



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human NKX2-3-11R Protein

Catalog Number: hTF-2403

Manufacturer: LD Biopharma, Inc.

Introduction

The NKX2 family of orphan homeobox proteins is composed of transcriptional factors that regulate various fundamental cellular processes, including head patterning, cardiac and lung development, and neural cell specification. Several NKX2 members including NKX2-1, NKX2-2 and NKX2-8 function as oncogenic drivers in solid tumours, whereas NKX2-1, NKX2-2 and NKX2-5 frequently show genomic rearrangements leading to deregulated expression in T-cell acute lymphoblastic leukaemia. The homeobox *NKX2-3* protein controls salivary gland, tooth and small intestine development, and has been identified as an important regulator of splenic morphology and vasculature. In fact, NKX2-3-deficient mice showed impaired distribution of B, T and follicular dendritic cells in the spleen as a consequence of abnormal homing. Recent data indicated that NKX2-3 promotes marginal-zone lymphomagenesis by activating B-cell receptor signaling and shaping lymphocyte dynamics.

Full-length human NKX2-3 cDNA (363aa) 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 and 11 Poly-Arginine (11R) tag at its C-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: NKX2-3 (CSX3; NKX2C; NKX4-3)

Accession Number: NP_660328

Species: Human

Size: 20 µg / Vial

Composition: 0.2 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.

Key References



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Eloy F. Robles, et al., *Homeobox NKK2-3 promotes marginal-zone lymphomagenesis by activating B cell receptor signaling and shaping lymphocyte dynamics*. Nature communication. |7:11889 | DOI: 10.1038 /ncomms11889 (2016)

Hsia LT, et al., *Myofibroblasts are distinguished from activated skin fibroblasts by the expression of AOC3 and other associated markers* Proc. Natl. Acad. Sci. U.S.A. 113 (15), E2162-E2171 (2016)

Lu X, et al., *Contribution of NKX2-3 polymorphisms to inflammatory bowel diseases: a meta-analysis of 35358 subjects*. Sci Rep 4, 3924 (2014)

Biben C, et al., *NK-2 class homeobox genes and pharyngeal/oral patterning: Nkx2-3 is required for salivary gland and tooth morphogenesis*. Int. J. Dev. Biol. 46 (4), 415-422 (2002)

Applications

1. May be used for in vitro NKX2-3 mediated gene transcription regulation study in various cells, such as lymphogenesis by intracellular delivery of this protein directly in to cell culture
2. May be used for mapping 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/therapeutic target protein for gut inflammation drug development.
5. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGEFMLPSPVTSTPF SVKDILNLNEQQHQHFHGAHLQADL
EHHFHSAPCMLAAAEGTQFSDGGEDEEDEGEKLSYLNLAADGHGDSGLCPQGYVHTVLRDS
CSEPKEHEEEPEVVRDRSQKSCQLKSLETAGDCKAAEESERPKPRSRRKPRVLF SQAQVFELE
RRFKQQRYLSAPEREHЛАSSLKLTSTQVKIWFQNRRYKCKRQRQDKSLELGАHAPPППРРVAV
PVLVRDGKPCVTPSAQAYGAPYSVGASAYSYNSPAYGYGNSAAAAAAAAAAYSSSYG
CAYPAGGGGGGGGTSATTAMQPACSAAGGGPFVNVSNLGGFGSGGSAQPLHQGTAAGAACAQG
TLQGIRAWESGGGGSPGRRRRRRRR