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1. Description

Products	Human DKK-1, research grade. Recombinant human dickkopf-related protein 1.								
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Content in µg	Order no.								
2	130-103-443								
10	130-103-444								
100	130-103-445								
Biological activity	The ED ₅₀ is ≤1.2 µg/mL corresponding to an activity of ≥0.8×10 ³ U/mg. ▲ Note: The ED ₅₀ is determined by proliferation of HCT116 colorectal carcinoma cells or by inhibition of mWnt3a-induced TCF/LEF-luciferase activity in reporter HEK293 cells.								
Primary structure	Single, glycosylated polypeptide chain without N-terminal methionine (235 amino acid residues).								
Molecular mass	25.8 kDa.								
Source	Produced in HEK293 cells.								
Product format	Lyophilized from a filtered (0.2 µm) buffer solution.								
Stabilizer	None.								
Purity	>97% as determined by SDS-PAGE analysis.								
Endotoxin level	Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.								
Storage	Lyophilized Human DKK-1, research grade should be stored at -20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at -20 °C or below. Avoid repeated freeze-thaw cycles.								
Reconstitution	It is recommended to reconstitute lyophilized Human DKK-1, research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 20 µL. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.								

1.1 Background information

Dickkopf-1 related protein (DKK-1) is a member of the DKK family, which also includes DKK-2, DKK-3 and DKK-4. It was initially identified as an important embryogenic factor, especially for the development of the head. DKK-1 effects are mainly due to its role as negative regulator of Wnt signaling pathway, by forming complexes with LDL-receptor-related protein 6. High expression of DKK-1 has been found during mesenchymal development, and is crucial for limbs and bones modeling, but also cardiogenesis. TNF-α plays a central role in DKK-1 induction, during arthritis, and blood levels of DKK-1 increase during multiple myeloma. DKK-1 acts also as negative regulator of neuronal survival and neural crest formation.

1.2 Applications

Human DKK-1 can be used for a variety of applications, including:

- Cardiac differentiation of human ES and iPS cell lines.
- Mesenchymal stem cell differentiation.
- Studies of Wnt signaling and cell death pathways.
- Neuronal cultures and neural differentiation of ES/iPS cells.

Optimal concentration for a specific application should be determined by a dose-response experiment.

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