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“Of mice and humans: Fundamental mechanisms of tissue-specific antifungal immunity”

Research
Dr. Ionakis is a physician-scientist and Head of the Fungal Pathogenesis Section in the Laboratory of Clinical Immunology and Microbiology, NIAID. His laboratory research focuses on 1) better understanding the genetic and immune defects that underlie enhanced susceptibility to mucocutaneous and invasive fungal infections in humans and on 2) cellular and molecular factors that regulate the immune response against mucosal and invasive candidiasis and invasive aspergillosis in clinically relevant animal models. His long-term goals are 1) to understand the pathogenesis of mucosal and invasive candidiasis and invasive aspergillosis, 2) to use this knowledge to identify patients at risk for developing these diseases and to improve their outcomes, 3) to improve care for patients with inherited susceptibility to fungal disease such as Autoimmune Polyendocrinopathy-Candidiasis-Ectodermal Dystrophy (APECED), Caspase recruitment domain-containing protein 9 (CARD9) deficiency and others, and 4) to discover novel genetic predisposing factors for human fungal disease. To this end, they utilize in vitro cell culture systems and clinically relevant mouse models of mucosal and systemic Candida infections and pulmonary Aspergillus infections, and enroll patients with inherited and acquired susceptibility to candidiasis and aspergillosis to study host-fungal interactions by using a variety of immunological, biological, and imaging approaches.

Publications
