

DESCRIPTION

Source *E. coli*-derived
Asp18-Pro272, with an N-terminal Met
Accession # AAB71838

N-terminal Sequence Analysis Met

Structure / Form Disulfide-linked homodimer

Predicted Molecular Mass 28.7 kDa (monomer)

SPECIFICATIONS

SDS-PAGE 34 kDa, reducing conditions

Activity Measured by its binding ability in a functional ELISA.
In a 100 µL reaction mixture containing rmCerberus 1 at 1 µg/mL and rhBMP-4 (Catalog # 314-BP) dilutions at 0.02-3 µg/mL, the concentration of rhBMP-4 that produces 50% of the optimal binding response is found to be approximately 0.2-0.8 µg/mL.

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 HCl with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in sterile 4 mM HCl containing at least 0.1% human or bovine serum albumin.

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

Cerberus 1, also called DAND4, 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 COCO/Dante (DAND5). DAN family members contain a cysteine-knot domain that is homologous to that found in other TGF-β superfamily ligands (1, 2). Mature mouse Cerberus 1 shares 40%, 29%, and 66% amino acid (aa) sequence identity with chick, *Xenopus*, and human Cerberus 1, respectively. Within the cysteine-knot domain, it shares 24% - 37% aa sequence identity with mouse DAN, Gremlin, PRDC, and COCO. Cerberus 1 is a secreted 38 kDa glycoprotein that forms disulfide-linked homodimers (3). Cerberus-S, which is generated by proteolysis in *Xenopus*, is a short version of the molecule and includes the C-terminal cysteine-knot domain (4). At the onset of gastrulation, Cerberus 1 is transiently expressed in anterior endodermal structures in response to Nodal and Shh (3, 5 - 9). Cerberus 1 binds BMP-4 and Nodal and inhibits their activities. *Xenopus* Cerberus has also been shown to bind *Xenopus* Wnt8. These inhibitory functions of Cerberus favor mesodermal development in the anterior region of the gastrula and suppresses posterior mesodermal differentiation (3, 4, 6, 8, 10 - 12). In chick and *Xenopus*, Cerberus 1 also regulates, but is not required for embryonic left-right polarization, neurulation, and head and heart induction (4 - 8, 13).

References:

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