

DESCRIPTION

Source	<i>Spodoptera frugiperda</i> , Sf 21 (baculovirus)-derived human Cripto protein Leu31-Thr172 & Ser63-Thr172 Accession # NP_003203
N-terminal Sequence Analysis	Leu31 & Ser63
Predicted Molecular Mass	16 kDa & 13 kDa

SPECIFICATIONS

SDS-PAGE	12-20 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. Immobilized Recombinant Human Activin RIB/ALK-4 Fc Chimera (Catalog # 808-AR) at 2 µg/mL (100 µL/well) can bind Recombinant Human Cripto-1 with a linear range of 0.8-100 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, 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 100 µg/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. <ul style="list-style-type: none"> • 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

Cripto is the founding member of the epidermal growth factor-CriptoFRL1Cryptic (EGF-CFC) family of signaling proteins that function in cancer and various developmental processes. These developmental processes include: formation of the germ layers and dorsal organizer, specification of anterior-posterior and left-right axes, and differentiation of heart muscle (1, 2). Other members of the EGF-CFC family include Cryptic, *Xenopus* FRL-1 and zebrafish OEP (one-eyed pinhead). Overall sequence identity between members of the family is low, but they do share several common domains: a variant EGF-like motif, a novel conserved cysteine-rich domain (called CFC domain), and a C-terminal hydrophobic region. Most EGF-CFC members have a glycosyl-phosphatidylinositol (GPI) anchoring site at the C-terminus and exist as extracellular membrane-anchored proteins. However, naturally-occurring soluble isoforms also exist. Human Cripto shares 66% and 28% amino acid identity with mouse Cripto and zebrafish OEP, respectively (2). Despite weak conservation in amino acid identity, EGF-CFC family members appear to function similarly in assays for phenotypic rescue of zebrafish *oep* mutants (2). Both secreted and membrane bound forms of Cripto demonstrate biological activity (3).

Cripto, also known as CFC-2 or TDGF-1 (teratocarcinoma-derived growth factor), was originally isolated from an undifferentiated human teratocarcinoma cell line as a potential oncogene. It is overexpressed in many types of cancers and acts as a growth factor for tumors (4). Genetic evidence from mice and zebrafish points to a role for Cripto as an essential cofactor in Nodal signaling. Cripto and OEP mutants display defects in mesoderm induction and heart morphogenesis, similar to phenotypes seen in Nodal mutants (2).

Cripto acts as a cofactor for Nodal by recruiting the Activin type I Receptor, ALK-4, leading to an Act RIIb-ALK4-Cripto-Nodal complex for signaling (1, 3). Cripto also forms a complex with activin and Act RIIs to block activin signaling (5). Studies have shown that other TGF-β superfamily members such as Vg1 and GDF-1 also require EGF-CFC cofactors (6). Cripto can also activate mitogen-activated protein kinase (MAPK) and Akt pathways independently of Nodal by directly binding to a membrane-associated heparan sulfate proteoglycan, glypican-1 (7).

References:

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6. Cheng, S. *et al.* (2003) Genes & Dev. **17**:31.
7. Bianco, C. *et al.* (2003) Cancer Research **63**:1192.