Tyrosine kinase 2 (TYK2) is a protein encoded by the TYK gene that mediates immune signaling. TYK2 is important in both innate and adaptive immune cells. In a healthy person, TYK2 is an essential component of maintaining normal immune responses.

**About TYK2**

**TYK2 and Immune Function**

TYK2 activates a series of transcription factors called signal transducer and activator of transcription (STAT). Activated STATS promote expression of cytokines and cellular processes such as cellular division, differentiation and death.

By binding to specific receptors, cytokines signal through TYK2 to regulate the immune system. These cytokines include IL-12, IL-23 and Type I IFNs.

**TYK2 and Disease**

Immune cells are correlated with the pathogenesis of autoimmune diseases such as psoriasis, lupus, multiple sclerosis and inflammatory bowel disease.

The critical role of TYK2 in driving these pathways is evident in the observation that deactivating mutations in the TYK2 gene provides protection from multiple common autoimmune disorders.

**Research Implications and Interactions**

Advancements in the understanding of TYK2 signaling and activation have resulted in the investigation of novel therapeutic interventions.

Through the regulation of overproduction of immune-inflammatory components, it may be possible to suppress difficult-to-treat autoimmune diseases.

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The TYK2 pathway is one of many pathways under investigation at Bristol Myers Squibb.

Learn more about our work in Immunology by visiting: www.bms.com/researchers-and-partners/areas-of-focus.html

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