

SMAD4 [EP618Y]

Concentrated and Prediluted Rabbit Monoclonal Antibody
901-3242-052323

BIOCARE
M E D I C A L

Catalog Number:	ACI 3242 A, B	API 3242 AA
Description:	0.1 mL, 0.5 mL, conc.	6.0 mL, RTU
Dilution:	1:100	Ready-to-use
Diluent:	Renoir Red	N/A

Intended Use:

For In Vitro Diagnostic Use

SMAD4 [EP618Y] is a rabbit monoclonal antibody that is intended for laboratory use in the qualitative identification of SMAD4 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:

SMAD4 is a DNA-binding protein that belongs to the SMAD family of transcription factors. Activated SMAD4 complexes accumulate in the nucleus and act as mediators of TGF- β signal transduction (1,2). SMAD4 mutations or deletions are linked to hereditary hemorrhagic telangiectasia syndrome, and juvenile polyposis syndrome (1). SMAD4 mutations or deletions have also been implicated in multiple cancer indications including cholangiocarcinoma, colorectal, head and neck, and pancreatic cancer (2,3).

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 one-step or two-step detection procedure can be applied. A one-step procedure will feature an enzyme labeled polymer that binds the primary antibody. A two-step procedure will feature a linker antibody added to bind to the primary antibody. An enzyme-labeled polymer is then added to bind the linker antibody. These detections of the bound antibodies are evidenced by a colorimetric reaction.

Source: Rabbit monoclonal

Species Reactivity: Human; others not tested

Clone: EP618Y

Isotype: IgG

Protein Concentration: Call for lot specific Ig concentration.

Epitope/Antigen: SMAD4

Cellular Localization: Nuclear and cytoplasmic

Positive Tissue Control: Appendix, tonsil, pancreas, colon adenocarcinoma, pancreatic adenocarcinoma

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. The product is stable to the expiration date printed on the label, when stored under these conditions. Do not use after expiration date. Diluted reagents should be used promptly; any remaining reagent should be stored at 2°C to 8°C.

Protocol Recommendations (intelliPATH FLX® and manual use):

Peroxide Block: Block for 5 minutes with Peroxidized 1.

Pretreatment: Perform heat retrieval using Borg Decloaker. Refer to the Borg Decloaker data sheet for specific instructions.

Protein Block (Optional): Incubate for 5-10 minutes at RT with Background Punisher.

Primary Antibody: Incubate for 30 minutes at RT.

Probe: N/A

Polymer: Incubate for 30 minutes at RT with a tertiary polymer.

Protocol Recommendations (intelliPATH FLX and manual use)

Cont'd:

Chromogen: Incubate for 5 minutes at RT with Biocare's DAB – OR – Incubate for 5-7 minutes at RT with 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, for intelliPATH FLX and manual use, has been standardized with MACH 4 detection system. Use TBS for washing steps.

Performance Characteristics:

Sensitivity, specificity and cross-reactivity are summarized in Tables 1 and 2, respectively.

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.

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 (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) (4)
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. (5)
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://> 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.

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References:

1. Zbuk KM, Eng C. Hamartomatous polyposis syndromes. *Nat Clin Pract Gastroenterol Hepatol.* 2007 Sep;4(9):492–502.
2. Zhao M, Mishra L, Deng CX. The role of TGF- β /SMAD4 signaling in cancer. *Int J Biol Sci.* 2018;14(2):111.
3. Lin LH, *et al.* SMAD4 Somatic Mutations in Head and Neck Carcinoma Are Associated With Tumor Progression. *Front Oncol.* 2019 Dec 6;9:1379.
4. 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."
5. 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.

Table 1: Sensitivity and specificity were determined by testing formalin-fixed, paraffin-embedded diseased tissues.

Tissue	Positive Cases	Total Cases
Pancreas Cancer	40	40
Breast Cancer	23	23
Colon Cancer	43	43
Lung Cancer	45	46
Prostate Cancer	40	40

Table 2: Tissue cross-reactivity was determined by testing formalin-fixed, paraffin-embedded normal tissues.

Tissue	Positive Cases	Total Cases
Cerebrum	3	3
Cerebellum	3	3
Adrenal	3	3
Ovary	3	3
Pancreas	10	10
Parathyroid	3	3
Pituitary	2	2
Testis	3	3
Thyroid	3	3
Breast	3	3
Spleen	3	3
Tonsil	5	5
Thymus	3	3
Bone Marrow	3	3
Lung	3	3
Heart	3	3
Esophagus	3	3
Stomach	3	3
Small Intestine	3	3
Colon	3	3
Liver	3	3
Salivary Gland	3	3
Kidney	3	3
Prostate	3	3
Uterus	3	3
Cervix	3	3
Skeletal Muscle	3	3
Skin	3	3
Peripheral Nerve	1	1
Lining Cells	3	3
Appendix	2	2