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MUC2 (Mucin 2) Antibody - With BSA and Azide

Mouse Monoclonal Antibody [Clone MLP/842]
Catalog # AH11888

Product Information

Application	IHC, IF, FC
Primary Accession	Q02817
Other Accession	4583, 315
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Isotype	Mouse / IgG1, kappa
Clone Names	MLP/842
Calculated MW	550850

Additional Information

Gene ID	4583
Other Names	Mucin-2, MUC-2, Intestinal mucin-2, MUC2, SMUC
Application Note	IHC~~1:100~500 IF~~1:50~200 FC~~1:10~50
Storage	Store at 2 to 8°C.Antibody is stable for 24 months.
Precautions	MUC2 (Mucin 2) Antibody - With BSA and Azide is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	MUC2 {ECO:0000303|PubMed:8300571, ECO:0000312|HGNC:HGNC:7512}
Function	Coats the epithelia of the intestines and other mucus membrane-containing organs to provide a protective, lubricating barrier against particles and infectious agents at mucosal surfaces (PubMed:17058067, PubMed:19432394, PubMed:33031746). Major constituent of the colon mucus, which is mainly formed by large polymeric networks of MUC2 secreted by goblet cells that cover the exposed surfaces of intestine (PubMed:19432394, PubMed:33031746). MUC2 networks form hydrogels that guard the underlying epithelium from pathogens and other hazardous matter entering from the outside world, while permitting nutrient absorption and gas exchange (PubMed:33031746, PubMed:36206754). Acts as a divalent copper chaperone that protects intestinal cells from copper toxicity and facilitates nutritional copper unptake into cells (PubMed:36206754). Binds both Cu(2+) and its reduced form, Cu(1+), at two juxtaposed binding sites: Cu(2+), once reduced to Cu(1+) by vitamin C (ascorbate) or other dietary antioxidants,

	transits to the other binding site (PubMed:36206754). MUC2-bound Cu(1+) is protected from oxidation in aerobic environments, and can be released for nutritional delivery to cells (PubMed:36206754). Mucin gels store antimicrobial molecules that participate in innate immunity (PubMed:33031746). Mucin glycoproteins also house and feed the microbiome, lubricate tissue surfaces, and may facilitate the removal of contaminants and waste products from the body (PubMed:33031746). Goblet cells synthesize two forms of MUC2 mucin that differ in branched chain O-glycosylation and the site of production in the colon: a (1) 'thick' mucus that wraps the microbiota to form fecal pellets is produced in the proximal, ascending colon (By similarity). 'Thick' mucus transits along the descending colon and is lubricated by a (2) 'thin' MUC2 mucus produced in the distal colon which adheres to the 'thick' mucus (By similarity).
Cellular Location	Secreted. Note=In the intestine, secreted into the inner and outer mucus layers (By similarity). Before secretion, mucin polymers are stored in dedicated secretory vesicles (PubMed:33031746). {ECO:0000250|UniProtKB:Q80Z19, ECO:0000269|PubMed:33031746}
Tissue Location	Colon, small intestine, colonic tumors, bronchus, cervix and gall bladder.

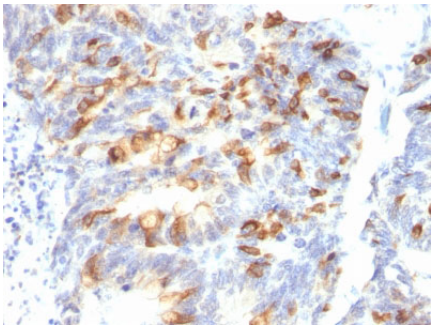
Background

Recognizes a single glycoprotein of 520kDa, identified as mucin 2 (MUC2). This MAb shows no cross-reaction with human milk fat globule membranes, MUC1, or MUC3. Mucins are high molecular weight glycoproteins, which constitute the major component of the mucus layer that protects the gastric epithelium. MUC2 is specifically expressed in goblet cells of the small intestine & colon; in about 65% of colonic carcinomas and about 40% of gastric carcinomas. MUC2 is rarely expressed outside of the GI tract with the exceptions of mucinous carcinoma of breast and clear cell-type carcinomas of the ovary.

References

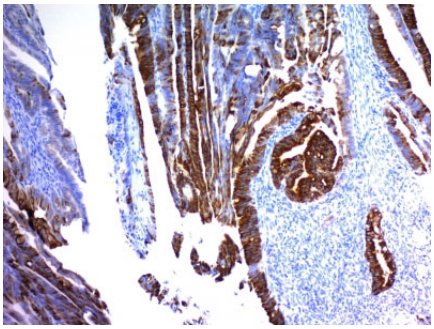
Gum, J.R., et al. 1992. The human Mucin 2 intestinal mucin has cysteine- rich subdomains located both upstream and downstream of its central repetitive region. J. Biol. Chem. 267: 21375-21383. |

Images



Formalin-fixed, paraffin-embedded human Colon Carcinoma stained with MUC2 Monoclonal Antibody (MLP/842).

Formalin-fixed, paraffin-embedded human Colon Carcinoma stained with MUC2 Monoclonal Antibody (MLP/842).



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