Recombinant Human Lefty-A

Catalog Number: 746-LF/CF

DESCRIPTION

Source

Mouse myeloma cell line, NS0-derived

Mouse Lefty-1 Propeptide (Leu22-Arg77) Accession # Q64280	HHHHHH	Human Lefty-A (Phe78-366) Accession # O00292

N-terminus C-terminus

N-terminal Sequence Analysis

Leu22

Predicted Molecular Mass

39 kDa

SPECIFICATIONS

SDS-PAGE

44 kDa, 38 kDa and 34 kDa, reducing conditions

Activity

Measured by its ability to induce cell death using Mv1Lu mink lung epithelial cells. The ED_{50} for this effect is 0.5-3 µg/mL.

Endotoxin Level

<1.0 EU per 1 µg of the protein by the LAL method.

Purity

>90%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation

Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution

Reconstitute at 0.5 mg/mL in sterile PBS.

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

Lefty was first identified in a screen for undifferentiated cell-specific cDNAs from the P19 mouse embryonal carcinoma cells. Its mRNA expression on the left side of the developing embryo earned the name “Lefty”. The human orthologue was initially identified as Ebaf, Endometrial Bleeding-Associated Factor. Two genes exist in mouse (Lefty-1 and Lefty-2) and two in humans (Lefty-A and Lefty-B). By amino acid sequence, human Lefty-A and -B are more similar to each other (96%) than to either Lefty-1 or -2 in the mouse (81 - 82% identical). Lefty contains the six cysteine residues that are conserved among TGF-β related proteins and that are necessary to form the cysteine-knot structure. However, Lefty is distinct from other family members in that it has two RXXR cleavage sites, a longer carboxy terminal sequence, and it lacks the cysteine residue required for intermolecular disulfide linkage. Thus, mature forms of Lefty are larger than mature forms of other TGF-β-related proteins.

Lefty homologues have been identified in other vertebrate organisms including chick, frog, and zebrafish. Although the amino acid sequence identity is not well conserved among vertebrate species, the expression pattern of Lefty on the left side is well conserved. Furthermore its function in patterning left-right asymmetry of the developing organ systems such as the heart and lung is consistent in all vertebrate species examined. Lefty acts as an antagonist to Nodal signaling, potentially by competing for binding to a common receptor.

References:

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