Cytokines

Human Recombinant DKK-1

Dickkopf-related protein 1

Catalog #78208	10 µg
#78208.1	50 µg
#78208.2	1000 µg

STEMCELL™ TECHNOLOGIES
Scientists Helping Scientists™ | WWW.STEMCELL.COM
TOLL FREE PHONE 1 800 667 0322 • PHONE +1 604 877 0713
INFO@STEMCELL.COM • TECHSUPPORT@STEMCELL.COM
FOR GLOBAL CONTACT DETAILS VISIT OUR WEBSITE

Product Description

Dickkopf-related protein 1 (DKK-1) is a member of the Dickkopf family and is a secreted protein that inhibits the canonical WNT pathway by competitive binding to low-density lipoprotein receptors (LRP)-5 and -6 with high affinity, thereby decreasing β-catenin protein stability (Niehrs). DKK-1 regulates embryonic development and contains two conserved cysteine-rich domains separated by a linker region and an N-terminal signal peptide (Krupnik et al.; Lieven et al.). It contains a His-residue tag at the carboxyl end of the polypeptide chain. A family of human DKK-related genes composed of DKK-1, DKK-2, DKK-3, and DKK-4 have been characterized together with a unique DKK-3 related protein termed Soggy (Krupnik et al.). DKK-1 has been shown to support the generation of myeloid-derived suppressor cells (MDSCs) and thus is a negative regulator of antitumor immune responses (D'Amico et al.). DKK-1 from thrombocytes is an important regulator of leukocyte infiltration and induces Th2 cell polarization and potentiates Th2 cell cytokine expression (Chae et al.). DKK-1 has also been shown to drive cardiac and retinal differentiation from induced pluripotent stem (iPS) cells (Lian et al.).

Product Information

Alternative Names:	Dickkopf-1, Dickkopf WNT signaling pathway inhibitor 1, hDkk-1, SK
Accession Number:	O94907
Amino Acid Sequence:	TLNSVLNSNA IKNLPPPLGG AAGHPGSAVS AAPGILYPGG NKYQTIDNYQ PYPCAEDEEC GTDEYCASPT RGGDAGVQIC LACRKRRKRC MRHAMCCPGN YCKNGICVSS DQNHFRGEIE ETITESFGND HSTLDGYSRR TTLSSKMYHT KGQEGSVCLR SSDCASGLCC ARHFWSKICK PVLKEGQVCT KHRRKGSHGL EIFQRCYCGE GLSCRIQKDH HQASNSSRLH TCQRHHHHHH H
Predicted Molecular Mass:	26.6 kDa
Species:	Human
Formulation:	Lyophilized from a sterile-filtered solution containing phosphate-buffered saline.
Source:	HEK293 cells

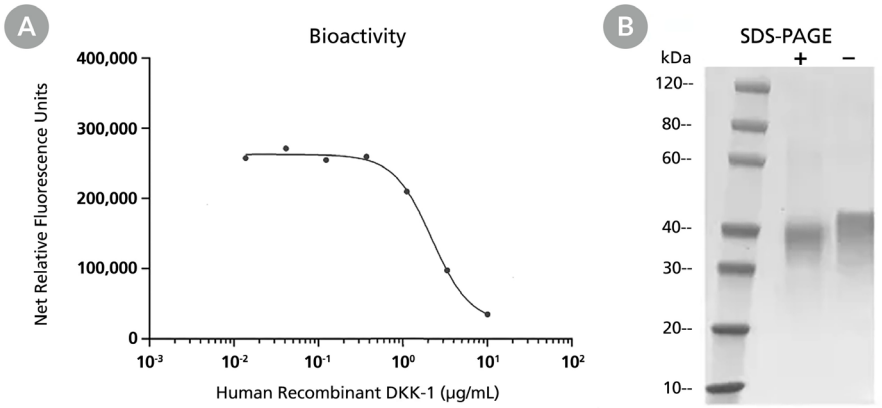
Specifications

Activity:	The specific activity is ≥ 250 units/mg (EC50 ≤ 4 µg/mL), as determined by the ability to inhibit Wnt3a-induced alkaline phosphatase production in C3H10T1/2 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.2 EU/µg protein.

Preparation and Storage

Storage:	Store at -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 week or at -20°C for more than 3 months. Avoid repeated freeze-thaw cycles

Data



(A) The biological activity of Human Recombinant DKK-1 was tested by its ability to inhibit Wnt3a induced alkaline phosphatase production by C3H10T1/2 cells. Alkaline phosphatase production was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which alkaline phosphatase production is at 50% of maximum. The EC50 in the above example is less than 4 µg/mL.

(B) 2 µg of Human Recombinant DKK-1 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant DKK-1 has a predicted molecular mass of 26.6 kDa and an apparent molecular mass of 40 kDa.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines, or contact us at techsupport@stemcell.com.

References

Chae W-J et al. (2016) The Wnt antagonist Dickkopf-1 promotes pathological type 2 cell-mediated inflammation. Immunity 44(2): 246–58.

D'Amico L et al. (2016) Dickkopf-related protein 1 (Dkk1) regulates the accumulation and function of myeloid derived suppressor cells in cancer. J Exp Med 213(5): 827–40.

Krupnik VE et al. (1999) Functional and structural diversity of the human Dickkopf gene family. Gene 238(2): 301–13.

Lian X et al. (2012) Robust cardiomyocyte differentiation from human pluripotent stem cells via temporal modulation of canonical Wnt signaling. Proc Natl Acad Sci USA 109(27): E1848–57.

Lieven O et al. (2010) The regulation of Dkk1 expression during embryonic development. Dev Biol 340(2): 256–68.

Niehrs C. (2006) Function and biological roles of the Dickkopf family of Wnt modulators. Oncogene 25(57): 7469–81.