Recombinant Human GIF

Catalog Number: 8387-TC

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived human GIF protein Ser19-Tyr417 with a C-terminal 6-His tag Accession # P27352
N-terminal Sequence Analysis	Ser19
Predicted Molecular Mass	44 kDa

SPECIFICATIONS

SDS-PAGE	44-60 kDa, reducing conditions
Activity	Bioassay data are not available.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE with silver staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in sterile water.
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

Gastric Intrinsic Factor (GIF) also known as Intrinsic Factor (IF) is a 45-55 kDa glycoprotein that is secreted by parietal cells of the gastric mucosa. GIF is a member of the eukaryotic cobalamin (Cbl or Vitamin B12) family of transport proteins that mediate the uptake of cobalamin by intestinal epithelial cells lining the ileum (1). GIF comprises two domains, an α and a β-domain containing approximatively 270 and 110 residues respectively (2). Cobalamin binds to GIF at the interface of the α and β domains (2). The Cbl-GIF complex can then interact with its specific receptor, Cubilin, through the amino-terminal portion of GIF (3). This complex associates with Amnionless (AMN) which directs subcellular localization and endocytosis of Cubilin and its ligands (4). Homozygous nonsense and missense mutations in the GIF gene have been linked to hereditary juvenile megaloblastic anemia. These patients show nutritional cobalamin insufficiency due to its intestinal malabsorption (5). Mature human GIF shares 82% and 79% amino acid sequence identity with mouse GIF and rat GIF respectively.

References:

1. Hewitt, J.E. *et al.* (1991) Genomics **10**:432.
2. Mathews, F.S. *et al.* (2007) Proc. Natl. Acad. Sci. USA **104**:17311.
3. Tang, L-H. *et al.* (1992) J. Biol. Chem. **267**:22982.
4. Fyfe, J.C. *et al.* (2004) Blood **103**:1573.
5. Tanner, S.M. *et al.* (2005) Proc. Natl. Acad. Sci. USA **102**:4130.

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