

Active Recombinant Human MUC1 protein, Fc/Avi-tagged, Biotinylated

Cat. No. MUC1-051H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Biotinylated Recombinant Human MUC1(Ser24-Ser380) protein, fused to Fc/Avi tag at the C-terminus, was expressed in HEK293 cells .
Species	Human
Source	HEK293
ProteinLength	Ser24-Ser380
Description	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 amino acid (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

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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). Our Avi-tag Biotinylated human MUC-1 features biotinylation at a single site contained within the Avi-tag, a unique 15 amino acid peptide. Protein orientation will be uniform when bound to streptavidin-coated surface due to the precise control of biotinylation and the rest of the protein is unchanged so there is no interference in the protein's bioactivity.

Form	Supplied as a 0.2 µm filtered solution in PBS with Trehalose.
Bio-activity	Measured by its binding ability in a functional ELISA. When Biotinylated Recombinant Human MUC1 Fc Chimera Avi-tag is immobilized at 1 µg/mL (100 µL/well), Recombinant Human SIGLEC9 Fc Chimera binds with an ED50 of 0.25-2 µg/mL.
Molecular Mass	168-195 kDa, under reducing conditions
Endotoxin	<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.
Applications	Bioactivity
Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. 6 months from date of receipt, -20 to -70 °C as supplied. 1 month, 2 to 8 °C under sterile conditions after opening. 3 months, -20 to -70 °C under sterile conditions after opening.
Conjugation	Biotin

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GENE INFORMATION

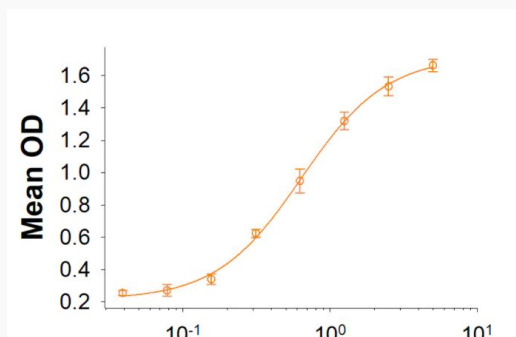
Gene Name	MUC1 mucin 1, cell surface associated [Homo sapiens]
Official Symbol	MUC1
Synonyms	MUC1; mucin 1, cell surface associated; mucin 1, transmembrane , PUM; mucin-1; CD227; PEM; episialin; DF3 antigen; H23 antigen; krebs von den Lungen-6; mucin 1, transmembrane; tumor-associated mucin; carcinoma-associated mucin; polymorphic epithelial mucin; peanut-reactive urinary mucin; tumor associated epithelial mucin; breast carcinoma-associated antigen DF3; tumor-associated epithelial membrane antigen; EMA; PUM; KL-6; MAM6; PEMT; H23AG; MUC-1; MUC-1/X; MUC1/ZD; MUC-1/SEC;
Gene ID	4582
mRNA Refseq	NM_001018016
Protein Refseq	NP_001018016
MIM	158340
UniProt ID	P15941

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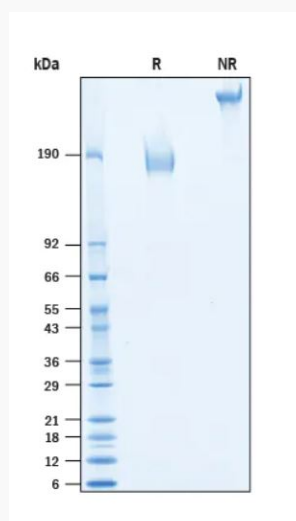
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Binding Activity



SDS-PAGE



2 µg/lane Protein was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining.