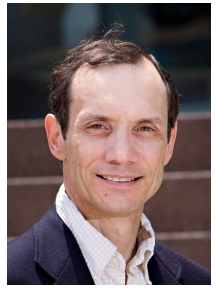
National Institute of Allergy and Infectious Diseases

Prof Dr Işıl Berat Barlan Alerji-İmmünolji Buluşmaları

Using Contemporary Genomics Techniques to Define New Diseases and Therapies

Prof. Micheal J. Leonardo



NIH Distinguished Investigator
Director, Clinical Genomics Program
Member, U.S. National Academy of Science
Member, U.S. National Academy of Medicine
Fellow, Academy of Medical Sciences of Great Britain

Toplantı Yeri: T.C Sağlık Bakanlığı, Marmara üniversitesi, Pendik Eğitim Araştırma Hastanesi, Pendik

Prof. Dr. Işıl Barlan Konferans Salonu, -2. Kat
Tarih: 10.06.2022, **Saat:** 12:30-13:30

Marmara Üniversitesi 1883 | Tıp Fakültesi

Düzenleyici: Çocuk Alerji İmmünoloji Bilim Dalı
Prof. Dr. Işıl Berat Barlan Translasyonel Tıp Klinik Uygulama ve Araştırma Merkezi

A Short Biography of Prof. Leonardo

The focus of the Dr. Lenardo's research has been to understand crucial regulatory pathways in the lifespan of T lymphocytes at the most fundamental level. Our investigations continue to address issues of T cell homeostasis and apoptosis in autoimmune diseases. This has led to the identification of new unexpected genes contributing to human immune diseases such as autoimmune lymphoproliferative syndrome (ALPS), in which the failure of normal homeostatic mechanisms leads to autoimmunity and lymphoma. Our discovery of X-linked immunodeficiency with magnesium defect, Epstein-Barr virus infection, and neoplasia (XMEN) disease raised the question of how the MagT1 protein controls T cell signaling for activation and apoptosis. Finding a gain-of-function mutation in phosphatidylinositol 3-kinase gene explained why PASLI disease individuals were unable to appropriately activate T cell responses to recurrent viral infections and simultaneously suffer from lymphoproliferation.
Due to the success of ALPS, XMEN, and PASLI disease discoveries, the lab began employing genetic approaches to understand autoimmune diseases. Our current Mendelian approach has enabled us to find disease alleles that are highly deleterious and fully penetrant. Using a two-prong method of genomics coupled with biochemical investigation has allowed us insight on the molecular definition of a growing number of new genetic diseases which reveal new concepts of immune regulation and disease pathogenesis. We learned that there are multiple benefits to defining the genetic pathobiology of these autoimmune diseases: improved diagnosis, prognosis, genetic counseling, and, most importantly, new therapies.

The latest discovery from the lab is a loss-of-function mutation affecting the gene encoding CD55. The cardinal feature is severe protein-losing enteropathy due to primary intestinal lymphangiectasia associated with diarrhea, vomiting, abdominal pain, edema, recurrent infections due to hypogammaglobulinemia, and severe, often fatal, thromboembolic complications. This disorder is called complement hyperactivation, angiopathic thrombosis, and protein-losing enteropathy or CHAPLE disease. Unfortunately, the disease is brutal, and patients typically live to only late childhood/early adulthood. Current treatments do little to improve quality of life and have adverse side effects. The lab is currently involved in an international clinical trial for use of a promising therapeutic agent to treat CHAPLE disease.

Awards

2006: Officer of the Most Excellent Order of the British Empire (O.B.E.) conferred by Queen Elizabeth II
2009: Fellow, American Association for the Advancement of Science
2014: Irish Society of Immunology Award
2019: Member, National Academy of Sciences
2019: Member, National Academy of Medicine
2019: NIH Distinguished Investigator (top 2-3% section chiefs at NIH)
2020: American Association of Immunologists Steinman Award for Human Immunology Research