



## Recombinant human Dkk-2

20150626BB



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Cat.-no.:	100-436
Size:	10 µg
Lot. No.:	According to product label

## Scientific Background

Gene-ID (NCBI):	27123
Synonyms:	Dickkopf-related protein-2, Dickkopf-2, DKK-2

The dickkopf (DKK)-related protein family is comprised of four central members, DKK-1 - 4, along with the distantly-related DKK family member DKK-11 (Soggy), which is thought to be a descendent of an ancestral DKK-3 precursor due to its unique sequence homology to DKK-3 and no other DKK family member. DKK family members, with the exception of the divergent Soggy, share two conserved cysteine-rich domains and show very little sequence similarity outside of these domains. Playing an important regulatory role in vertebrate development through localized inhibition of Wnt-regulated processes, including anterior-posterior axial patterning, limb development, somitogenesis, and eye formation, DKKs have also been implicated post-developmentally in bone formation, bone disease, cancer, and neurodegenerative diseases. DKK proteins typically play an important regulatory role in the Wnt/β-catenin signaling pathway by forming inhibitory complexes with LDL receptor-related proteins 5 and 6 (LRP5 and LRP6), which are essential components of the Wnt/β-catenin signaling system. LRP5 and LRP6 are single-pass transmembrane proteins that appear to act as co-receptors for Wnt ligands involved in the Wnt/β-catenin signaling cascade. DKK-2 has been shown to both inhibit and enhance canonical Wnt signaling; enhancing Wnt signaling through direct high-affinity binding of DKK-2 to LRP6 during LRP6 overexpression, while inhibiting Wnt signaling and promoting LRP6 internalization through the formation of a ternary complex between DKK-2, LRP6, and Kremen-2. Recombinant Human DKK-2 expressed in CHO cells is a glycoprotein that has a calculated molecular weight of 25.8 kDa and contains 234 amino acid residues. Due to glycosylation, human DKK-2 migrates at an apparent molecular weight of approximately 31-36 kDa by SDS-PAGE analysis under non-reducing conditions.

## Sequence

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SQIGSSRAKL NSIKSSSLGGE TPGQAANRSA GMYQGLAFGG  
SKKGKNLGQA YPCSSDKECE VGRYCHSPHQ GSSACMVCRR  
KKKRCHRDGM CCPSTRCNNG ICIPVTESEL TPHPALDGT  
RHRDRNHGHY SNHDLGWQNL GRPHTKMSHI KGHEGDPCLR  
SSDCIEGFCC ARHFWTKICK PVLHQGEVCT KQRKKGSHGL  
EIFQRCDCAK GLSCKVWKDA TYSSKARLHV CQKI
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## Database References

Protein RefSeq:	NP_055236.1
Uniprot ID:	Q9UBU2
mRNA RefSeq:	NM_014421.2

## Product Specifications

Expressed in	CHO cells
Purity	> 98% by SDS-PAGE & HPLC analyses
Endotoxin level	< 0.1 ng /µg of protein (<1EU/µg).
Formulation	lyophilized
Length (aa):	234
MW:	31-36 kDa

**Stability:** The lyophilized protein is stable at room temperature for 1 month and at 4°C for 6 months. Reconstituted working aliquots are stable for 1 week at 2°C to 8°C and for 3 months at -20°C to -80°C.

**Reconstitution:** Centrifuge the vial prior to opening. Reconstitute in water to a concentration of 0.1-1.0 mg/ml. *Do not vortex.* This solution can be stored at 2-8°C for up to 1 week. For extended storage, it is recommended to further dilute in a buffer (e.g. PBS) containing a carrier protein (example 0.1% BSA) and store in working aliquots at -20°C to -80°C.



AVOID REPEATED FREEZE AND THAW CYCLES!

**Biological Activity:** Determined by its ability to inhibit alkaline phosphatase activity in differentiating MC3T3 E1 cells. The expected ED<sub>50</sub> for this effect is 0.5– 1.0 µg/ml