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Datasheet for 200-301-GY2

MUC4 Antibody

Overview

Description:	Anti-MUC4 (MOUSE) Antibody - 200-301-GY2
Item No.:	200-301-GY2
Size:	100 µg
Applications:	ELISA, IHC, WB
Reactivity:	Human
Host Species:	Mouse

Product Details

Background:

This antibody is designed, produced, and validated as part of a collaboration between Rockland and the National Cancer Institute (NCI). MUC4 (Mucin 4, Cell Surface Associated) is a Protein Coding gene. This gene encodes an integral membrane glycoprotein found on the cell surface, although secreted isoforms may exist. At least two dozen transcript variants of this gene have been found, although for many of them the full-length transcript has not been determined or they are found only in tumor tissues. Highly glycosylated proteins called mucins, are the major constituents of mucus; the viscous secretion that covers epithelial surfaces such as those in the trachea, colon, and cervix. MUC4's ability to promote tumor growth may be mainly due to repression of apoptosis as opposed to proliferation. MUC4 seems to alter cellular behavior through both anti-adhesive effects on cell-cell and cell-extracellular matrix interactions and in its ability to act as an intramembrane ligand for ERBB2. These glycoproteins play an important role in cell proliferation and differentiation of epithelial cells by inducing specific phosphorylation of ERBB2. The MUC4-ERBB2 complex causes site-specific phosphorylation of the ERBB2 Tyr-1248. In polarized epithelial cells segregates ERBB2 and other ERBB receptors and prevents ERBB2 from acting as a co-receptor. The interaction with ERBB2 leads to enhanced expression of CDKN1B. The formation of a MUC4-ERBB2-ERBB3-NRG1 complex leads to down-regulation of CDKN1B, resulting in repression of apoptosis and stimulation of proliferation. May play a role in tumor progression. MUC4 is associated with diseases such as bile duct cancer, keratitis, adenosquamous carcinoma, and pancreatic adenocarcinomas. Anti-MUC4 Antibody is useful for researchers interested in digestion, cancer research, and extracellular matrix Antibodies.

Synonyms:

Mouse Anti-MUC4 Antibody, Mouse Anti-Mucin 4 Antibody, MUC4, Mucin-4, Ascites sialoglycoprotein, ASGP, Pancreatic adenocarcinoma mucin, Testis mucin, Tracheobronchial mucin, Mucin-4 alpha chain, Ascites sialoglycoprotein 1, ASGP-1, Mucin-4 beta chain, Ascites sialoglycoprotein 2, ASGP-2, MUC

Host Species:	Mouse
Clonality:	Monoclonal
Clone ID:	3C7.D8.E11.F5
Format:	IgG

Target Details

Gene Name:	MUC4
Reactivity:	Human
Immunogen Type:	Conjugated Peptide
Immunogen:	This protein A purified antibody produced by repeated immunizations with a peptide corresponding to an internal portion of human Mucin-4.
Purity/Specificity:	This purified antibody is directed against human MUC4 protein. The product was purified from tissue culture supernate by protein A chromatography. A BLAST analysis was used to suggest cross reactivity with MUC4 from human based on 100% sequence homology with the immunogen. Reactivity with MUC4 from other sources is not known.
Relevant Links:	• UniProtKB - Q99102 • NCBI - NP_004523.3 • GeneID - 4585

Application Details

Tested Applications:	ELISA, IHC, WB
Application Note:	Anti-MUC4 Antibody was testing in ELISA, IHC, and Western Blot. Antibodies shows no cross reactivity to non-mucilated proteins. Positive control used in WB were HPAC, HPAF-II, and Capan-2 cell lines.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
ELISA:	1:1000
WB:	1:1000

Formulation

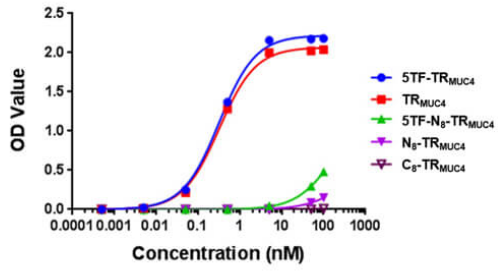
Physical State:	Liquid (sterile filtered)

Concentration:	0.99 mg/mL by UV absorbance at 280 nm
Buffer:	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2
Preservative:	0.01% (w/v) Sodium Azide
Stabilizer:	None

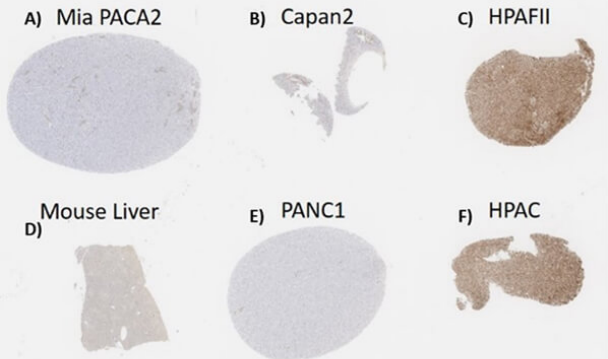
Shipping & Handling

Shipping Condition:	Dry Ice
Storage Condition:	Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.
Expiration:	Expiration date is one (1) year from date of receipt.

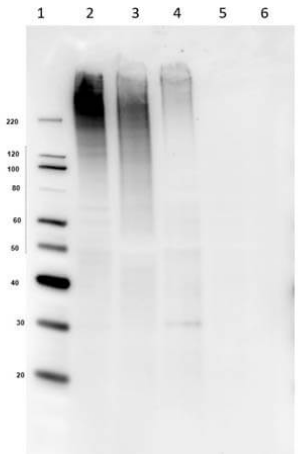
Images



ELISA
ELISA results from BSA constructs (0.3µg/mL) coated on plates and screened using the following antisera: anti-5TFag-TRMUC4 serum (1:300), affinity pure anti-5TFag-TRMUC4 polyclonal antibody (15µg/mL) and unimmunized rabbit serum (1:300). Primary antisera were added to well plates and serially diluted by half Log10 dilutions. Assay performed using Blocking buffer (3 % BSA), alkaline phosphatase conjugated secondary antibodies, and PNPP (10 mg) in pH 9.8 DEA buffer.



Immunohistochemistry
Immunohistochemistry of Mouse Anti-MUC4 Antibody. Tissue/Cell: A) hu Mia PACA2 [-]. B) hu Capan2 pancreatic ductal adenocarcinoma cell line [+]. C) hu HPAFII cell pellet [+]. D) Control mouse liver [-]. E) hu Control PANC1 cell pellet [-]. F) hu HPAC cell pellet [+]. Tissues: FFPE containing normal and malignant pancreatic tissues. Cell pellets: Appr. 10 million cells were collected from flasks without enzymatic treatment and centrifuged; thrombin and Fibrinogen was added. The resulting pellet of clotted cells was collected. Fixative: 10% neutral buffered formalin at RT. Antigen Retrieval: HIER citrate buffer for 20 min. Primary Antibody: Anti-MUC4 Antibody at 1:1000 in A, B, C, F. Isotype control reagent used in negative control D, E. Secondary Antibody: Anti-Mouse IgG. Counter Stain: Bond Polymer Refine Detection Kit. Analysis Results: No staining was observed for control liver and PANC1 (MUC4−) cell pellets while HPAFII and HPAC pellets that are known to express large amounts of MUC4 were strongly and diffusely positive. Some non-specific, acellular staining is seen within Mia PACA2 (MUC4−) cells.



Western Blot
Western Blot of Mouse Anti-MUC4 Antibody. Lane 1: Spectra Multicolor Ladder. Lane 2: HPAF-II (MUC4+). Lane 3: HPAC (MUC4+). Lane 4: Capan-2 (MUC4+). Lane 5: MiaPaCa2 (MUC4-). Lane 6: Panc-1 (MUC4-). Primary Antibody: Anti-MUC4 at 1nM in 2% BSA at RT for 2 hrs. Secondary Antibody: Goat Anti-Mouse IgG HRP (610-103-121) at 1:70,000 in 5% BSA/PBS/0.1 Tween 20 for 1 hr at RT. Expect: ~550-930 kDa. Observed: ~200-300 kDa. Highly glycosylated protein.

References

- Dahal A et al. Biodistribution of a Mucin 4-Selective Monoclonal Antibody: Defining a Potential Therapeutic Agent Against Pancreatic Cancer. *Int J Mol Sci.* (2025)
- Trabbic K., Whalen K., Abarca-Heideman K., Xia L., Temme J., Edmondson E., Gilersleeve J., Barchi J. A Tumor-Selective Monoclonal Antibody from Immunization with a Tumor-Associated Mucin Glycopeptide. *Nature Scientific Reports.* (2019)

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