of scientific thinking. She has contributed to various training and mentoring programs, aiming to inspire curiosity in children at the school level and the general public. Currently serving as IBT's Postdoctoral Co-President and as a postdoc representative for Texas A&M IBT on the AMR Scholars Steering Committee (SSC), she is dedicated to advancing scientific knowledge and shaping the next generation of researchers.

## **Selected Abstract**