

p40 (M)

Concentrated and Prediluted Monoclonal Antibody
902-3066-080517

BIOCARE
M E D I C A L

Catalog Number:	ACR 3066 A, C	APR 3066 AA
Description:	0.1, 1.0 ml, concentrated	6.0 ml, Prediluted
Dilution:	1:50-1:100	Ready-to-use
Diluent:	Van Gogh Yellow	N/A

Intended Use:

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

Summary and Explanation:

The mouse monoclonal antibody p40 [clone BC28] recognizes an epitope unique to the p40 protein and may have applications in cases where p63 has traditionally been used. To date, p63 [clone 4A4] has been a frequently used marker for lung squamous cell carcinoma (SCC), as well as for bladder, breast, prostate, and head and neck cancers. p63 [4A4] recognizes both the p63 and p40 proteins (1). As a result, p63 [4A4] has proven to be a sensitive marker for lung SCC; however, it suffers from specificity limitations due to reactivity in a subset of lung adenocarcinomas (ADC). In contrast, p40 is selectively expressed in lung SCC, offering an opportunity for improved specificity (2). p40 (M) [BC28] recognizes an epitope unique to p40, which may result in diminished reactivity in lung ADC and increased specificity. Staining with a rabbit polyclonal anti-p40 antibody was equivalent to p63 [4A4] in sensitivity for lung SCC, but p40 exhibited markedly superior specificity due to staining in fewer cases of lung adenocarcinoma compared to p63 (1). This mouse monoclonal anti-p40 [BC28] demonstrated similar sensitivity and specificity, staining 97% (65/67) of cases of lung SCC and 0% (0/71) of cases of lung ADC. p40 has also been reported in combination with TTF-1 in a method to improve specificity for SCC vs. ADC, while preserving limited tissue specimens (3,4). Changes in expression of p40 have been implicated in other neoplastic tissues, including bladder, prostate, and head and neck cancers (2,4,5). p40 (M) [BC28] was found to be a sensitive marker in each of these tissues. Studies have supported the routine use of p40 as an alternative for p63 (1,2-5). U.S. Patent 9,428,576 and patents

pending. 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

Immunogen: a synthetic peptide corresponding to amino acids 5-17 of human p40

Clone: BC28

Isotype: IgG1

Total Protein Concentration: ~10 mg/ml. Call for lot specific Ig concentration

Epitope/Antigen: amino acids 5-17 of p40

Cellular Localization: Nuclear

Positive Control: Lung squamous cell carcinoma

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

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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.

Staining Protocol Recommendations:

Peroxide Block: Block for 5 minutes with Biocare's Peroxidized 1.

Pretreatment: Perform heat retrieval using Biocare's Diva Decloaker. Refer to the Diva Decloaker product data sheet for specific instructions.

Protein Block: Incubate for 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-conjugated 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:

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 (NaN₃) 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) (6)

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. (7)

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>.



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References:

1. Bishop JA, *et al.* p40 is superior to p63 for the diagnosis of pulmonary squamous cell carcinoma. *Mod Pathol.* 2012 Mar; 25(3):405-15.
2. Hibi K, *et al.* AIS is an oncogene amplified in squamous cell carcinoma. *Proc Natl Acad Sci U S A.* 2000 May 9; 97(10):5462-7.
3. Pelosi G, *et al.* p40 and thyroid transcription factor-1 immunoreactivity on small biopsies or cellblocks for typing non-small cell lung cancer: a novel two-hit, sparing material approach. *J Thorac Oncol.* 2012 Feb; 7(2):281-90.
4. Brown AF, *et al.* Tissue-preserving antibody cocktails to differentiate primary squamous cell carcinoma, adenocarcinoma, and small cell carcinoma of lung. *Arch Pathol Lab Med.* 2013 Sep; 137(9):1274-81.
5. Sailer V, *et al.* Comparison of p40 and p63 expression in prostate tissues - which one is the superior diagnostic marker for basal cells? *Histopathology.* 2013 Jul; 63(1):50-6.
6. 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."
7. 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.

Technical Support:

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



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