

Recombinant Human EIF2AK2 Protein (2-551 aa), His-SUMO-tagged

Cat. No. EIF2AK2-473H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human EIF2AK2 Protein (2-551 aa) is produced by E. coli expression system. This protein is fused with a 6xHis-SUMO tag at the N-terminal. Research Area: Signal Transduction. Protein Description: Full Length of Mature Protein.
Species	Human
Source	E.coli
ProteinLength	2-551 aa
Description	IFN-induced dsRNA-dependent serine/threonine-protein kinase which plays a key role in the innate immune response to viral infection and is also involved in the regulation of signal transduction, apoptosis, cell proliferation and differentiation. Exerts its antiviral activity on a wide range of DNA and RNA viruses including hepatitis C virus (HCV), hepatitis B virus (HBV), measles virus (MV) and herpes simplex virus 1 (HHV-1). Inhibits viral replication via phosphorylation of the alpha subunit of eukaryotic initiation factor 2 (EIF2S1), this phosphorylation impairs the recycling of EIF2S1 between successive rounds of initiation leading to inhibition of translation which eventually results in shutdown of cellular and viral protein synthesis. Also phosphorylates other substrates including p53/TP53, PPP2R5A, DHX9, ILF3, IRS1 and the HHV-1 viral protein US11. In addition to serine/threonine-protein kinase activity, also has tyrosine-protein kinase activity and phosphorylates CDK1 at 'Tyr-4' upon DNA damage, facilitating its ubiquitination and proteosomal degradation. Either

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as an adapter protein and/or via its kinase activity, can regulate various signaling pathways (p38 MAP kinase, NF-kappa-B and insulin signaling pathways) and transcription factors (JUN, STAT1, STAT3, IRF1, ATF3) involved in the expression of genes encoding proinflammatory cytokines and IFNs. Activates the NF-kappa-B pathway via interaction with IKBKB and TRAF family of proteins and activates the p38 MAP kinase pathway via interaction with MAP2K6. Can act as both a positive and negative regulator of the insulin signaling pathway (ISP). Negatively regulates ISP by inducing the inhibitory phosphorylation of insulin receptor substrate 1 (IRS1) at 'Ser-312' and positively regulates ISP via phosphorylation of PPP2R5A which activates FOXO1, which in turn up-regulates the expression of insulin receptor substrate 2 (IRS2). Can regulate NLRP3 inflammasome assembly and the activation of NLRP3, NLRP1, AIM2 and NLRC4 inflammasomes. Can trigger apoptosis via FADD-mediated activation of CASP8. Plays a role in the regulation of the cytoskeleton by binding to gelsolin (GSN), sequestering the protein in an inactive conformation away from actin.

Form Tris-based buffer, 50% glycerol

Molecular Mass 78.0 kDa

AA Sequence

AGDLSAGFFMEELNTYRQKQGCVLKYQELPNSGPPHRRFTFQVIIDGREFPEGEG
RSKKEAKNAAKLAVEILNKEKKAVSPLLLLTTNSSEGLSMGNYIGLINRIAQKKRLTV
NYEQCASGVHGPGEFHYKCKMGQKEYSIGTGSTKQEAQQLAAKLAYLQILSEETSV
KSDYLSSGSFATTCESQSNSLVTSTLASESSSEGDFTSEINSNSDSLNSSSLLM
NGLRNNQRKAKRSLAPRFDLPDMKETKYTVDKRFGMDFKEIELIGSGGFGQVFKAK
HRIDGKTYVIKRVKYNNEKAEREVKALAKLDHVNIVHYNGCWDGFDYDPETSDDSLE
SSDYDPENSKNSSRSKTKCLFIQMEFCDKGTLEQWIEKRRGEKLDKVLALFEQIT
KGVDYIHSKKLIHRDLKPSNIFLVDTKQVKIGDFGLVTSKNDGKRTRSKGTLRYMSP
EQISSQDYGKEVDLYALGLILAEELLHVCDTAFETSKFFTDLRDGIISDIFDKKEKTLLQK
LLSKKPEDRPNTSEILRTLTVWKKSPKNERHTC

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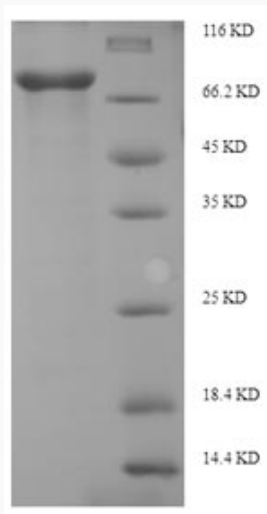
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Purity	> 90% as determined by SDS-PAGE.
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4 centigrade for up to one week.
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20 centigrade/-80 centigrade. The shelf life of lyophilized form is 12 months at -20 centigrade/-80 centigrade.
Concentration	A hardcopy of COA with concentration instruction is sent along with the products.
GENE INFORMATION	
Gene Name	EIF2AK2 eukaryotic translation initiation factor 2-alpha kinase 2 [Homo sapiens]
Official Symbol	EIF2AK2
Synonyms	EIF2AK2; EIF2AK1; PKR; p68 kinase; PRKR; MGC126524;
Gene ID	5610
mRNA Refseq	NM_001135651
Protein Refseq	NP_001129123
MIM	176871
UniProt ID	P19525

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(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

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