Recombinant Human TEM5/GPR124 His-tag

Catalog Number: 10206-TE

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived human TEM5/GPR124 protein Ala27-Arg359, with C-terminal 6-His tag Accession # AAO27354
N-terminal Sequence Analysis	Ala27
Predicted Molecular Mass	36 kDa

SPECIFICATIONS

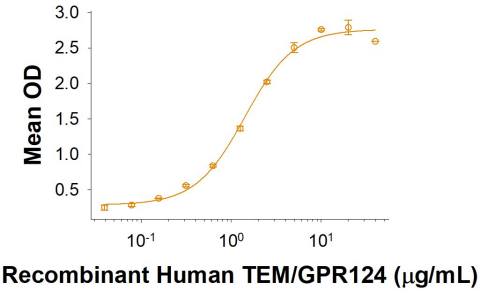
SDS-PAGE	53-60 kDa, under reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human RECK Fc Chimera (Catalog # 10309-RE) is immobilized at 2 µg/mL (100 µL/well), Recombinant Human TEM5/GPR124 His-tag (Catalog # 10206-TE) binds with an ED_{50} of 1-8 µg/mL.
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 with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in 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.

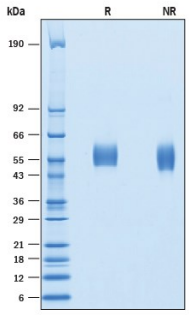
DATA

Binding Activity



When Recombinant Human RECK Fc Chimera (Catalog # 10309-RE) is immobilized at 2 µg/mL (100 µL/well), Recombinant Human TEM5/GPR124 His-tag (Catalog # 10206-TE) binds with an ED_{50} of 1-8 µg/mL.

SDS-PAGE



2 µg/lane of Recombinant Human TEM5/GPR124 His-tag (Catalog # 10206-TE) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 53-60 kDa.

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BACKGROUND

G-protein coupled receptor 124 (GPR124), otherwise known as Adhesion G protein-coupled receptor A2 (AGRA2) and tumor endothelial marker 5 (TEM5), is localized on the surface of endothelial cells. Adhesion GPCRs are the second largest group within the GPCR superfamily, and are implicated in cell-to-cell and cell-to-matrix adhesion with high promiscuity towards ligands (1, 2). Humam TEM5/GPR124 contains a 738 amino acid (aa) extracellular domain (ECD), a transmembrane domain with seven helices of varying lengths, and a 270 aa cytoplasmic domain. Human TEM5/GPR124 shares 90% aa identity to both mouse and rat TEM5/GPR124 within the N-terminal ECD. TEM5/GPR124 shares structural characteristics with other adhesion GPCR family members because of its relatively large N and C-terminal domains, and a GAIN domain (1, 2). The N-terminal ECD contains an exposed RGD motif and binds to RGD-dependent integrins on the surface of endothelial cells. TEM5/GPR124 mediates endothelial cell survival during angiogenesis by linking integrin to glycosaminoglycans. TEM5/GPR124 has also been shown to interact with DLG1 through its PDZ-binding motif (3). In humans, TEM5/GPR124 appears to play a role in tumor vascular biology, as TEM5/GPR124 transcripts are dramatically up-regulated in vascular ECs in tumors relative to ECs in normal tissue (4). The most N-terminal domain of RECK binds to the leucine-rich repeat (LRR) and immunoglobulin (Ig) domains of TEM5/GPR124 (4). RECK is the predominant binding partner of TEM5/GPR124 (5). TEM5/GPR124 and RECK act primarily in an extracellular fashion. RECK has been identified as a TEM5/GPR124-associated Wnt7 receptor that forms a 1:1 complex with active, monomeric, hydrophobic Wnt7 (5). RECK and TEM5/GPR124 are part of the cell surface protein complex that transduces Wnt7a- and Wnt7b-specific signals in mammalian CNS ECs to promote angiogenesis and regulate the blood-brain barrier (BBB) (4).

References:

1. Hamann, J. *et al.* (2015) Pharmacol Rev. **67**:338.
2. Arac, D. *et al.* (2012) Ann N Y Acad Sci. **1276**:1.
3. Kuhnert, F. *et al.* (2010) Science **330**:985.
4. Cho, C. *et al.* (2017) Neuron. **95**:1056.
5. Vallon, M. *et al.* (2018) Cell Reports **25**:339.

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