MASH1

Concentrated and Prediluted Monoclonal Antibody
901-3131-052118

BIOCARE MEDICAL

Catalog Number:	**ACI 3131 A**	**API 3131 AA**
Description:	0.1 ml, concentrated	6.0 ml, prediluted
Dilution:	1:50	Ready-to-use
Diluent:	Renoir Red	N/A

Intended Use:
For In Vitro Diagnostic Use
MASH1 [24B72D11.1] is a mouse monoclonal antibody that is intended for laboratory use in the qualitative identification of human achaete-scute complex homolog-1 protein by immunohistochemistry (IHC) in formalin-fixed paraffin-embedded (FFPE) human tissues. The clinical interpretation of any staining or its absence should be complemented by morphological studies using proper controls and should be evaluated within the context of the patient's clinical history and other diagnostic tests by a qualified pathologist.

Summary and Explanation:
Achaete-scute complex homolog-1 (ASCL1), known as mASH1 in rodents and hASH1 in humans, is a basic helix-loop-helix transcription factor that is critical for neuroendocrine cell differentiation (1,2). Neuroendocrine carcinomas can arise in different sites such as lung, the gastrointestinal tract, prostate and skin (2). High grade, poorly differentiated neuroendocrine carcinomas are classified as neuroendocrine carcinomas (NECs) and are distinguished from low grade neuroendocrine tumors (NETs) (2,3). Classic neuroendocrine markers such as chromogranin and CD56 cannot distinguish NECs from NETs (2). Studies have shown that the mouse monoclonal antibody MASH1 [24B72D11.1] stains hASH1 in human tissues and can distinguish NECs from NETs in various sites (3-5). MASH1 has also been shown to distinguish large cell neuroendocrine carcinomas (LCNECs) and small cell lung carcinomas (SCLCs) from other phenotypes of lung cancer (3-5). MASH1 has also been used to differentiate SCLC from Merkel cell carcinoma (6). While not a tissue-specific marker, MASH1 may assist in distinguishing neuroendocrine carcinomas from neuroendocrine tumors in poorly differentiated cases (2).

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: 24B72D11.1
Isotype: IgG1
Total Protein Concentration: ~10 mg/ml. Call for lot specific Ig concentration.
Epitope/Antigen: achaete-scute complex homolog-1
Cellular Localization: Nuclear
Positive Tissue Control: Neuroendocrine tumor
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.

Protocol Recommendations:
Peroxide Block: Block for 5 minutes with Biocare's Peroxidazed 1.
Pretreatment: Perform heat retrieval using Biocare's Diva Decloaker. Refer to the Diva Decloaker data sheet for specific instructions.
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.
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:
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. The clinical interpretation of any positive or negative staining should be evaluated within the context of clinical presentation, morphology and other histopathological criteria by a qualified pathologist. The clinical interpretation of any positive or negative staining should be complemented by morphological studies using proper positive and negative internal and external controls as well as other diagnostic tests.
Quality Control:
Refer to CLSI Quality Standards for Design and Implementation of Immunohistochemistry Assays; Approved Guideline-Second edition (I/LA28-A2) CLSI Wayne, PA USA (www.clsi.org). 2011
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) (7)
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 in contact with sensitive areas, wash with copious amounts of water. (8)
3. Microbial contamination of reagents may result in an increase in nonspecific staining.

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Precautions Cont'd:
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.

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.

References:
1. Ball DW, *et al.* Identification of a human achaete-scute homolog highly expressed in neuroendocrine tumors. Proc Natl Acad Sci U S A. 1993 Jun 15; 90(12):5648-52.
2. La Rosa S, *et al*. Achaete-scute homolog 1 as a marker of poorly differentiated neuroendocrine carcinomas of different sites: a validation study using immunohistochemistry and quantitative real-time polymerase chain reaction on 335 cases. Hum Pathol. 2013 Jul; 44(7):1391-9.
3. Schnabel PA, Junker K. Neuroendocrine tumors of the lungs: From small cell lung carcinoma to diffuse idiopathic pulmonary neuroendocrine cell hyperplasia. Pathologe. 2014 Nov; 35(6):557-64.
4. Hiroshima K, *et al*. Distinction of pulmonary large cell neuroendocrine carcinoma from small cell lung carcinoma: a morphological, immunohistochemical, and molecular analysis. Mod Pathol. 2006 Oct; 19(10):1358-68.
5. Jiang SX, *et al*. hASH1 expression is closely correlated with endocrine phenotype and differentiation extent in pulmonary neuroendocrine tumors. Mod Pathol. 2004 Feb; 17(2):222-9.
6. Ralston J, Chiriboga L, Nonaka D. MASH1: a useful marker in differentiating pulmonary small cell carcinoma from Merkel cell carcinoma. Mod Pathol. 2008 Nov; 21(11):1357-62.
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. 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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