



Mucin 5AC (2X123): sc-71620

BACKGROUND

Mucins are a group of high molecular weight glycoproteins consisting of a mucin core protein and O-linked carbohydrates. Mucin 6 carries GlcNAc α 1 \rightarrow 4Gal β \rightarrow R structures, indicating that α 1, 4-N-acetylglucosaminyltransferase is important to the formation of the mucous glycoproteins *in vivo*. Mucin 5AC is a gel-forming mucin that is secreted from surface mucous cells. Glucocorticoid is required for the expression of Mucin 5AC mRNA and high doses of hydrocortisone suppresses its expression. Additionally, asthmatic fluid stimulates Mucin 5AC synthesis several-fold. The pro-inflammatory cytokines IL-6 and TNF α stimulate Mucin 5AC secretion and thus contribute to the upregulation of mucin by chronic inflammation. Expression of Mucin 5AC is retinoic acid (RA)- or retinol-dependent, and RA control of mucin genes is mediated by the retinoid acid receptor RAR α and, to a lesser extent, by RAR γ . Thyroid hormone binding to thyroid receptors inhibits Mucin 5AC gene expression. Mucin 5AC is also expressed in normal endocervical epithelium, small intestine, gastric cells (Lewis type 1) and gastric metaplasia and it is one of the major mucins in the ethmoid mucosa.

REFERENCES

1. Longphre, M., et al. 1999. Allergen-induced IL-9 directly stimulates mucin transcription in respiratory epithelial cells. *J. Clin. Invest.* 104: 1375-1382.
2. Riethdorf, L., et al. 2000. Differential expression of Mucin 2 and Mucin 5AC in benign and malignant glandular lesions of the cervix uteri. *Virchows Arch.* 437: 365-371.
3. Guillem, P., et al. 2000. Mucin gene expression and cell differentiation in human normal, premalignant and malignant esophagus. *Int. J. Cancer* 88: 856-861.
4. Jung, H.H., et al. 2000. Expression of mucin genes in chronic ethmoiditis. *Am. J. Rhinol.* 14: 63-70.
5. Kashiwagi, H., et al. 2001. Mucin 1 and Mucin 2 expression in human gallbladder carcinoma: a clinicopathological study and relationship with prognosis. *Oncol. Rep.* 8: 485-489.

CHROMOSOMAL LOCATION

Genetic locus: MUC5AC (human) mapping to 11p15.5; Muc5ac (mouse) mapping to 7 F5.

SOURCE

Mucin 5AC (2X123) is a mouse monoclonal antibody raised against M1 mucin preparation from the fluid of an ovarian mucinous cyst belonging to an O Le (a-b) patient.

PRODUCT

Each vial contains 200 μ g IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

Mucin 5AC (2X123) is recommended for detection of Mucin 5AC of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Mucin 5AC (2X123) is also recommended for detection of Mucin 5AC in additional species, including rabbit, porcine, feline, avian, monkey and hedgehog.

Suitable for use as control antibody for Mucin 5AC siRNA (h): sc-37131, Mucin 5AC siRNA (m): sc-37132, Mucin 5AC shRNA Plasmid (h): sc-37131-SH, Mucin 5AC shRNA Plasmid (m): sc-37132-SH, Mucin 5AC shRNA (h) Lentiviral Particles: sc-37131-V and Mucin 5AC shRNA (m) Lentiviral Particles: sc-37132-V.

Molecular Weight of Mucin 5AC: 400-600 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206.

SELECT PRODUCT CITATIONS

1. Cao, L., et al. 2011. Effect of Myrtol standardized on mucus hypersecretion and clearance of *Pseudomonas aeruginosa* in a rat model of chronic obstructive pulmonary disease. *Arzneimittelforschung* 61: 685-692.
2. Ou-Yang, H.F., et al. 2013. Notch signaling downregulates MUC5AC expression in airway epithelial cells through Hes1-dependent mechanisms. *Respiration* 86: 341-346.
3. Hao, Y., et al. 2014. *Mycoplasma pneumoniae* modulates STAT3-STAT6/EGFR-FOXA2 signaling to induce overexpression of airway mucins. *Infect. Immun.* 82: 5246-5255.
4. Lachowicz-Scroggins, M.E., et al. 2016. Abnormalities in MUC5AC and MUC5B protein in airway mucus in asthma. *Am. J. Respir. Crit. Care Med.* 194: 1296-1299.
5. Krause, T., et al. 2017. Validation of antibody reagents for mucin analysis in chronic inflammatory airway diseases. *MAbs* 9: 333-341.
6. Zhen, G., et al. 2018. Effects of modified zhisou powder on airway mucus production in chronic obstructive pulmonary disease model rats with cold-dryness syndrome. *Evid. Based Complement. Alternat. Med.* 2018: 7297141.

RESEARCH USE

For research use only, not for use in diagnostic procedures.



See **Mucin 5AC (45M1): sc-21701** for Mucin 5AC antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488, 546, 594, 647, 680 and 790.