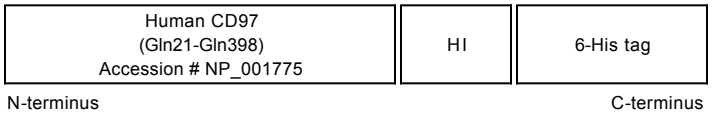
Recombinant Human CD97

Catalog Number: 2529-CD

DESCRIPTION

Source

Mouse myeloma cell line, NS0-derived



N-terminal Sequence Analysis

No results obtained: Gln21 predicted

Predicted Molecular Mass

42 kDa

SPECIFICATIONS

SDS-PAGE

66-86 kDa, reducing conditions

Activity

Measured by the ability of the immobilized protein to support the adhesion of human red blood cells. Hamann, J. *et al.* (1996) J. Exp. Med. **184**:1185.
The ED_{50} for this effect is typically 0.1-0.6 µg/mL.

Endotoxin Level

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

Purity

>90%, 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 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.

- 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

CD97 is a 95-100 kDa member of a protein group known as the LNB-TM7 protein family that evolved from genes of the secretin receptor superfamily (1-3). Molecules in this family are unique hybrid structures consisting of EGF-like modules coupled to class B G-protein 7-transmembrane (TM) domains by a glycosylated (mucin) stalk. Human CD97 is synthesized as an 835 amino acid (aa) precursor that contains a 20 aa signal sequence, a 532 aa extracellular domain (ECD), a 238 aa “transmembrane” region that includes seven TM segments, and a 45 aa cytoplasmic tail (4). Within the 532 aa ECD, the first 236 aa contains five EGF-like domains, the C-terminal four of which bind calcium, and a juxtamembrane 296 aa RGD-containing mucin stalk (4, 5). The stalk is both glycosylated and proteolytically cleaved (at aa 530) to create a noncovalently linked 65-70 kDa glycosylated extracellular α-subunit and a 28 kDa 7-TM membrane-bound β-subunit (4). There are two known alternate splice forms in human. Isoform # 1 contains four EGF-like domains (domain # 1, 2, 3 and 5), while isoform # 2 contains three EGF-like domains (domain # 1, 2 and 5) (1, 4, 6). The ECD in isoform 1 is 60 kDa in size, while the ECD in isoform 2 is 55 kDa in size (native molecular weight). The five EGF-like domain region in human is 55% aa identical to that in mouse. Cells known to express CD97 include monocytes, macrophages, T cells, select B cells, dendritic cells and, potentially, vascular and visceral smooth muscle cells (1, 7). There are at least two ligands for CD97. One is chrondroitin sulfate that binds only to the full-length (five domain) form of CD97. Binding is dependent on the presence of EGF-like domain # 4 (3). The second ligand for CD97 is CD55, a GPI-linked cell surface molecule with short consensus repeats that regulates complement activation on cell surfaces (1, 5, 7). CD97 EGF-like domains # 1 and 2 bind CD55 while domain # 5 stabilizes the CD97 molecule. The shortest CD97 isoform shows the strongest binding to CD55 (7, 8).

References:

1. McKnight, A.J. and S. Gordon (1998) J. Leukoc. Biol. **63**:271.
2. Stacey, M. *et al.* (2000) Trends Biochem. Sci. **25**:284.
3. Stacey, M. *et al.* (2003) Blood **102**:2916.
4. Gray, J.X. *et al.* (1996) J. Immunol. **157**:5438.
5. Lin, H-H. *et al.* (2001) J. Biol. Chem. **276**:24160.
6. Hamann, J. *et al.* (1995) J. Immunol. **155**:1942.
7. Jaspars, L.H. *et al.* (2001) Tissue Antigens **57**:325.
8. Hamann, J. *et al.* (1996) J. Exp. Med. **184**:1185.

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