Prospective students often ask why they should pursue a career in infectious disease research. I ask them to consider how many lives were impacted by Alexander Fleming’s discovery of penicillin or Jonas Salk’s development of a polio vaccine. There is no other field in science or medicine where an individual has the opportunity to literally change the world, to impact the lives of tens of millions of individuals and generations to come. Imagine a world without tuberculosis or AIDS or cholera or polio, where children do not suffer repeated bouts of life altering diarrheal disease or deadly respiratory infections. The faculty, staff and students of the Department of Microbiology and Immunology specialize in interdisciplinary approaches to solving some of the more intractable problems in infectious diseases, working at the interface of traditional disciplines in science and medicine. We invite you to join us on our journey to change the world.

John D. Clements, PhD
Chair

Research
The faculty and staff of the Department of Microbiology and Immunology are international leaders in studies of infectious disease pathogenesis and prevention. Current investigations in the Department include studies on the pathogenesis of emerging infectious diseases like Lassa fever and Burkholderia, the mechanisms that bacteria use to persist in the infected host (e.g., typhoid fever), how cytomegaloviruses cross the placenta to injure the developing fetus, how viruses damage the respiratory epithelium, pathogenesis of enteric pathogens (e.g., cholera, enterotoxigenic E. coli), detection of viral infections in recently infected individuals, and the nature of viruses and the roles they play in neoplasia and AIDS.

Vaccine development and delivery are also major areas of research for the Department. Our faculty employ a number of different strategies, primarily adjuvants (compounds added to vaccines to make them work better or direct the immune response to a preferred outcome), delivery systems (formulations to make vaccines stable or more available to the host), and novel immunization routes (intradermal or sublingual vaccines as alternatives to intramuscular injection or oral delivery). In many cases, these strategies are combined to achieve the desirable outcome—low cost, effective vaccines for children and adults. Our primary vaccine targets are polio, tuberculosis, shigellosis, cholera-like diarrheal diseases, influenza, and Burkholderia.

Education
The department’s record of graduate and medical student training reflects our commitment to the educational mission of Tulane University School of Medicine. The Department provides two formal courses in the medical school curriculum: Medical Immunology and Introduction to Infectious Diseases. In addition, the Department provides a number of formal graduate level courses for the benefit of MS, PhD, and MD-PhD students within Tulane University.

Our departmental Graduate Program in Biomedical Sciences emphasizes interdisciplinary research into the prevention of infectious diseases. The goals of our graduate program are (1) to provide a broad and sound education in the molecular biology and genetics of infectious disease and immunology and (2) to provide rigorous research training in an environment dedicated to advancing biomedical science. The students, postdoctoral fellows and faculty in Microbiology and Immunology form a cohesive group with its own identity, while taking full advantage of the tremendous breadth of expertise and knowledge contained within other departments and programs.
The Department of Microbiology and Immunology has active research programs encompassing many areas of current research interest worldwide.

Microbiology, in its broadest sense, is the study of the smallest forms of life.

Dr. Lisa Morici and colleagues