Recombinant Mouse PRDC/GREM2

Catalog Number: 2069-PR/CF

DESCRIPTION

Source	*E. coli*-derived Arg22-Gln168, with an N-terminal Met Accession # NP_035955
N-terminal Sequence Analysis	Met
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	17.1 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 0.03-0.12 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	Lyophilized from a 0.2 µm filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 100 µg/mL in sterile 4 mM HCl.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 3 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

PRDC (protein related to DAN and Cerberus) is a secreted cysteine knot-containing BMP antagonist belonging to the *Cerberus/DAN (CAN)* family. Mammalian *CAN* family members, including Gremlin, Dan, Cerberus, COCO, SOST, and USAG-1, have the conserved 6 cysteine residues that form a cysteine knot, and two additional cysteine residues located in the loops of the cysteine knot, which form an additional intrasubunit disulfide bond (1, 2). Some members of this family, including PRDC, have an additional cysteine residue used for dimerization (1, 2). Of all the *CAN* family members, PRDC is most closely related to Gremlin, displaying 52% amino acid sequence identity. PRDC was first identified in a screen for developmentally regulated genes by gene trapping in embryonic stem cells (3). PRDC expression is detected by *in situ hybridization* in the dorsal edge of the spinal cord at E10.5, in commissural neurons in the caudal part of the spinal cord two days later (3), and in the granulosa cells of selective ovarian follicles (4). In the adult, abundant levels of PRDC are detected by RT-PCR in the mouse ovary, brain, and spleen, and to a lesser degree in the colon, kidney, lung, liver, and uterus (4). PRDC acts as a specific BMP antagonist, binding to and blocking signaling induced by BMP-2 or -4, but not Activin or TGF-β (4). Thus, PRDC expression in the ovary could be involved in follicular development by antagonizing the inhibitory effects of BMPs on FSH stimulation of progesterone (4).

References:

1. Pearce, J. *et al.* (1999) Dev. Biol. **209**:99.
2. Avsian-Kretchmer, O. and A. Hsueh, 2004, Molecular Endocrinology **18**:1.
3. Minabe-Saegusa, C. *et al.* (1998) Develop. Growth Differ. **40**:343.
4. Sudo, S. *et al.* (2004) Jour. Biol. Chem. **279**:23134.

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