

# PAX8 (M)

Concentrated and Prediluted Monoclonal Antibody  
901-438-070919

**BIOCARE**  
M E D I C A L

Catalog Number:	ACI 438 A, B, C	API 438 AA	OAI 438 T60	AVI 438 G	VLTM 438 G20
Description:	0.1, 0.5, 1.0 mL, conc.	6.0 mL, RTU	60 tests, RTU	6.0 mL, RTU	20 mL, RTU
Dilution:	1:100	Ready-to-use	Ready-to-use	Ready-to-use	Ready-to-use
Diluent	Renoir Red	N/A	N/A	N/A	N/A

## Intended Use:

For In Vitro Diagnostic Use

PAX8 (M) [BC12] is a mouse monoclonal antibody that is intended for laboratory use in the qualitative identification of PAX8 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:

PAX8 is a member of the paired box (PAX) family of transcription factors. Members of this gene family typically encode proteins which contain a paired box domain, an octapeptide, and a paired-type homeodomain. This family plays critical roles during fetal development and cancer growth. PAX8 is involved in kidney cell differentiation, thyroid development, or thyroid dysgenesis.

PAX8 is expressed in a high percentage of renal cell carcinomas and ovarian cancers. This mouse monoclonal PAX8 antibody [BC12] has been designed to target a restricted epitope and exhibits higher specificity and provides sharper staining than the PAX8 rabbit polyclonal antibody. Unlike the polyclonal PAX8, this mouse monoclonal antibody does not stain B-cells, and does not recognize epitopes of pancreatic origin and neuroendocrine cells in stomach and colon; thus providing superior specificity. The expression of the mouse monoclonal PAX8 target antigens was found in normal kidney, thyroid and cervix, but was not identified in normal ovary. By Western blot, [BC12] has been shown to recognize PAX8 and not PAX2, PAX5 or PAX6 proteins. PAX8 stains nuclei exclusively and performs well in formalin-fixed paraffin-embedded tissues.

U.S. Patents 8,852,592, 9,417,243, 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 one-, two- or three-step detection procedure can be employed. The one-step procedure will feature an enzyme-labeled polymer that binds to the primary antibody. A two-step procedure will feature a secondary antibody added to bind to the primary antibody. An enzyme-labeled polymer is then added to bind to the secondary antibody. The three-step detection procedure will feature a secondary antibody added to bind to the primary antibody followed by a linker antibody step for maximum binding. An enzyme-labeled polymer is then added to bind to the linker antibody. These detections of the bound antibodies are evidenced by a colorimetric reaction.

**Source:** Mouse monoclonal

**Species Reactivity:** Human, mouse, rat, cat and dog

**Clone:** BC12

**Isotype:** IgG1

**Protein Concentration:** Call for lot specific IgG concentration.

**Epitope/Antigen:** PAX8

**Cellular Localization:** Nuclear

**Positive Tissue Control:** Normal kidney, renal cell or serous ovarian carcinomas

## 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 (VALENT® Automated Slide Staining Platform):

VLTM438 is intended for use with the VALENT. Refer to the User Manual for specific instructions for use. Protocol parameters in the Protocol Manager should be programmed as follows:

**Deparaffinization:** Deparaffinize for 8 minutes with Val DePar.

**Pretreatment:** Perform heat retrieval at 98°C for 60 minutes using Val AR-Hi pH, 5X (use at 1X).

**Peroxidase Block:** Block for 5 minutes with Val Peroxidase Block.

**Protein Block:** Incubate for 10 minutes at RT with Val Background Block.

**Primary Antibody:** Incubate for 30 minutes.

**Secondary:** Incubate for 10 minutes with Val Mouse Secondary.

**Linker:** Incubate for 10 minutes with Val Universal Linker.

**Polymer:** Incubate for 10 minutes with Val Universal Polymer.

**Chromogen:** Incubate for 5 minutes with Val DAB.

**Counterstain:** Counterstain for 5 minutes with Val Hematoxylin.

## Protocol Recommendations (intelliPATH FLX® and manual use):

**Peroxide Block:** Block for 5 minutes with Peroxidized 1.

**Pretreatment:** Perform heat retrieval using Diva or Reveal Decloaker. Refer to the Diva or Reveal Decloaker product data sheet for specific instructions.

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

**Primary Antibody:** Incubate for 30-60 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 Warp Red.

## Counterstain:

Counterstain with hematoxylin. Rinse with deionized water. Apply Tacha's Bluing Solution for 1 minute. Rinse with deionized water.

## Technical Notes:

1. Counterstain lightly with hematoxylin as over-staining may mask stained nuclei, especially in clear cell RCC.

2. This antibody, for intelliPATH and manual use, has been standardized with Biocare's MACH 4 detection system. Use TBS for washing steps.

## Protocol Recommendations (ONCORE™ Automated Slide Staining System):

OAI438 is intended for use with the ONCORE. Refer to the User Manual for specific instructions for use. Protocol parameters in the Protocol Editor should be programmed as follows:

**Protocol Name:** PAX8

**Protocol Template (Description):** Ms HRP Template 1

**Dewaxing (DS Option):** DS2

**Antigen Retrieval (AR Option):** AR1, high pH; 103°C

**Reagent Name, Time, Temp.:** PAX8, 30 min., 25°C

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### **Protocol Recommendations (Ventana BenchMark XT / ULTRA):**

AVI438 is intended for use with the BenchMark XT / ULTRA. Refer to the User Manual for specific instructions for use. Recommended protocol parameters are as follows:

- Using **ultraView on XT / ULTRA:**

**Template/Detection:** ultraView DAB

**Pretreatment Protocol:** CC1 Standard

**Primary Antibody:** 32 minutes, No Heat

- Using **OptiView on ULTRA:**

**Template/Detection:** OptiView DAB IHC

**Pretreatment Protocol:** CC1 32 minutes

**Peroxidase:** Pre Primary Peroxidase Inhibitor

**Primary Antibody:** 16 minutes, 36°C

### **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](http://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<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) (8)

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. (9)

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>.

### **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. Tacha D, *et al.* PAX8 mouse monoclonal antibody [BC12] recognizes a restricted epitope and is highly sensitive in renal cell and ovarian cancers but does not cross-react with b cells and tumors of pancreatic origin. *Appl Immunohistochem Mol Morphol.* 2013 Jan; 21(1): 59-63.

2. Tacha D, Zhou D, Cheng L. Expression of PAX8 in normal and neoplastic tissues: a comprehensive immunohistochemical study. *Appl Immunohistochem Mol Morphol.* 2011 Jul;19(4):293-9.

### **References Cont'd:**

3. Lotan TL, *et al.* Immunohistochemical panel to identify the primary site of invasive micropapillary carcinoma. *Am J Surg Pathol.* 2009 Jul; 33(7):1037-41.

4. Viktorová T, *et al.* Expression of PAX2 and PAX8 genes in conventional type of renal carcinoma and their role in the tumor prognosis. *Diagn Cytopathol.* 2008 Aug; 36(8):568-73.

5. Narlis M, *et al.* Pax2 and Pax8 regulate branching morphogenesis and nephron differentiation in the developing kidney. *J Am Soc Nephrol.* 2007 Apr; 18(4):1121-9.

6. Moretti L, *et al.* N-terminal PAX8 polyclonal antibody shows cross-reactivity with N-terminal region of PAX5 and is responsible for reports of PAX8 positivity in malignant lymphomas. *Mod Pathol.* 2012 Feb;25(2):231-6.

7. Lorenzo PI, *et al.* Immunohistochemical assessment of Pax8 expression during pancreatic islet development and in human neuroendocrine tumors. *Histochem Cell Biol.* 2011 Nov;136(5):595-607.

8. 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."

9. 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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