

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived human Cryptic protein		
	Human Cryptic (Tyr26-Gly169) Accession # NP_115934	Asp	10-His tag
	N-terminus		C-terminus
N-terminal Sequence Analysis	Tyr26		
Predicted Molecular Mass	17.4 kDa		

SPECIFICATIONS

SDS-PAGE	24 kDa, reducing conditions
Activity	Measured by its ability to inhibit the cell growth of DU145 human prostate carcinoma cells. Miyazaki, H. <i>et al.</i> (2004) <i>Oncogene</i> 23:9326. The ED ₅₀ for this effect is 1.5-7.5 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 PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 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	<p>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</p> <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

Cryptic, also known as CFC-1, was originally identified as a secreted protein that is specifically expressed during mesoderm differentiation (1). Cryptic, along with Cripto, *Xenopus* FRL-1 and zebrafish OEP (one-eyed pinhead) define the epidermal growth factor-CriptoFRL1Cryptic (EGF-CFC) family of signaling proteins that function in cancer and various developmental processes (2, 3). Overall sequence identity between members of the family is low, but they do share distinct domains: a variant EGF-like motif, a novel conserved cysteine-rich domain (called CFC domain), and a C-terminal hydrophobic region (2). 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 Cryptic shares 55% and 25% amino acid identity with mouse Cryptic and human Cripto, respectively. 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).

Cryptic is expressed during gastrulation in the mesoderm and later in the neuroectoderm, marking the prospective floor plate of the neural tube (1). Genetic evidence from mice and humans points to a role for Cryptic in determining left-right asymmetry. Mutations in the *cryptic* gene result in a spectrum of heart, lung and spleen defects, all representing left-right laterality defects (4, 5). These phenotypes resemble some Nodal mutant alleles suggesting that Cryptic, like Cripto, acts as an essential cofactor for Nodal signaling (1, 3). Studies have shown that other TGF-β superfamily members involved in mesoderm induction and left-right patterning, Vg1 and GDF-1, also require EGF-CFC cofactors. Cryptic binds to GDF-1 leading to an Act RIBB-ALK4-Cryptic-GDF-1 complex for signaling (6).

References:

1. Shen, M. *et al.* (1997) *Development* 124:429.
2. Shen, M. and A. Schier (2000) *Trends Genet.* 16:303.
3. Rosa, F.M. (2002) *Science's STKE* <http://stke.sciencemag.org/>.
4. Gaio, U. *et al.* (1999) *Curr. Biol.* 9:1339.
5. Bamford, R. *et al.* (2000) *Nature Genet.* 26:365.
6. Cheng, S. *et al.* (2003) *Genes & Dev.* 17:31.