

**MUC-4**Concentrated Monoclonal Antibody  
Control Number: 901-326-011615

**Catalog Number:** CM 326 C  
**Description:** 1.0 ml, concentrated  
**Dilution:** 1:200-1:300  
**Diluent:** Van Gogh Yellow

**Intended Use:**

For In Vitro Diagnostic Use

**Summary and Explanation:**

MUC-4 (also called sialomucin complex) is a membrane-bound mucin that has been suggested to be implicated in malignant progression in humans and rats. The MUC-4 gene is expressed in various normal epithelial tissues of endodermic origin and carcinomas. In the respiratory tract, over-expression of the membrane mucin has been observed during malignant progression of mammary tumors in both humans and rats, suggesting that deregulation of MUC-4 might facilitate development of these malignancies. Studies have indicated that over-expression of MUC-4 results in suppression of both cell adhesion and immune killing of tumor cells. MUC-4 transcripts have been detected in normal respiratory epithelium and lung. Other studies have shown that MUC-4 is a very specific (100%) and sensitive (91.4%) marker of lung adenocarcinomas and is negative for mesotheliomas. MUC-4 expression in invasive ductal carcinoma of the pancreas is an independent factor for poor prognosis and predicts outcome in the patient.

**Principle of Procedure:**

Antigen detection in tissues and cells is a multi-step immunohistochemical process. The initial step binds the primary antibody to its specific epitope. After labeling the antigen with a primary antibody, an enzyme labeled polymer is added to bind to the primary antibody. The detection of the bound antibody is evidenced by a colorimetric reaction.

**Source:** Mouse Monoclonal**Species Reactivity:** Human**Clone:** 8G-7**Isotype:** IgG<sub>1</sub>/kappa**Total Protein Concentration:** ~10 mg/ml. Call for lot specific Ig Concentration.**Epitope/Antigen:** MUC-4**Cellular Localization:** Cell membrane/cytoplasm**Positive Control:** Lung cancer**Known Applications:**

Immunohistochemistry (formalin-fixed paraffin-embedded tissues)

**Supplied As:** Buffer with protein carrier and preservative.**Storage and Stability:**

Store at 2°C to 8°C. Do not use after expiration date printed on vial. If reagents are stored under conditions other than those specified in the package insert, they must be verified by the user. Diluted reagents should be used promptly; any remaining reagent should be stored at 2°C to 8°C.

**Protocol Recommendations:****Peroxide Block:**

Block for 5 minutes with Biocare's PEROXIDAZED 1.

**Pretreatment Solution (recommended):** Diva**Pretreatment Protocol:**

Heat Retrieval Method:

Retrieve sections under pressure using Biocare's Decloaking Chamber, followed by a wash in distilled water. Alternatively, steam tissue sections for 45-60 minutes. Allow solution to cool for 10 minutes then wash in distilled water.

**Protein Block:****Optional:** Incubate for 10-15 minutes at RT with Biocare's Background Sniper.**Primary Antibody:** Incubate for 30 minutes at RT.**Protocol Recommendations Cont'd:****Probe:** N/A**Polymer:** Incubate for 30 minutes at RT with a Polymer.**Chromogen:**

Incubate for 5 minutes at RT when using Biocare's DAB. - OR - Incubate for 10-20 minutes at RT when using Biocare's Vulcan Fast Red.

**Counterstain:**

Counterstain with Hematoxylin. Rinse with deionized water. Apply Tacha's Bluing solution for 1 minute. Rinse with deionized water.

**Technical Note:**

This antibody has been standardized with Biocare's MACH 2 detection system. It can also be used on an automated staining system and with other Biocare polymer detection kits. Use TBS buffer for washing steps.

**Limitations:**

The optimum antibody dilution and protocols for a specific application can vary. These include, but are not limited to: fixation, heat-retrieval method, incubation times, tissue section thickness and detection kit used. Due to the superior sensitivity of these unique reagents, the recommended incubation times and titers listed are not applicable to other detection systems, as results may vary. The data sheet recommendations and protocols are based on exclusive use of Biocare products. Ultimately, it is the responsibility of the investigator to determine optimal conditions. These products are tools that can be used for interpretation of morphological findings in conjunction with other diagnostic tests and pertinent clinical data by a qualified pathologist.

**Quality Control:**

Refer to NCCLS Quality Assurance for Immunocytochemistry approved guidelines, December 1999 MM4-A Vol.19 No.26 for more information about tissue controls.

**Precautions:**

This antibody contains less than 0.1% sodium azide. Concentrations less than 0.1% are not reportable hazardous materials according to U.S. 29 CFR 1910.1200, OSHA Hazard communication and EC Directive 91/155/EC.

Sodium azide (NaN<sub>3</sub>) used as a preservative is toxic if ingested. Sodium azide may react with lead and copper plumbing to form highly explosive metal azides. Upon disposal, flush with large volumes of water to prevent azide build-up in plumbing. (Center for Disease Control, 1976, National Institute of Occupational Safety and Health, 1976)

Specimens, before and after fixation, and all materials exposed to them should be handled as if capable of transmitting infection and disposed of with proper precautions. Never pipette reagents by mouth and avoid contacting the skin and mucous membranes with reagents and specimens. If reagents or specimens come in contact with sensitive areas, wash with copious amounts of water.

Microbial contamination of reagents may result in an increase in nonspecific staining. Incubation times or temperatures other than those specified may give erroneous results. The user must validate any such change. The MSDS is available upon request.

**Troubleshooting:**

Follow the antibody specific protocol recommendations according to data sheet provided. If atypical results occur, contact Biocare's Technical Support at 1-800-542-2002.

## MUC-4

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### References:

1. Zhang S, Zhang HS, Cordon-Cardo C, Ragupathi G, Livingston PO. Selection of tumor antigens as targets for immune attack using immunohistochemistry: protein antigens. *Clin Cancer Res.* 1998 Nov;4(11):2669-76.
2. Llinares K, Escnade F et al. Diagnostic value of MUC4 immunostaining in distinguishin epithelial mesothelioma and lung adenocarcinoma. *Mod Pathol.* 2004 Feb;17(2):150-7.
3. Saitou M, Goto M et al. MUC4 expression is a novel prognostic factor in patients with invasive ductal carcinoma of the pancreas. *bj Clin Pathol.* 2005 Aug;58(8):845-52.
4. Price-Schiavi SA et al. Rat Muc4 (sialomucin complex) reduces binding of anti-ErbB2 antibodies to tumor cell surfaces, a potential mechanism for herceptin resistance. *Int J Cancer.* 2002 Jun 20;99(6):783-91.
5. Komatsu M, Jepson S et al. Muc4/sialomucin complex, an intramembrane modulator of ErbB2/HER2/Neu, potentiates primary tumor growth and suppresses apoptosis in a xenotransplanted tumor. *Oncogene.* 2001 Jan 25;20(4):461-70.
6. Idris N, Carraway KL. Sialomucin complex (Muc-4) expression in the rat female reproductive tract. *Biol Reprod.* 1999 Dec;61(6):1431-8.
7. Center for Disease Control Manual. Guide: Safety Management, NO. CDC-22, Atlanta, GA. April 30, 1976 "Decontamination of Laboratory Sink Drains to Remove Azide Salts."
8. National Committee for Clinical Laboratory Standards (NCCLS). Protection of laboratory workers from infectious diseases transmitted by blood and tissue; proposed guideline. Villanova, PA 1991;7(9). Order code M29-P.