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Elucidating Molecular Mechanisms Underlying Successful Adaptation to Carbapenem Antimicrobials in High Risk Carbapenem Resistant Escherichia coli Lineages

William Shropshire, PhD is a second year T32 Gulf Coast Consortia Training Program in Antimicrobial Resistance (TPAMR) Postdoctoral fellow working under the primary supervision of Dr. Samuel Shelburne within the Department of Infectious Diseases at the University of Texas MD Anderson Cancer Center. Dr. Shropshire has had over a decade of research experience that primarily focuses on infectious diseases genomics and epidemiology. He has especially been interested in applying next generation sequencing analyses to these rapidly evolving fields. His contributions span a diverse range of topics, from molecular mechanisms of antimicrobial resistance to genomic epidemiology of infectious disease outbreaks.

His current T32 project focuses on elucidating genomic and transcriptomic factors contributing to the progressive development of carbapenem resistance within Escherichia coli causing invasive infections. His research has highlighted the clinical impact of extended-spectrum beta-lactamase (ESBL) positive Enterobacterales infections in cancer patients and how amplification of ESBL encoding genes can lead to a spectrum of -lactam resistance phenotypes. Through this project, Dr. Shropshire is collecting preliminary data that will support an upcoming Mentored Research Scientist Development (K01) Award submission where his goal is to characterize the full spectrum of carbapenem survival mechanisms that contribute to complicated, chronic infections.