GLUT-1

Concentrated and Prediluted Monoclonal Antibody
902-408-111017

BIOCARE MEDICAL

Catalog Number:	**ACR 408 A, B**	**APR 408 AA**
Description:	0.1, 0.5 ml, concentrated	6.0 ml, prediluted
Dilution:	1:100	Ready-to-use
Diluent:	Renoir Red	N/A

Intended Use:
For Research Use Only. Not for use in diagnostic procedures.

Summary and Explanation:
Glucose transporter 1, also known as GLUT-1 or SLC2A1, is a protein in humans encoded by the *SLC2A1* gene. GLUT-1 facilitates the transport of glucose across the plasma membranes of mammalian cells. Studies have shown that GLUT-1 is responsible for the low-level of basal glucose uptake required to sustain respiration in all cells. Several glucose transporter protein isoforms have been identified and shown to function in response to insulin and IGF-1 induced signaling. Immunohistochemical studies have shown GLUT-1 expression in many human tissues including those of the colon, lung, stomach, esophagus and breast (1-10). Studies have shown a high expression of GLUT-1 in cancer has been associated with aggressive behavior and shorter disease-free survival. Hypoxia in cancer has a significant impact on clinical outcome and surrogate markers for tumor hypoxia, such as GLUT-1 and HIF-1 alpha, have shown prognostic significance for patient outcome (2,6). Studies have also shown that GLUT-1 was positive in most mesotheliomas, but was negative for reactive mesothelium (4-7).

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, a secondary antibody is added to bind to the primary antibody. An enzyme label is then added to bind to the secondary antibody; this detection of the bound antibody is evidenced by a colorimetric reaction.

Source: Mouse monoclonal
Species Reactivity: Human; others not tested
Clone: SPM498
Isotype: IgG1/kappa
Total Protein Concentration: ~10 mg/ml. Call for lot specific Ig concentration.
Epitope/Antigen: C-terminal human GLUT-1
Cellular Localization: Cytoplasmic and membrane
Positive Tissue Control: Breast cancer, colon cancer and mesothelioma

Known Applications:
Immunohistochemistry (formalin-fixed paraffin-embedded tissues)
Supplied As: Buffer with protein carrier and preservative

Storage and Stability:
Store at 2ºC to 8ºC. 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 2ºC to 8ºC.

Staining Protocol Recommendations:
Peroxide Block: Block for 5 minutes with Biocare's Peroxidazed 1.
Pretreatment Solution (recommended): Diva
Pretreatment Protocol:
Heat Retrieval Method:
Preheat the retrieval solution to 95°C for 30 minutes and then place slides into the preheated solution if using Biocare's Decloaking Chamber Pro or Decloaking Chamber Plus. If using Biocare's Decloaking Chamber NxGen, place slides into the retrieval solution without preheating. Retrieve at 95°C for 40 minutes. Allow solution to cool for 20 minutes and then wash in distilled water.
Protein Block (Optional): Incubate for 5-10 minutes at RT with Biocare's Background Punisher.
Primary Antibody: Incubate for 30 minutes at RT.
Probe: Incubate for 10 minutes at RT with a secondary probe.
Polymer: Incubate for 10-20 minutes at RT with a tertiary polymer.

Staining Protocol Recommendations Cont'd:
Chromogen: Incubate for 5 minutes at RT with Biocare's DAB – OR – Incubate for 5-7 minutes at RT with Biocare's Warp 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 4 detection system. Use TBS buffer for washing steps.
Limitations:
This product is provided for Research Use Only (RUO) and is not for use in diagnostic procedures. Suitability for specific applications may vary and it is the responsibility of the end user to determine the appropriate application for its use.
Precautions:
1. 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_3) 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) (11)
2. 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 into contact with sensitive areas, wash with copious amounts of water. (12)
3. Microbial contamination of reagents may result in an increase in nonspecific staining.
4. Incubation times or temperatures other than those specified may give erroneous results. The user must validate any such change.
5. Do not use reagent after the expiration date printed on the vial.
6. The SDS is available upon request and is located at http://biocare.net.

Technical Support:
Contact Biocare's Technical Support at 1-800-542-2002 for questions regarding this product.

References:

1. Martins FC, *et al.* Increased transglutaminase 2 and GLUT-1 expression in breast tumors not susceptible to chemoprevention with antioxidants. Tumori. 2009 Mar-Apr; 95(2):227-32.
2. Robey IF, *et al.* Regulation of the Warburg effect in early-passage breast cancer cells. Neoplasia. 2008 Aug; 10(8):745-56.
3. Li J, *et al.* Significant increase of glucose transport activity in breast cancer. Zhonghua Bing Li Xue Za Zhi. 2008 Feb; 37(2):103-8.
4. Afify A, *et al.* Diagnostic utility of GLUT-1 expression in the cytologic evaluation of serous fluids. Acta Cytol. 2005 Nov-Dec; 49(6):621-6.
5. Stackhouse BL, *et al.* Measurement of glut-1 expression using tissue microarrays to determine a race specific prognostic marker for breast cancer. Breast Cancer Res Treat. 2005 Oct; 93(3):247-53.
6. De Schutter H, *et al.* The prognostic value of the hypoxia markers CA IX and GLUT 1 and the cytokines VEGF and IL 6 in head and neck squamous cell carcinoma treated by radiotherapy +/- chemotherapy. BMC Cancer. 2005 Apr 25; 5:42.
7. Kato Y, *et al.* Immunohistochemical detection of GLUT-1 can discriminate between reactive mesothelium and malignant mesothelioma. Mod Pathol. 2007 Feb;20(2):215-20.
8. Mendez LE, *et al.* Expression of glucose transporter-1 in cervical cancer and its precursors. Gynecol Oncol. 2002 Aug; 86(2):138-43.

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References Cont'd:
9. Sakashita M, *et al.* Glut1 expression in T1 and T2 stage colorectal carcinomas: its relationship to clinicopathological features. Eur J Cancer. 2001 Jan; 37(2):204-9.
10. Haber RS, *et al.* GLUT1 glucose transporter expression in colorectal carcinoma: a marker for poor prognosis. Cancer. 1998 Jul 1; 83(1):34-40.
11. 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."
12. Clinical and Laboratory Standards Institute (CLSI). Protection of Laboratory Workers from Occupationally Acquired Infections; Approved Guideline-Fourth Edition CLSI document M29-A4 Wayne, PA 2014.

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