Recombinant Human CLC

Catalog Number: 962-CL/CF

DESCRIPTION

Source	*E. coli*-derived Leu28-Phe225, with an N-terminal Met Accession # Q9UBD9
N-terminal Sequence Analysis	Met
Predicted Molecular Mass	22.4 kDa

SPECIFICATIONS

Activity	Measured in a cell proliferation assay using TF-1 human erythroleukemic cells transfected with human CNTF Rα. The ED_{50} for this effect is 3-15 ng/mL.
Endotoxin Level	<0.01 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

Cardiotrophin-like cytokine (CLC), also referred to as novel neurotrophin-1 (NNT-1) or B cell-stimulating factor-3 (BSF-3), is a new member of the IL-6 family of structurally related cytokines that includes IL-6, CNTF, LIF, CT-1, IL-11 and OSM. All family members share the receptor subunit gp130 that belong to the type I cytokine receptor superfamily. Ligand binding leads to gp130 homodimerization or heterodimerization (with LIF receptor or OSM receptor β), and induces cell signaling and functional activity. For several family members, including CNTF, IL-6, and IL-11, binding of the ligand to a specific receptor α subunit (CNTF Rα, IL-6 Rα, or IL-11 Rα) is required prior to gp130 homo- or hetero-dimerization.

CLC cDNA encodes a 225 amino acid (aa) residue precursor protein with a putative 27 aa residue signal peptide that is cleaved to yield the mature protein. Among the IL-6 family, CLC is the most homologous to cardiotrophin, having 29% aa sequence homology. CLC has been shown to bind with the soluble orphan receptor cytokine-like factor-1 (CLF) to form a heterodimeric composite cytokine that subsequently interacts with the membrane-associated CNTF Rα to initiate gp130-LIF R dimerization and cell signaling. Alternatively, when co-expressed within the cell, CLC can complex with soluble CNTF Rα to form an alternate composite cytokine that is secreted. This composite cytokine is also capable of initiating gp130-LIF R dimerization. The *E. coli*-expressed CLC can initiate cell signaling via the tripartite membrane-associated CNTF Rα and gp130-LIF R. *E. coli*-expressed CLC does not bind efficiently with soluble CNTF Rα in solution to initiate cell signaling on cells expressing gp130 and LIF R.

References:

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2. Senaldi, G. *et al.* (1999) Proc. Natl. Acad. Sci. USA **96**:11458.
3. Lelievre, E. *et al.* (2001) J. Biol. Chem. **276**:22476.
4. Plun-Favreau, H. *et al.* (2001) EMBO J. **20**:1692.

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