

IKKε Protein, Human (Sf9, GST)

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| Cat. No.: | HY-P701788 |
| Synonyms: | IKKε; Inhibitor of nuclear factor kappa-B kinase subunit epsilon; I-kappa-B kinase epsilon; IKK-E; IKK-epsilon; IκBKE; Inducible I kappa-B kinase; IKK-i |
| Species: | Human |
| Source: | Sf9 insect cells |
| Accession: | Q14164-1 (Q2-V716) |
| Gene ID: | 9641 |
| Molecular Weight: | Approximately 106.9 kDa |

PROPERTIES

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| Appearance | Solution |
| Formulation | Supplied as a 0.22 μm filtered solution of 50 M Tris-HCl, 500 M NaCl, 20% glycerol, 5 M DTT, 0.1 Trehalose, pH 7.5. |
| Endotoxin Level | <1 EU/μg, determined by LAL method. |
| Reconstitution | Please use rapid thawing with running water to thaw the protein. |
| Storage & Stability | Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles. |
| Shipping | Shipping with dry ice |

DESCRIPTION

Background

IKKε, a serine/threonine kinase, assumes a critical role in orchestrating inflammatory responses to viral infection by activating the type I IFN, NF-kappa-B, and STAT signaling pathways. Upon activation of viral RNA sensors, such as RIG-I-like receptors, IKKε associates with DDX3X and phosphorylates interferon regulatory factors (IRFs), specifically IRF3 and IRF7, as well as DDX3X. This activity enables homodimerization and nuclear translocation of IRF3, leading to the transcriptional activation of pro-inflammatory and antiviral genes, including IFNB. To establish an antiviral state, IKBKE forms diverse complexes, recruiting scaffolding molecules like IPS1/MAVS, TANK, AZI2/NAP1, or TBKBP1/SINTBAD, whose composition varies based on the cell type and stimuli. Activated by polyubiquitination in response to TNFA and interleukin-1, IKKε regulates the NF-kappa-B pathway by phosphorylating CYLD, leading to the dissociation and degradation of the inhibitor/NF-kappa-B complex. Furthermore, IKKε is vital for inducing a subset of ISGs with antiviral activity, potentially through STAT1 phosphorylation at 'Ser-708', which also influences the balance between type I and type II IFN responses. Beyond its role in antiviral defense, IKKε protects against DNA damage-induced cell death, and its involvement in chronic, low-grade inflammation in obesity negatively impacts insulin sensitivity. Additionally, IKKε phosphorylates AKT1, contributing to its multifaceted regulatory functions in cellular processes.

Caution: Product has not been fully validated for medical applications. For research use only.

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