

Anti-MUC1 antibody [C595 (NCRC48)] ab28081

[15 References](#) [3 Images](#)

Overview

Product name	Anti-MUC1 antibody [C595 (NCRC48)]
Description	Mouse monoclonal [C595 (NCRC48)] to MUC1
Host species	Mouse
Specificity	ab28081 recognises the breast cancer associated mucin encoded by the Muc-1 gene, CD227. In normal tissues expression is restricted to specialised glandular epithelial cells.
Tested applications	Suitable for: IHC-P, WB, ELISA, IHC-Fr, Flow Cyt, ICC/IF
Species reactivity	Reacts with: Human
Immunogen	Urinary MUC-1 mucin (Human)
Epitope	ab28081 recognises the peptide epitope ARG-PRO-ALA-PRO within the protein core of the mucin.
Positive control	Breast carcinoma
General notes	<p>The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing.</p> <p>If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As</p>

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C long term.
Storage buffer	<p>pH: 7.40</p> <p>Preservative: 0.09% Sodium azide</p> <p>Constituent: PBS</p>
Purity	Protein G purified
Clonality	Monoclonal
Clone number	C595 (NCRC48)

Applications

The Abpromise guarantee

Our **Abpromise guarantee** covers the use of ab28081 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
IHC-P		Use at an assay dependent concentration.
WB		Use at an assay dependent concentration. Predicted molecular weight: 122 kDa.
ELISA		Use at an assay dependent concentration.
IHC-Fr		Use at an assay dependent concentration.
Flow Cyt		Use at an assay dependent concentration. ab91537 - Mouse monoclonal IgG3, is suitable for use as an isotype control with this antibody.
AP		Use at an assay dependent concentration. PubMed: 21077635
ICC/IF		Use at an assay dependent concentration.

Target

Function

The alpha subunit has cell adhesive properties. Can act both as an adhesion and an anti-adhesion protein. May provide a protective layer on epithelial cells against bacterial and enzyme attack.

The beta subunit contains a C-terminal domain which is involved in cell signaling, through phosphorylations and protein-protein interactions. Modulates signaling in ERK, SRC and NF-kappa-B pathways. In activated T-cells, influences directly or indirectly the Ras/MAPK pathway. Promotes tumor progression. Regulates TP53-mediated transcription and determines cell fate in the genotoxic stress response. Binds, together with KLF4, the PE21 promoter element of TP53 and represses TP53 activity.

Tissue specificity

Expressed on the apical surface of epithelial cells, especially of airway passages, breast and uterus. Also expressed in activated and unactivated T-cells. Overexpressed in epithelial tumors, such as breast or ovarian cancer and also in non-epithelial tumor cells. Isoform Y is expressed in tumor cells only.

Involvement in disease

MUC1/CA 15-3 is used as a serological clinical marker of breast cancer to monitor response to breast cancer treatment and disease recurrence (PubMed:20816948). Decreased levels over time may be indicative of a positive response to treatment. Conversely, increased levels may indicate disease progression. At an early stage disease, only 21% of patients exhibit high MUC1/CA 15-3 levels, that is why CA 15-3 is not a useful screening test. Most antibodies target the highly immunodominant core peptide domain of 20 amino acid (APDTRPAGSTAPPAHGVTS) tandem repeats. Some antibodies recognize glycosylated epitopes.

Medullary cystic kidney disease 1

Sequence similarities

Contains 1 SEA domain.

Developmental stage

During fetal development, expressed at low levels in the colonic epithelium from 13 weeks of gestation.

Post-translational modifications

Highly glycosylated (N- and O-linked carbohydrates and sialic acid). O-glycosylated to a varying degree on serine and threonine residues within each tandem repeat, ranging from mono- to penta-glycosylation. The average density ranges from about 50% in human milk to over 90% in T47D breast cancer cells. Further sialylation occurs during recycling. Membrane-shed glycoproteins from kidney and breast cancer cells have preferentially sialylated core 1 structures, while secreted forms from the same tissues display mainly core 2 structures. The O-glycosylated content is overlapping in both these tissues with terminal fucose and galactose, 2- and 3-linked galactose, 3- and 3,6-linked GalNAc-ol and 4-linked GlcNAc predominating. Differentially O-glycosylated in breast carcinomas with 3,4-linked GlcNAc. N-glycosylation consists of high-mannose, acidic complex-type and hybrid glycans in the secreted form MUC1/SEC, and neutral complex-type in the transmembrane form, MUC1/TM.

Proteolytic cleavage in the SEA domain occurs in the endoplasmic reticulum by an autoproteolytic mechanism and requires the full-length SEA domain as well as requiring a Ser, Thr or Cys residue at the P + 1 site. Cleavage at this site also occurs on isoform MUC1/X but not on isoform MUC1/Y. Ectodomain shedding is mediated by ADAM17.

Dual palmitoylation on cysteine residues in the CQC motif is required for recycling from endosomes back to the plasma membrane.

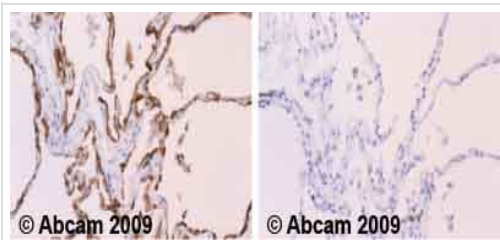
Phosphorylated on tyrosines and serine residues in the C-terminal. Phosphorylation on tyrosines in the C-terminal increases the nuclear location of MUC1 and beta-catenin. Phosphorylation by PKC delta induces binding of MUC1 to beta-catenin/CTNNB1 and thus decreases the formation of the beta-catenin/E-cadherin complex. Src-mediated phosphorylation inhibits interaction with GSK3B. Src- and EGFR-mediated phosphorylation on Tyr-1229 increases binding to beta-catenin/CTNNB1. GSK3B-mediated phosphorylation on Ser-1227 decreases this interaction but restores the formation of the beta-cadherin/E-cadherin complex. On T-cell receptor activation, phosphorylated by LCK. PDGFR-mediated phosphorylation increases nuclear colocalization of MUC1CT and CTNNB1.

The N-terminal sequence has been shown to begin at position 24 or 28.

Cellular localization

Secreted; Cell membrane. Cytoplasm. Nucleus. On EGF and PDGFRB stimulation, transported to the nucleus through interaction with CTNNB1, a process which is stimulated by phosphorylation. On HRG stimulation, colocalizes with JUP/gamma-catenin at the nucleus and Apical cell membrane. Exclusively located in the apical domain of the plasma membrane of highly polarized epithelial cells. After endocytosis, internalized and recycled to the cell membrane. Located to microvilli and to the tips of long filopodial protrusions.

Images

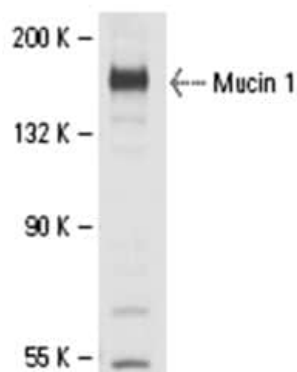


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-MUC1 antibody [C595 (NCRC48)] (ab28081)

Ab28081 staining human normal lung. Staining is localised to the apical cell membrane.

Left panel: with primary antibody at 1 ug/ml. Right panel: isotype control.

Sections were stained using an automated system DAKO Autostainer Plus , at room temperature. Sections were rehydrated and antigen retrieved with the Dako 3-in-1 antigen retrieval buffers EDTA pH 9.0 in a DAKO PT Link. Slides were peroxidase blocked in 3% H₂O₂ in methanol for 10 minutes. They were then blocked with Dako Protein block for 10 minutes (containing casein 0.25% in PBS) then incubated with primary antibody for 20 minutes and detected with Dako Envision Flex amplification kit for 30 minutes. Colorimetric detection was completed with diaminobenzidine for 5 minutes. Slides were counterstained with Haematoxylin and coverslipped under DePeX. Please note that for manual staining we recommend to optimize the primary antibody concentration and incubation time (overnight incubation), and amplification may be requir

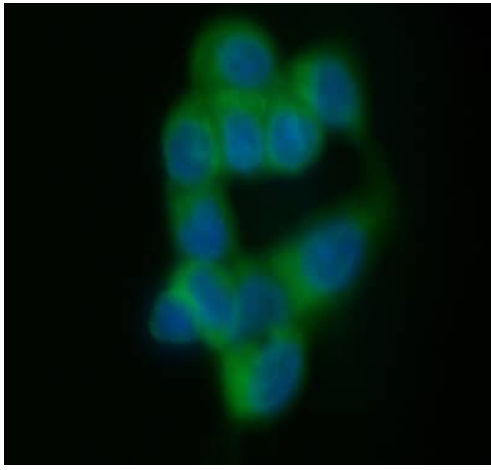


Western blot - Anti-MUC1 antibody [C595 (NCRC48)] (ab28081)

Anti-MUC1 antibody [C595 (NCRC48)] (ab28081) + Whole cell lysate prepared from human BT20 cells

Predicted band size: 122 kDa

Observed band size: 170 kDa



Immunocytochemistry/ Immunofluorescence - Anti-MUC1 antibody [C595 (NCRC48)] (ab28081)

FITC-conjugated ab28081 staining MUC1 in MCF-7 cells (green).
Nuclei are counterstained with DAPI (blue).

Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit <https://www.abcam.com/abpromise> or contact our technical team.

Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors