Biography

Elias Lolis received his PhD in 1989 from MIT in Chemistry/Biochemistry studying the three-dimensional structure and mechanism of triosephosphate isomerase. He was a postdoctoral associate at the Laboratory of Medical Biochemistry at Rockefeller University studying the functional interaction between advanced glycation end products (AGEs) and the immune system in mice. He joined the Yale faculty in 1991 as an Assistant Professor focusing on the structure, mechanism, and inhibition of chemokines, macrophage migration inhibitory factor (MIF), and their receptors. He is currently Professor of Pharmacology, a member of the Cancer Center, and the Director of Graduate Studies. He has received a Pharmaceutical Manufacturers Association Faculty Development Award in Basic Pharmacology, the Donaghue Young Investigator Award, and the GlaxoWellcome Award in Drug Discovery.

Abstract

“Macrophage Migration Inhibitory Factor: an Inflammatory Protein that Moonlights”

Human macrophage migration inhibitory factor (MIF) is a pro-inflammatory protein that is mainly localized in the cytosol of virtually all cells types and is exported from activated cells to signal through the receptors CD74, CXCR2, and CXCR4. Its homotrimeric three-dimensional structure is similar to microbial enzymes and retains an enzymatic site cavity between each of the two subunits resulting in three catalytic sites. Other activities for MIF have also been described. The homotrimer also has a solvent channel along the 3-fold axis but is of unknown significance. In a molecular dynamics study we identified the gating residue Tyr99 as an important allosteric site that affects biological function and a rare mutant at this position may be involved with human systemic juvenile idiopathic arthritis.