Recombinant Human TMED1 Fc Chimera

Catalog Number: 2243-TM

DESCRIPTION

Source

Human embryonic kidney cell, HEK293-derived human TMED1 protein

N-terminal Sequence Analysis	Ala24
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	46 kDa

SPECIFICATIONS

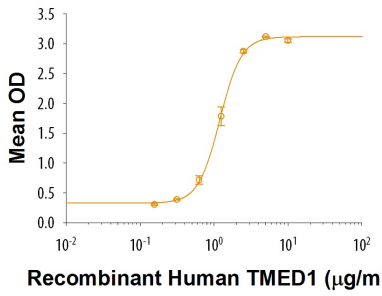
SDS-PAGE	56-62 kDa, reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human TMED1 Fc Chimera is coated at 0.5 µg/mL, 100 µL/well, Recombinant Human ST2/IL-1 R4 Fc Chimera (Catalog # 523-ST) binds with an ED_{50} of 0.6-3.6 µg/mL
Endotoxin Level	<0.10 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	• 12 months from date of receipt, ≤ -20 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, ≤ -20 °C under sterile conditions after reconstitution.

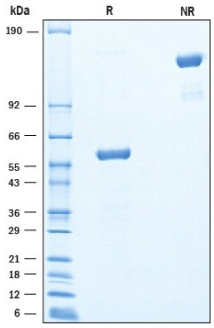
DATA

Binding Activity



When Recombinant TMED1 Fc Chimera (Catalog # 2243-TM) is coated at 0.5 µg/mL, Recombinant Human ST2/IL-1 R4 Fc Chimera (Catalog # 523-ST) binds with an ED_{50} of 0.6-3.6 µg/mL.

SDS-PAGE



2 µg/lane of Recombinant Human TMED1 Fc was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 56-62 kDa and 110-120 kDa, respectively.

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BACKGROUND

TMED1 (Transmembrane Emp24 domain-containing protein 1) is a member of the TMED family of proteins (gene name TMED1). The TMED family of proteins are localized to membranes of the early secretory pathway, including the endoplasmic reticulum and Golgi, and function in vesicular protein trafficking (1, 2). TMED1 is a 59 kDa monomer and has been reported to exist as homodimer (3). TMED1 is composed of a 23 amino acid (aa) signal sequence, a 171 aa extra cellular domain, a 21 aa transmembrane domain, and a 12 aa cytoplasmic domain. The extracellular domain contains an 83 aa GOLD (Golgi Dynamics) domain, and COPI and COPII binding motifs are found in the cytoplasmic domain (1-3, 5). Human TMED1 shares 97% sequence identity with mouse, bovine, and rat homologs within the 171 aa extracellular domain. The β-strand-rich GOLD domain has been specifically identified to be involved in intracellular protein trafficking (1, 4, 5). TMED1 is important in regulating innate immune signaling through its interaction with ST2L. Specifically, the GOLD domain in TMED1 interacts with the TIR domain of ST2L, a receptor for IL-33 (1). This interaction promotes ST2L association with IL-33, allowing downstream signaling cascade activating MAP kinases, p38, and JNK (1, 6). Studies have shown knockdown of TMED-1 in HUVECs impairs the IL-33 induced response resulting in reduction of IL-6 and IL-8 productions (1).

References:

1. Connolly, D. *et al*. (2013) J Biol Chem. **288**:5616.
2. Gour, N. and Lajoie, S. (2018) Curr Allergy Ashma Rep. **16**:65.
3. Jenne, N. (2002) J Biol Chem. **277**:46504.
4. Anantharaman, V. and Aravind, L. (2002) Genome Biol. **3**:research0023
5. Gomez-Navarro, N. and Miller, E. (2016) J Cell Biol. **215**:769.
6. Hardman, C. and Ogg, G. (2016). Curr Opin Immunol. **42**:16.

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