



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human EYA3 Protein
Catalog Number: hTF-1995
Manufacturer: LD Biopharma, Inc.

Introduction

Human eyes absent homolog 3 (EYA3) gene encodes a member of the eyes absent (EYA) family of proteins. EYA3 protein may act as a transcriptional activator and have a role during development. It can act as a mediator of chemo-resistance and cell survival in Ewing sarcoma cells, where this gene is up-regulated via a micro-RNA that binds to the 3' UTR of the transcript. Recent data indicated that EYA3 has a tyrosine phosphatase activity that specifically dephosphorylates 'Tyr-142' of histone H2AX (H2AXY142ph). 'Tyr-142' phosphorylation of histone H2AX plays a central role in DNA repair and acts as a mark that distinguishes between apoptotic and repair responses to genotoxic stress. It also promotes efficient DNA repair by dephosphorylating H2AX, promoting the recruitment of DNA repair complexes containing MDC1. Its function as histone phosphatase probably explains its role in transcription regulation during organogenesis. Co-activates SIX1, and seems to co-activate SIX2, SIX4 and SIX5. The repression of precursor cell proliferation in myoblasts by SIX1 is switched to activation through recruitment of EYA3 to the SIX1-DACH1 complex and seems to be dependent on EYA3 phosphatase activity. It may be involved in development of the eye.

Full-length human EYA3 cDNA (535aa, Isoform-B) was constructed with codon optimization using gene synthesis technology and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. It was expressed in E.coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: EYA3
Accession Number: NP_001269489.1
Species: Human
Size: 25 µg / Vial
Composition: 0.25 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.
Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.



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Key References

Pandey RN, et al., *Structure-activity relationships of benzbromarone metabolites and derivatives as EYA inhibitory anti-angiogenic agents* PLoS ONE 8 (12), E84582 (2013)

Tadjuidje E et al., *The Eyes Absent proteins in development and disease*. Cell. Mol. Life Sci. 70 (11), 1897-1913 (2013)

Robin TP, et al., *EWS/FLI1 regulates EYA3 in Ewing sarcoma via modulation of miRNA-708, resulting in increased cell survival and chemoresistance*. Mol. Cancer Res. 10 (8), 1098-1108 (2012)

Applications

1. May be used for in vitro EYA3 mediated dephosphorylation of histone H2AX gene in gene transcription regulation / DNA repair pathway for cancer cells study by intracellular delivery of this protein with protein delivery reagent such as ProFectin reagent kit.
2. May be used for mapping EYA3 protein-protein interaction.
3. May be used as specific substrate protein for kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential biomarker protein for cancer prognosis, such as in *Ewing sarcoma chemotherapy monitoring*.
5. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHHENLYFQGGFEFEEEQDLPEQPVKKAKMQESGEQTISQVSNPDVSDQ
KPETSSLASNLPMSEEIMTCTDYIPRSSNDYTSQMYSAPYAHILSVPVSETAYPGQTQYQTLQ
QTQPYAVYPQATQTYGLPPFASSTNASLISTSSTIANIPAAAVASISNQDYPTYTILGQNQYQA
CYPSSSFGVTGQTNDAESTTLAATTYQSEKPSVMAPAPAAQRLSSGDPSTSPSLSQTTPSKDT
DDQSRKNMTSKNRGKRKADATSSQDSELERVFLWDLDETIIIFHSLLTGSYAQKYGKDPTVVIG
SGLTMEEMIFEVADTHLFFNDLEECDQVHVEDVASDDNGQDLSNYSFSTDGFSGSGSGSHGSS
VGVQGGVDWMRKLAFRYRKVREIYDKHKS NVGGLLSPQRKEALQRLRAEIEVLTD SWLGTALKS
LLLIQSRKNCVNVLITTTQLVPALAKVLLYGLGEIFPIENIYSATKIGKESCFERIVSRFGKKV
TYVVI GDGRDEEIAAKQQLYFLDMEALGCQLEPTALILFIQLSGNLSNYNKL