Recombinant Human COCO

Catalog Number: 3047-CC/CF

DESCRIPTION

Source	*E. coli*-derived Arg23-Ala189, with an N-terminal Met Accession # NP_689867
N-terminal Sequence Analysis	Met
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	18.2 kDa (monomer)

SPECIFICATIONS

Activity	Measured by its ability to inhibit BMP-4-induced activity in MC3T3-E1 mouse preosteoblast cells. The ED_{50} for this effect is 0.15-0.75 µg/mL in the presence of 50 ng/mL of rhBMP-4.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Supplied as a 0.2 µm filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Shipping	The product is shipped with dry ice or equivalent. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 6 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after opening.

BACKGROUND

COCO, also known as DAND5, Dante, and CKTSF1B3, is a member of the DAN Domain family of BMP antagonists that includes DAN (DAND1), Gremlin/Drm (DAND2), PRDC (Protein Related to Dan and Cerberus; DAND3), and Cerberus (DAND4). DAN family members contain a cysteine-knot domain that is homologous to that found in other TGF-β superfamily ligands (1 - 3). BMPs play important roles in tissue morphogenesis and development processes (4, 5, 6). The human COCO cDNA encodes a 189 amino acid (aa) precursor with a 22 aa signal sequence (2, 7). COCO has eight Cys residues in the cysteine-knot which places it in the CAN subfamily of BMP antagonists along with the other DAN family proteins (1). Human COCO shares 60% and 24% aa sequence identity with mouse and *Xenopus* COCO, respectively. It shares 17%, 20%, 25%, and 22% aa sequence identity with human DAN, Gremlin, PRDC, and Cerberus, respectively. In *Xenopus* embryonal development, COCO is expressed by pluripotent ectodermal cells. Expression is abruptly downregulated prior to gastrulation, and the loss of ectodermal cell pluripotency is coincident with COCO downregulation (7). COCO binds and inhibits Xnr1, BMP-4, Activin, and Wnt-8 (7). In mouse, COCO expression is elevated on the right side of Henson's node at the early somite stage, in contrast to the left side expression of Nodal (8). COCO may cooperate with Nodal in gastrulation and embryonic left-right axis formation (5, 8).

References:

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