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Interferon Lambda in the Pathogenesis of Inflammatory Bowel Disease

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Abstract

Interferon lambda is critical for host viral defense at mucosal surfaces and contributes unique immunomodulatory effects primarily in epithelial cells. Although expressed at low levels in many cell types, the interferon lambda receptor is preferentially expressed in epithelial cells and it is well established that intestinal epithelial cells play a critical role in the pathogenesis of Inflammatory Bowel Disease. There are four different interferon lambdas in humans (IFN-λ 1 through 4) which may have non-overlapping roles in the pathogenesis of Ulcerative Colitis and Crohn's Disease. The role of interferon lambda in these diseases is complex as it appears to have a role in healing epithelial tissues, while simultaneously being correlated with worsened intestinal inflammation. It is also possible that interferon lambda promotes important tissue protective effects against excessively robust inflammation by acting on other cell types, such as neutrophils. Due to its ability to restrict viral infection without inducing collateral hyperinflammation, much recent discussion has occurred concerning the therapeutic potential of IFN-λ, especially for prevention of Acute Respiratory Distress Syndrome. This mini review discusses current thought on the role of interferon lambda in the pathogenesis of inflammatory bowel disease, current gaps in the research, and therapeutic potential of interferon lambda.