BIOCARE MEDICAL

ISO 9001&13485 CERTIFIED

Uroplakin II

Prediluted Monoclonal Antibody

Control Number: 901-3051VP-091117

VP Echelon™ Series

Catalog Number: **AVI 3051 KG**

Description: 6.0 ml, prediluted

Dilution: Ready-to-use

Intended Use:

For In Vitro Diagnostic Use

Uroplakin II [BC21] is a mouse monoclonal antibody that is intended for laboratory use in the qualitative identification of uroplakin II 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:

Uroplakin II is a 15 kDa protein component of urothelial plaques, which enhance the permeability barrier of the urothelium (1). Studies have shown Uroplakin II mRNA was expressed in bladder cancer tissues and peripheral blood of patients with primary and metastatic urothelial carcinoma of the bladder (2-4). A new mouse monoclonal Uroplakin II antibody [BC21] was developed and exhibited an increased staining sensitivity (46/59, 78%) when compared to Uroplakin III [AU1] (19/56, 34%) in cases of urothelial carcinoma of the bladder (see Performance Characteristics). With the exception of bladder and ureter, Uroplakin II [BC21] was found to be highly specific when evaluated in various normal and neoplastic tissues, including prostate cancer and renal cell carcinoma (see Performance Characteristics). Uroplakin II [BC21] is a highly specific antibody that may be useful in identifying tumors of urothelial origin.

U.S. Patent 9,429,577 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

Clone: BC21

Isotype: IgG1/kappa

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

Epitope/Antigen: Residues 36-50 of Uroplakin II

Cellular Localization: Cytoplasmic and membrane

Positive Control: Normal bladder or urothelial carcinoma of the bladder

Known Applications:

Immunohistochemistry (formalin-fixed paraffin-embedded tissues)

Supplied As:

Uroplakin II (AVI3051G) 1 x 6ml

V-Blocker (BRI4001G) 1 x 6ml

NOTE: V-Blocker must be filled in a registered Ancillary Inline User Fillable Dispenser prior to use. V-Blocker must be registered as an "Option" in order to properly use it.

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.

Protocol Recommendations

Using ***ultra*VIEW Detection Kit**

Pretreatment Solution (recommended): CC1

Pretreatment Protocol: Mild

Primary Antibody: Incubate for 32 minutes at 37°C.

V-Blocker is recommended to be applied prior to any detection system.

ultraBlock (BRI4001): Incubate for 4 minutes (with appropriate Option # registered by user)

Technical Note:

1. Biocare's VP-Echelon Series of predilutes have been developed for use with Ventana® Medical Systems, BenchMark® XT Immunohistochemistry Staining System in combination with Ventana® Detection Kits and Ventana® Prep Kit Dispensers.
2. Application of V-Blocker prior to any detection system is highly recommended for background reduction.

Performance Characteristics:

See Tables 1 and 2 for expected results.

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 listed are not applicable to other detection systems, as results may vary. 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) (5)
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. (6)
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.

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References:

1. Wu XR, *et al.* Uroplakins in urothelial biology, function, and disease. *Kidney Int.* 2009 Jun; 75(11):1153-65.
2. Wu X, *et al.* Uroplakin II as a promising marker for molecular diagnosis of nodal metastases from bladder cancer: comparison with cytokeratin 20. *J Urol*. 2005 Dec; 174(6):2138-42.
3. Lu JJ, *et al.* Detection of circulating cancer cells by reverse transcription-polymerase chain reaction for uroplakin II in peripheral blood of patients with urothelial cancer. *Clin Cancer Res.* 2000 Aug; 6(8):3166-71.
4. Li SM, *et al.* Detection of circulating uroplakin-positive cells in patients with transitional cell carcinoma of the bladder. *J Urol.* 1999 Sep; 162(3 Pt 1):931-5.
5. 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."
6. Clinical and Laboratory Standards Institute (CLSI). Protection of Laboratory workers from occupationally Acquired Infections; Approved guideline-Third Edition CLSI document M29-A3 Wayne, PA 2005.

Table 1: Specificity of mouse monoclonal antibody Uroplakin II [BC21] was determined by testing formalin-fixed, paraffin-embedded normal tissues.

Tissue	Number Positive/ Total Tissues
Adrenal gland	0/3
Bladder	5/7
Bone marrow	0/1
Eye	0/2
Breast	0/3
Cerebellum	0/3
Cerebral cortex	0/3
Fallopian tube	0/3
GI-Esophagus	0/3
GI-Stomach	0/3
GI-Small intestine	0/3
GI-Colon	0/3
GI-Rectum	0/3
Heart	0/3
Kidney	0/16
Liver	0/5
Lung	0/3
Ovary	0/3
Pancreas	0/5
Parathyroid	0/1
Pituitary gland	0/2
Placenta	0/3
Prostate	0/5
Skin	0/2
Spinal cord	0/2
Spleen	0/2
Striated muscle	0/4
Testis	0/3
Thymus	0/3
Thyroid	0/4
Tonsil	0/3
Ureter	3/3
Uterus-cervix	0/3
Uterus-endometrium	0/3
Tongue	0/1
Epiglottis	0/1
Blood vessel and adipose tissue	0/1

Table 2: Sensitivity of mouse monoclonal antibody Uroplakin II [BC21] was determined by testing formalin-fixed, paraffin-embedded neoplastic tissues.

Tissue Types	Number Positive/Number of Cases
Bladder cancer	46/59*
Prostate cancer	1/88**
Lung cancer	0/20
Kidney cancer (various phenotypes)	3/75***
Colon cancer	0/63
Brain cancer	0/13
Lymphoma	0/25
Melanoma	0/19
Ovarian cancer	0/11
Seminoma	0/14
Breast cancer	0/74
Adrenal gland cancer	0/2
Thyroid cancer	0/2
Pancreas cancer (various phenotypes)	0/10
Head & neck cancer (various phenotypes)	0/10
Soft tissue cancer (various phenotypes)	0/10
Liver cancer (various phenotype)	0/10
Cervix cancer (various phenotypes)	0/10

* For comparison, Uroplakin III [Clone AU1] stained 19/56 cases of bladder cancer.
** 1 positive case, which may be metastatic bladder cancer that has spread to prostate
*** 3 positive cases, which are transitional cell carcinomas from upper ureters

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