

Recombinant Human DDX3X Protein (2-662 aa), His-B2M-tagged

Cat. No. DDX3X-2222H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human DDX3X Protein (2-662 aa) is produced by E. coli expression system. This protein is fused with a 6xHis-B2M tag at the N-terminal. Research Area: Epigenetics and Nuclear Signaling. Protein Description: Full Length of Mature Protein.
Species	Human
Source	E.coli
ProteinLength	2-662 aa
Description	Multifunctional ATP-dependent RNA helicase. The ATPase activity can be stimulated by various ribo- and deoxynucleic acids indicative for a relaxed substrate specificity. In vitro can unwind partially double-stranded DNA with a preference for 5'-single-stranded DNA overhangs. Is involved in several steps of gene expression, such as transcription, mRNA maturation, mRNA export and translation. However, the exact mechanisms are not known and some functions may be specific for a subset of mRNAs. Involved in transcriptional regulation. Can enhance transcription from the CDKN1A/WAF1 promoter in a SP1-dependent manner. Found associated with the E-cadherin promoter and can down-regulate transcription from the promoter. Involved in regulation of translation initiation. Proposed to be involved in positive regulation of translation such as of cyclin E1/CCNE1 mRNA and specifically of mRNAs containing complex secondary structures in their 5'UTRs; these functions seem to require RNA helicase activity. Specifically promotes translation of a subset of viral and cellular

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mRNAs carrying a 5'proximal stem-loop structure in their 5'UTRs and cooperates with the eIF4F complex. Proposed to act prior to 43S ribosomal scanning and to locally destabilize these RNA structures to allow recognition of the mRNA cap or loading onto the 40S subunit. After association with 40S ribosomal subunits seems to be involved in the functional assembly of 80S ribosomes; the function seems to cover translation of mRNAs with structured and non-structured 5'UTRs and is independent of RNA helicase activity. Also proposed to inhibit cap-dependent translation by competitive interaction with EIF4E which can block the EIF4E:EIF4G complex formation. Proposed to be involved in stress response and stress granule assembly; the function is independent of RNA helicase activity and seems to involve association with EIF4E. May be involved in nuclear export of specific mRNAs but not in bulk mRNA export via interactions with XPO1 and NXF1. Also associates with polyadenylated mRNAs independently of NXF1. Associates with spliced mRNAs in an exon junction complex (EJC)-dependent manner and seems not to be directly involved in splicing. May be involved in nuclear mRNA export by association with DDX5 and regulating its nuclear location. Involved in innate immune signaling promoting the production of type I interferon (IFN-alpha and IFN-beta); proposed to act as viral RNA sensor, signaling intermediate and transcriptional coactivator. Involved in TBK1 and IKKε-dependent IRF3 activation leading to IFNβ induction, plays a role of scaffolding adapter that links IKKε and IRF3 and coordinates their activation. Also found associated with IFNβ promoters; the function is independent of IRF3. Can bind to viral RNAs and via association with MAVS/IPS1 and DDX58/RIG-I is thought to induce signaling in early stages of infection. Involved in regulation of apoptosis. May be required for activation of the intrinsic but inhibit activation of the extrinsic apoptotic pathway. Acts as an antiapoptotic protein through association with GSK3A/B and BIRC2 in an apoptosis antagonizing signaling complex; activation of death receptors promotes caspase-dependent cleavage of BIRC2 and DDX3X and relieves the inhibition. May be involved in mitotic chromosome segregation. Appears to be a prime target for viral manipulations. Hepatitis B virus (HBV) polymerase and possibly vaccinia virus (VACV) protein K7 inhibit IFNβ induction probably by

dissociating DDX3X from TBK1 or IKKε. Is involved in hepatitis C virus (HCV) replication; the function may involve the association with HCV core protein. HCV core protein inhibits the IPS1-dependent function in viral RNA sensing and may switch the function from a TNFα inducing to a HCV replication mode. Involved in HIV-1 replication. Acts as a cofactor for XPO1-mediated nuclear export of incompletely spliced HIV-1 Rev RNAs.

Form Tris-based buffer, 50% glycerol

Molecular Mass 87.1 kDa

AA Sequence

SHVAVENALGLDQQFAGLDLNSSDNQSGGSTASKGRYIPPHLRNREATKGFYDKDS
SGWSSSKDKDAYSSFGSRSDSRGKSSFFSDRGSGSRGRFDDRGRSDYDGIGSRG
DRSGFGKFERGGNSRWCDKSDDEDDWSKPLPPSERLEQELFSGGNTGINFEKYDDI
PVEATGNNCPPHIESFSDVEMGEIIMGNIELTRYTRPTPVQKHAIPPIKEKRDLMACAQ
TGSGKTA AFLLPILSQIYSDGPGEALRAMKENG RYGRRKQYPISLV LAPTRE LAVQIY
EEARKFSYRSRVRPCVVYGGADIGQQIRD LERGCHLLVATPGRLVDMMERGKIGLD
FCKYLV LDEAD RMLDMGFEPQIRRIVEQDTMPPKGVRHTMMFSATFPKEIQMLARD
FLDEYIFLAVGRVGSTSENITQKVWVVEESDKRSFLLDLLNATGKDSLTLVFVETKKG
ADSLEDFLYHEGYACTSIHGDRSQRDREEALHQFRSGKSPILVATAVAARGLDISNV
KHVINFDLPSDIEEYVHRIGRTGRVGNLGLATSFNERNINITKDLLDLLVEAKQEVPS
WLENMAYEHYKGSRRGRSKSSRFSGGFGARDYRQSSGASSSSFSRRASSRS
GGGGHGSSRGFGGGGYGGFYNSDGYGGNYNSQGVDDWWGN

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

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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 will be sent along with the products. Please refer to it for detailed information.

GENE INFORMATION

Gene Name DDX3X DEAD (Asp-Glu-Ala-Asp) box polypeptide 3, X-linked [Homo sapiens]

Official Symbol DDX3X

Synonyms DDX3X; DBX; DDX14; HLP2; CAP-Rf; DEAD/H box-3; DDX3;

Gene ID 1654

mRNA Refseq NM_001193416

Protein Refseq NP_001180345

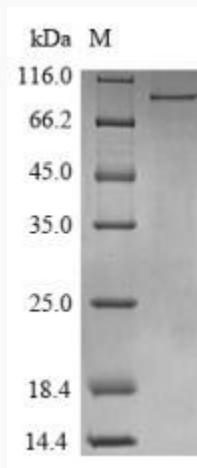
MIM 300160

UniProt ID O00571

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