

# Recombinant Human Interferon-induced, double-stranded RNA-activated protein kinase(EIF2AK2)

Catalog No: #AP70262

Orders: [order@signalwayantibody.com](mailto:order@signalwayantibody.com)Support: [tech@signalwayantibody.com](mailto:tech@signalwayantibody.com)

Package Size: #AP70262-1 20ug #AP70262-2 100ug #AP70262-3 1mg

## Description

|                       |   |
|-----------------------|---|
| Product Name          | Recombinant Human Interferon-induced, double-stranded RNA-activated protein kinase(EIF2AK2)   |
| Host Species          | E.coli  |
| Purification          | Greater than 90% as determined by SDS-PAGE.   |
| Immunogen Description | Expression Region:2-551aaSequence Info:Full Length  |
| Other Names           | Eukaryotic translation initiation factor 2-alpha kinase 2   |
| Accession No.         | P19525  |
| Calculated MW         | 78 kDa  |
| Tag Info              | N-terminal 6xHis-SUMO-tagged  |
| Target Sequence       | AGDLSAGFFMEELNTYRQKQGVVLKYQELPNSGPPHRRFTFQVIIDGREFPEGEGRSKKEAKNAAAKLAVEI<br>LNKEKKAVSPLLLTTTNSSEGLSMGNYIGLINRIAQKKRLTVNIEQCASGVHGPPEGFHYKCKMGQKEYSIGTG<br>STKQEAQLAAKLAYLQILSEETSVKSDYLSSGSFATTCESQSNSLVTSTLASESSSEGDIFSADTSEINSNDS<br>LNSSLLMNGLRNNQRKAKRSLAPRFDLPDMKETKYTVDKRFGMDFKEIELIGSGGFGQVFKAKHRIDGKTYV<br>IKRVKYNNEKAEREVKALAKLDHVNIVHYNGCWDGFDYDPETSDDSLSSDYDPENSKNSSRSKTKCLFIQME<br>FCDKGTLEQWIEKRRGEKLDKVLALELFEQITKGVDYIHSKLIHRDLKPSNIFLVDTKQVKIGDFGLVTSKND<br>GKRTRSKGTLRYMSPEQISSQDYGKEVDLYALGLILAELLHVCDTAFETSKFFTDLRDGIISDIFDKKEKTLQKL<br>LSKKPEDRPNTSEILRTLTVWKKSPKNERHTC |
| Formulation           | Tris-based buffer50% glycerol   |
| Storage               | The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.<br><br>Generally, the shelf life of liquid form is 6 months at -20°C,-80°C. The shelf life of lyophilized form is 12 months at -20°C,-80°C.Notes:Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.   |

## Background

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 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

## References

NIEHS SNPs program Generation and annotation of the DNA sequences of human chromosomes 2 and 4. Hillier L.W., Graves T.A., Fulton R.S., Fulton L.A., Pepin K.H., Minx P., Wagner-McPherson C., Layman D., Wylie K., Sekhon M., Becker M.C., Fewell G.A., Delehaunty K.D., Miner T.L., Nash W.E., Kremitzki C., Oddy L., Du H., Sun H., Bradshaw-Cordum H., Ali J., Carter J., Cordes M., Harris A., Isak A., van Brunt A., Nguyen C., Du F., Courtney L., Kalicki J., Ozersky P., Abbott S., Armstrong J., Belter E.A., Caruso L., Cedroni M., Cotton M., Davidson T., Desai A., Elliott G., Erb T., Fronick C., Gaige T., Haakenson W., Haglund K., Holmes A., Harkins R., Kim K., Kruchowski S.S., Strong C.M., Grewal N., Goyea E., Hou S., Levy A., Martinka S., Mead K., McLellan M.D., Meyer R., Randall-Maher J., Tomlinson C., Dauphin-Kohlberg S., Kozlowicz-Reilly A., Shah N., Swearingen-Shahid S., Snider J., Strong J.T., Thompson J., Yoakum M., Leonard S., Pearman C., Trani L., Radionenko M., Waligorski J.E., Wang C., Rock S.M., Tin-Wollam A.-M., Maupin R., Latreille P., Wendl M.C., Yang S.-P., Pohl C., Wallis J.W., Spieth J., Bieri T.A., Berkowicz N., Nelson J.O., Osborne J., Ding L., Meyer R., Sabo A., Shotland Y., Sinha P., Wohldmann P.E., Cook L.L., Hickenbotham M.T., Eldred J., Williams D., Jones T.A., She X., Ciccarelli F.D., Izaurralde E., Taylor J., Schmutz J., Myers R.M., Cox D.R., Huang X., McPherson J.D., Mardis E.R., Clifton S.W., Warren W.C., Chinwalla A.T., Eddy S.R., Marra M.A., Ovcharenko I., Furey T.S., Miller W., Eichler E.E., Bork P., Suyama M., Torrents D., Waterston R.H., Wilson R.K. *Nature* 434:724-731(2005) Research Topic: Signal Transduction

Note: This product is for in vitro research use only and is not intended for use in humans or animals.