



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human OTX2 Protein
Catalog Number: hTF-1445
Manufacturer: LD Biopharma, Inc.

Introduction

Human homeobox protein OTX2 gene encodes a member of the bicoid subfamily of homeodomain-containing transcription factors. The encoded protein acts as a transcription factor and plays a role in brain, craniofacial, and sensory organ development. The encoded protein also influences the proliferation and differentiation of dopaminergic neuronal progenitor cells during mitosis. Mutations in this gene cause syndromic microphthalmia 5 (MCOPS5) and combined pituitary hormone deficiency 6 (CPHD6). This gene is also suspected of having an oncogenic role in medulloblastoma. Recent data indicated that OTX2 is required for efficient Oct4 recruitment to many enhancers region for regulating ES cell in ground state pluripotency.

Full-length human OTX2 (2 - 297 aa, Isoform-I, derived from BC032579) gene was constructed with 29 aa N-terminal T7 / His / TEV cleavage site Tag and expressed in E.coli as inclusion bodies. This protein was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol: OTX2 (CPHD6; MCOPS5)
Accession Number: NP_068374
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 7 days.

Key References

Shen-His Yang et al., *OTX2 and Oct4 drive early enhancer Activation during embryonic*



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stem cell transition from Naïve pluripotency. Cell Reports 7, 1-14, June 26, (2014)

Liu Z, et al., *Specific expression pattern of a novel Otx2 splicing variant during neural differentiation. Gene 523 (1), 33-38 (2013)*

Bunt J, et al., *OTX2 sustains a bivalent-like state of OTX2-bound promoters in medulloblastoma by maintaining their H3K27me3 levels. Acta Neuropathol. 125 (3), 385-394 (2013)*

Bai RY, et al., *OTX2 represses myogenic and neuronal differentiation in medulloblastoma cells. Cancer Res. 72 (22), 5988-6001 (2012)*

Applications

1. May be used for in OTX2 mediated Oct4 gene transcription regulation for controlling human ES cell ground state with “ProFectin” reagent based intracellular delivery of this protein.
2. May be used as specific protein substrate for kinase and ubiquitin (Sumo pathway) related enzyme functional screening assays.
3. May be used for OTX2 protein-protein interaction mapping.
4. As immunogen for specific antibody production.

Quality Control

1. Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGEFMSYLKQPPYAVNGLSLTTSGMDDLHPSVGYPGPWAS
CPAATPRKQRRERTTFTRAQLDVLEALFAKTRYPDIFMREEVALKINLPESRVQVWFKNRRAKC
RQQQQQQNGGQNKVRPAKKKTS PAREVSS ESGTSGQFTPPSSTSVPTIASSSAPVSIWSPASI
SPLSDPLSTSSSCMQRSYPMTYTQASGYSQGYAGSTSYFGGMDCGSYLTPMHQLPGPGATLSP
MGTNAVTSHLNQPASLSTQGYGASSLGFNSTTDCLDYKDQTASWKLNFNADCLDYKDQTSSWK
FQVL