Datasheet

Cat. No. PH2046

Recombinant Human Dkk1

Accession #	O94907
Alternate Names	Dickkopf-1; dickkopf-related protein 1; Dkk1; Dkk-1; hDkk-1; SKdickkopf-1 like
Source	Human embryonic kidney cell, HEK293-derived human Dkk1 protein
Protein sequence	Met 2-His 266
M.Wt	26.6 kDa
Appearance	Solution protein.
Stability & Storage	Avoid repeated freeze-thaw cycles. It is recommended that the protein be aliquoted for optimal storage. 3 yearsfrom date of receipt, -20 to -70 °C as supplied.
Concentration	0. 2 mg/mL
Formulation	Dissolved in sterile PBS buffer.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. This solution can be diluted into other aqueous buffers.
Biological Activity	Measured by its ability to inhibit Wnt induced TCF reporter activity in HEK293 human embryonic kidney cells. The EC50 for this effect is approximately 1-8 ng/ml.
Shipping Condition	Shipping with dry ice.
Handling	Centrifuge the vial prior to opening.
Usage	For Research Use Only! Not to be used in humans.

Quality Control

Purity	> 95%, determined by SDS-PAGE.
Endotoxin	<0.010 EU per 1 ug of the protein by the LAL method.

Description

Dickkopf related protein 1 (Dkk-1) is the founding member of the Dickkopf family of proteins that includes Dkk-1, -2, -3, -4, and a related protein, Soggy [1, 2]. Dkk proteins are secreted proteins that contain two conserved cysteine-rich domains separated by a linker region. Each domain contains ten cysteine residues [1-3]. Mature human Dkk-1 is a 40 kDa glycosylated protein that shares 86%, 87%, 90% and 91% aa sequence identity with mouse, rat, rabbit and bovine Dkk-1, respectively. It also shares 42% and 36% aa identity with human Dkk-2 and Dkk-4, respectively. Dkk-1 and Dkk-4 are well documented antagonists of the canonical Wnt signaling pathway [1, 2]. This pathway is activated by Wnt engagement of a receptor complex composed of the Frizzled proteins and one of two low-density lipoprotein receptor-related proteins, LRP5 or LRP6 [4]. Dkk-1 antagonizes Wnt by forming ternary complexes of LRP5/6 with Kremen1 or Kremen2 [4, 5]. Dkk-1/LRP6/Krm2 complex internalization has been

shown to down-regulate Wnt signaling [4, 5]. Dkk-1 is expressed throughout development and antagonizes Wnt-7a during limb development [6, 7]. Other sites of expression include developing neurons, hair follicles and the retina of the eye [8, 9]. The balance between Wnt signaling and Dkk-1 inhibition is critical for bone formation and homeostasis [10]. Insufficient or excess Dkk-1 activity in bone results in increased or decreased bone density, respectively [8, 11]. In adults, Dkk-1 is expressed in osteoblasts and osteocytes, and neurons. Cerebral ischemia induces Dkk-1 expression, which contributes to neuronal cell death [12].

Reference

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