Recombinant Human MUC-1 Fc Chimera

Catalog Number: 10332-MU

DESCRIPTION

Source	Human embryonic kidney cell, HEK293-derived human MUC-1 protein

Human MUC-1 (Ser24-Ser380) Accession # P15941.3	IEGRMD	Human IgG_1 (Pro100-Lys330)

N-terminus C-terminus

N-terminal Sequence Analysis	Ser24
Structure / Form	Disulfide-linked homodimer
Predicted Molecular Mass	60 kDa

SPECIFICATIONS

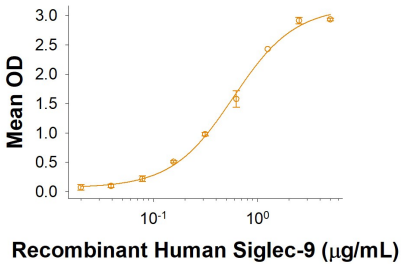
SDS-PAGE	157 - 192 kDa, under reducing conditions.
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Human MUC-1 Fc Chimera (Catalog # 10332-MU) is immobilized at 1 µg/mL (100 µL/well), Recombinant Human Siglec-9 Fc Chimera (Catalog # 1139-SL) binds with an ED_{50} of 0.2-1.4 µg/mL.
Endotoxin Level	<1.0 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. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 400 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.

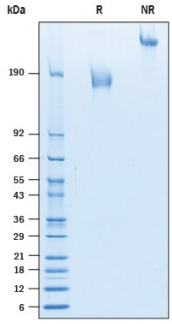
DATA

Binding Activity



Recombinant Human MUC-1 Fc Chimera Protein Binding Activity When Recombinant Human MUC-1 Fc Chimera (Catalog # 10332-MU) is immobilized at 1 µg/mL (100 µL/well), Recombinant Human Siglec-9 Fc Chimera (Catalog # Catalog # 1139-SL) binds with an ED_{50} of 0.2-1.4 µg/mL.

SDS-PAGE



Recombinant Human MUC-1 Fc Chimera Protein SDS-PAGE 2 µg/lane of Recombinant Human MUC-1 Fc Chimera (Catalog # 10332-MU) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 157-192 kDa and 310-380 kDa, respectively.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449

Recombinant Human MUC-1 Fc Chimera

Catalog Number: 10332-MU

BACKGROUND

MUC-1 (Mucin-1) is a type 1 transmembrane glycoprotein that is normally expressed on the apical surface of most epithelial cells (1-2). It is known to be overexpressed by various human carcinomas and is shed into circulation (2). The extracellular domain is made up of tandem repeats (TRs) of 20 aa each, with each TR containing five potential O-glycosylation sites (3). The number of TRs vary between 25-100, depending on the allele (3). Within the mature region including 16 TRs (residues 24-380), human MUC-1 shares 30% aa sequence identity with mouse and rat MUC-1. It has been reported that high expression level of MUC-1 generally correlates with increased mortality rates (4). In addition, MUC-1 is aberrantly underglycosylated on cancer cells with short and sialylated O-linked glycans in contrast to the long, branched chain seen in normal epithelial cells (4-7). It has been demonstrated that MUC-1 can interact with E-selectin and ICAM-1 to mediate firm adhesion of circulating tumor cells and subsequent extravasation in the metastatic adhesion cascade (4). Furthermore, MUC-1 can modulate the tumor immunological microenvironment through engagement of Siglec-9 by inducing the recruitment of beta-catenin to the cytoplasmic tail of MUC-1, increasing the expression of PD-L1 by macrophages, and activating the MEK-ERK pathway (5,6). MUC-1 can also interact with Galectin-3 to promote EGFR activation thus regulating EGFR-associated tumorigenesis and cancer progression (7).

References:

1. Rughetti, A. *et al.* (2005) J. Immunol. **174**:7764.
2. Engelstaedter, V. *et al.* (2012) BMC Cancer **12**:600.
3. Taylor-Papadimitriou, J. *et al.* (1999) Biochim. Biophys. Acta **1455**:301.
4. Geng, Y. *et al.* (2012) Front Oncol. **2**:76.
5. Tanida, S. *et al.* (2013) J Biol Chem. **288**:31842.
6. Beatson, R. *et al.* (2016) Nat Immunol. **17**:1273.
7. Piyush, T. *et al.* (2017) Cell Death Differ. **24**:1937.

bio-techne®
Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 **Canada** TEL 855 668 8722 **China** TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449