SANTA CRUZ BIOTECHNOLOGY, INC.

Mucin 4 (8G7): sc-53945

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Mucins are a group of high molecular weight glycoproteins consisting of a mucin core protein and O-linked carbohydrates. Mucin 4, a membrane-bound mucin, is the human homolog of the rat sialomucin complex (SMC). Mucin 4 protein consists of Mucin 4α, a large amino mucin type subunit and Mucin 4β, a transmembrane subunit containing three EGF-like domains. The Mucin 4 gene is the predominant mucin gene expressed in the normal urothelium and is also expressed in several normal tissues such as trachea, lung and testis. Dysregulation of Mucin 4 results in high levels of expression in pancreatic tumors and tumor cell lines. Induction of Mucin 4 in pancreatic carcinoma by all-*trans*-retinoic acid is mediated through the retinoic acid receptor-α signaling pathway. TGFβ2 serves as an interim mediator of this regulated expression. Alternative splicing in the 3'-end of the Mucin 4 gene generates at least 12 splice variants, which are characterized as 2 distinct types, a secreted type and a membrane-associated type. Mucin 4 protein acts as a heterodimeric bifunctional cell-surface glycoprotein and forms thick mucous effusion in the diseased middle ear.

REFERENCES

1. Gross, M.S., et al. 1992. Mucin 4 (MUC4) gene: regional assignment (3q29) and RFLP analysis. Ann. Genet. 35: 21-26.
2. Moniaux, N., et al. 1999. Complete sequence of the human mucin MUC4: a putative cell membrane-associated mucin. Biochem. J. 338: 325-333.
3. N'Dow, J., et al. 2000. Mucin gene expression in human urothelium and in intestinal segments transposed into the urinary tract. J. Urol. 164: 1398-1404.
4. Choudhury, A., et al. 2000. Retinoic acid-dependent transforming growth factor-β 2 mediated induction of MUC4 mucin expression in human pancreatic tumor cells follows retinoic acid receptor-a signaling pathway. J. Biol. Chem. 275: 33929-33936.
5. Moniaux, N., et al. 2000. Alternative splicing generates a family of putative secreted and membrane-associated MUC4 mucins. Eur. J. Biochem. 267: 4536-4544.

CHROMOSOMAL LOCATION

Genetic locus: MUC4 (human) mapping to 3q29.

SOURCE

Mucin 4 (8G7) is a mouse monoclonal antibody raised against a synthetic peptide (STGDTTPLPVTDTSSV) directed against the Mucin 4 tandem repeats of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 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 4 (8G7) is recommended for detection of Mucin 4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

Suitable for use as control antibody for Mucin 4 siRNA (h): sc-43163, Mucin 4 shRNA Plasmid (h): sc-43163-SH and Mucin 4 shRNA (h) Lentiviral Particles: sc-43163-V.

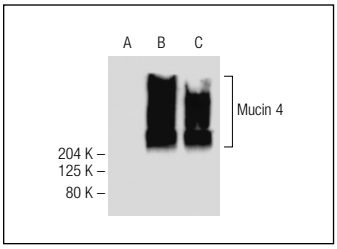
Molecular Weight of glycosylated Mucin 4: 980 kDa.

Molecular Weight (predicted) of Mucin 4 α: 850 kDa.

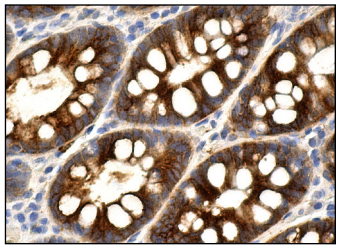
Molecular Weight (predicted) of Mucin 4 β: 80 kDa.

Positive controls: MCF7 whole cell lysate: sc-2206 or HUV-EC-C whole cell lysate: sc-364180.

DATA



Mucin 4 (8G7): sc-53945. Western blot analysis of Mucin 4 expression in Panc-1 (**A**), CD-18/HPAF (**B**) and Colo357 (**C**) cells showing glycosylation. Kindly provided by Dr. Surinder Batra, University of Nebraska Medical Center.



Mucin 4 (8G7): sc-53945. Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing membrane and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Bruyère, E., et al. 2011. The MUC4 membrane-bound mucin regulates esophageal cancer cell proliferation and migration properties: Implication for S100A4 protein. Biochem. Biophys. Res. Commun. 413: 325-329.
2. Jonckheere, N., et al. 2012. The mucin MUC4 and its membrane partner ErbB2 regulate biological properties of human CAPAN-2 pancreatic cancer cells via different signalling pathways. PLoS ONE 7: e32232.
3. Skrypek, N., et al. 2013. The MUC4 mucin mediates gemcitabine resistance of human pancreatic cancer cells via the concentrative nucleoside transporter family. Oncogene 32: 1714-1723.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.