



Recombinant Human soluble DLK-1/Pref-1-His

20140923BB



FOR RESEARCH ONLY! NOT FOR HUMAN USE!

Cat.-no:	400-020
Size:	25 µg
Lot. No.:	According to product label
Country of origin:	Germany

Scientific Background

Gene:	<i>DLK1, DLK</i>
Synonyms:	Protein delta homolog 1, pG2, Fetal antigen 1, FA1, ZOG

Delta-like 1 (DLK1), also known as Pref-1 and FA1, is a transmembrane protein pertaining to the epidermal growth factor superfamily. DLK1 affects several differentiation processes, including adipogenesis, muscular and neuronal differentiation, bone differentiation, and haematopoiesis. Several reports support that DLK1 may operate as a non-canonical ligand of the NOTCH pathway. Since the NOTCH signaling pathway is essential for vascular development and physiology by controlling angiogenesis in pre- and post-natal life, it was reasoned that DLK1 could contribute to regulate this process in adult endothelial cells through the interaction with NOTCH receptors. It was found that overexpression of DLK1 inhibits migration and angiotube formation in mammalian vascular endothelial cells and disrupts normal embryonic vascularization in zebrafish. Genetic ablation of DLK1 in mice is associated with increased angiogenesis in vitro and with focal areas of retinal hyper-vascularization. Specific knockdown of the orthologous Dlk1 of zebrafish results in ectopic angiogenesis. Moreover, in a tumor angiogenesis model in zebrafish, suppression of Dlk1 promotes vessel migration towards the tumor cell mass. It was also found that the NOTCH signaling pathway is targeted by DLK1 in the context of angiogenesis and that DLK1 antagonizes NOTCH-dependent signaling in endothelial cells, while, in contrast, this signaling is enhanced in Dlk1-null mice. Collectively, these results revealed a previously unknown role for DLK1 in the vasculature as a regulator of NOTCH-mediated angiogenesis.

References

1. Kume T, Adv Exp Med Biol 727:210-22, 2012
2. Yevtodiynko A and Schmidt JV, Dev Dyn 235(4):1115-23, 2006
3. Limbourg A et al, Circ Res 100(3):363-71, 2007
4. Andersen DC et al, FEBS Lett 583(17):2947-53, 2009
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6. Napp LC et al, Circ Res 110(4):530-5, 2012
7. Chi Sabins N et al, Mol Ther 21(10):1958-68, 2013
8. Schober A et al, Nat Med 20(4):368-76, 2014
9. Zhao XC et al, Neoplasia 15(7):815-25, 2013
10. Appelbe OK et al, Mech Dev 130(2-3):143-59, 2013

Sequence

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AECFPACNFPQNGFCEDDNCRCQPGWQGPLCDQCVTSPGCLHGLCGEPGQCI  
CTDGDWDELCDRDVRCSSAPCANNGTCVSLDDGLYECSCAPGYSGKDCQKK  
DGPCVINGSPCQHGGTCVDDDEGRASHASCLCPPGFSGNFCEIVANSCTPNPC  
ENDGVCTDIGGDFRCRCPAGFIDKTC SRPVTNCASSPCQNGGTCLQHTQVSY  
ECLCKPEFTGLTCVKKRALSPQQVTRLPSGYGLAYRLTPGVHELFPVQQPEHR  
ILKVSMEKLNKKTPLEHHHHHH
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Database References

Protein RefSeq:	NP_003827.3
Uniprot ID:	P80370
mRNA RefSeq:	NM_003836.5

Product Specifications

Expressed in	E.coli
Purity	> 98% by SDS-PAGE & silver stain
Buffer	PBS
Stabilizer	None
Formulation	lyophilized
Length (aa):	282
MW:	32.2 kDa
Result by N-terminal sequencing	AECFP

Stability: The lyophilized human sDLK1/Pref1, though stable at room temperature, is best stored desiccated below 0°C. Reconstituted human sDLK1/Pref1 should be stored in working aliquots at -20°C.

Reconstitution: Human sDLK1/Pref1 should be reconstituted in water to a concentration of 0.1 mg/ml. This solution can be diluted in water or other buffer solutions or stored at -20°C.



AVOID REPEATED FREEZE AND THAW CYCLES!

Applications: No biological data available at the moment.



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Handling/Application

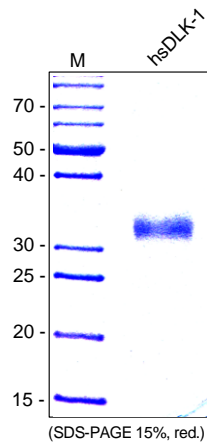


Fig. 1: SDS-PAGE analysis of recombinant human soluble DLK-1/Pref-1. Sample was loaded in 15% SDS-polyacrylamide gel under reducing condition and stained with Coomassie blue.