

Plenary Lecture Abstract

Role of the Microbiota in Health and Inflammatory Disease**Gabriel Nuñez***Department of Pathology and Rogel Cancer Center, University of Michigan Ann Arbor, Michigan, U.S.A.*

The mechanisms that allow enteric pathogens to colonize the intestine in the presence of the microbiota and how host immunity and the indigenous microbiota regulate pathogen colonization remain poorly understood. Our laboratory is using *Citrobacter rodentium*, a mouse pathogen that models human infections by enteropathogenic *E. coli*, to understand the mechanisms that regulate the colonization and clearance of the pathogen in the gut. These studies have revealed how the pathogen colonizes and replicates successfully early during infection and how host immunity and the indigenous microbiota cooperate to eradicate the pathogen in the later stage of the infection. These studies have also revealed that Clostridia species protect the host from colonization by *C. rodentium* and *Salmonella enterica* in the intestine. Furthermore, these studies have shown that the intestine of mice after birth lack protective Clostridia species providing a mechanism to account for the enhanced susceptibility of mice and humans to enteric infection during the neonatal period. In addition to their protective role, bacterial symbionts can also induce inflammatory disorders such as Crohn's disease in genetically susceptible individuals. We will show new results that demonstrate that particular symbiotic bacteria can accumulate in the intestine and trigger Crohn's disease-like colitis in mice with mutations relevant to the development of inflammatory bowel disease.