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Nourexin-4 A Novel Anti-inflammatory Therapy for Influenza Flu (52.1)

Nourexin-4 A Novel Anti-inflammatory Therapy for Influenza Flu (52.1)

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Relatively little is known about the inflammatory mediators and mechanisms that drive the progression of influenza flu infection to cytokine storm, lung dysfunction, organ failure, and ultimately death. Vaccines and antiviral medications cannot control the excessive host inflammatory response. We demonstrated the rapid release of a potent inflammatory mediator, recently named Nourin, by local mammalian tissues in response to injury and infection. Nourin is a formyl peptide that acts through the formyl peptide receptor (FPR) on phagocytic leukocytes. As an “initial signal” in the “innate immunity”, Nourin stimulates leukocyte chemotaxis, induce acute and chronic inflammation, and stimulates the release of cytokine storm mediators from monocytes and neutrophils. Nourin detected in plasma samples from patients with severe influenza infection was much higher compared to moderate influenza. We then tested the Nourin antagonist Nourexin-4, as specific competitive antagonist of formyl peptides on phagocytic leukocytes FPR. Nourexin-4 completely blocked neutrophil chemotaxis induced by the standard formyl peptide f-MLF and the host-derived Nourin released by (1) cultured epithelial cells infected with the H1N1 influenza virus (PR8) (6-24 hours), (2) Nourin detected in the serum of mouse model of H1N1 influenza (6 hrs), and (3) Nourin detected in severe and moderate influenza patients plasma samples. Nourexin-4 can be used to control virus-induced inflammation and protect patients.

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