Arginase-1

Concentrated and Prediluted Rabbit Monoclonal Antibody
901-3058-042519

BIOCARE MEDICAL

Catalog Number:	ACI 3058 A, B	API 3058 AA	OAI 3058 T60	AVI 3058 G	VLTR 3058 G20
Description:	0.1, 0.5 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:	Van Gogh Yellow	N/A	N/A	N/A	N/A

Intended Use:
For In Vitro Diagnostic Use
Arginase-1 [EP261] is a rabbit monoclonal antibody that is intended for laboratory use in the qualitative identification of arginase-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:
Arginase-1 (ARG-1) is a key enzyme of the urea cycle found in liver that catalyzes the conversion of L-arginine into L-ornithine and urea. ARG-1 is a highly specific and sensitive marker of benign and hepatocellular carcinoma (HCC) which is now a key target for the differential diagnosis of HCC from metastatic tumors to the liver (1-3). ARG-1 is very specific and has been shown to be more sensitive than Hep Par 1 and Glypican 3 in hepatocellular carcinomas (1-2).

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 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
Clone: EP261 (previously known as EPR6672(B))
Isotype: IgG
Protein Concentration:. Call for lot specific Ig concentration.
Epitope/Antigen: Arginase-1
Cellular Localization: Cytoplasmic and nuclear
Positive Tissue Control: Normal human liver
Known Applications:
Immunohistochemistry (formalin-fixed paraffin-embedded tissues)
Supplied As: Buffer with protein carrier and preservative
Storage and Stability:
Store at 2ºC to 8ºC. 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 2ºC to 8ºC.

Protocol Recommendations (VALENT® Automated Slide Staining Platform):
VLTR3058 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 (Optional): Incubate for 10-20 minutes with Val Background Block.
Primary Antibody: Incubate for 30 minutes.

Protocol Recommendations (VALENT Automated Slide Staining Platform):
Secondary: N/A
Linker: Incubate for 10 minutes with Val Universal Linker.
Polymer: Incubate for 20 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 Peroxidazed 1.
Pretreatment: Perform heat retrieval using Diva Decloaker. Refer to the Diva 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 secondary-conjugated 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 Note:
This antibody, for intelliPATH FLX and manual use, has been standardized with MACH 4 detection system. Use TBS for washing steps.

Protocol Recommendations (ONCORE™ Automated Slide Staining System):
OAI3058 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: ARG-1 Rb
Protocol Template (Description): Rb HRP Template 1
Dewaxing (DS Option): DS2
Antigen Retrieval (AR Option): AR2, low pH; 101°C
Reagent Name, Time, Temp.: ARG-1 Rb, 30 min., 25°C

Protocol Recommendations (Ventana BenchMark XT / ULTRA):
AVI3058 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 ***ultra*View on XT / ULTRA:**

Template/Detection: ultraView DAB
Pretreatment Protocol: CC1 Mild
Primary Antibody: 32 minutes, 37°C
- Using **OptiView on ULTRA:**

Template/Detection: OptiView DAB IHC
Pretreatment Protocol: CC1 64 minutes
Peroxidase: Pre Primary Peroxidase Inhibitor
Primary Antibody: 8 minutes, 36°C

Performance Characteristics:
Sensitivity, specificity and cross-reactivity were determined by staining with MACH 4 Universal HRP-Polymer Detection. See Tables 1 and 2 for expected results.

Biocare Medical
60 Berry Drive
Pacheco, CA 94553
USA

IVD CE

Rev: 062117

EC REP EMERGO EUROPE
Prinsessegracht 20
2514 AP The Hague
The Netherlands

Arginase-1

Concentrated and Prediluted Rabbit Monoclonal Antibody
901-3058-042519

BIOCARE MEDICAL

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 (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) (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://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. Fujiwara M, *et al.* Arginase-1 is a more sensitive marker of hepatic differentiation than HepPar-1 and Glypican-3 in fine-needle aspiration biopsies. Cancer Cytopathol. 2012; 120:230-7.
2. Timek DT, *et al.* Arginase-1, HepPar-1, and Glypican-3 are the most effective panel of markers in distinguishing hepatocellular carcinoma from metastatic tumor on fine-needle aspiration specimens. Am J Clin Pathol. 2012; 138:203-10.
3. Yan BC, *et al.* Arginase-1: A new immunohistochemical marker of hepatocytes and hepatocellular neoplasms. Am J Surg Pathol. 2010; 34(8):1147-54.
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.

Produced using Abcam's RabMAb® technology. RabMAb® technology is covered by the following U.S. Patents, No. 5,675,063 and/or 7,429,487.

VP Echelon Series antibodies are developed solely by Biocare Medical LLC and do not imply approval or endorsement of Biocare's antibodies by Ventana Medical Systems, Inc. Biocare and Ventana are not affiliated, associated or related in any way. Ventana®, BenchMark®, *ultra*View and OptiView are trademarks of Roche.

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

Pathology	# Positive / Total Cases
Liver (Hepatocellular carcinoma)	52/56 (92.9%)
Breast (Infiltrating duct carcinoma)	0/40
Melanoma (Epitheloid, Plasmacyte, Rhabdoid)	0/12
Kidney (Clear cell carcinoma, Nephroblast, Transitional)	1/71 (1.4%)
Pancreas (Ductal adenocarcinoma)	9/89 (10.1%)
Prostate (Adenocarcinoma)	3/64 (4.6%)
Testis (Seminoma)	0/12
Ovary (Serous papillary)	1/80 (1.25%)
Lung (Squamous carcinoma, Adenocarcinoma)	1/77 (1.29%)
Colon (Adenocarcinoma, Mucinous and Papillary)	0/184
Endocrine Tumors (Thyroid-Adrenal gland, Papillary carcinoma)	0/46

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

Tissue	# Positive / Total Cases	Tissue	# Positive / Total Cases
Adrenal gland	0/3	Ovary	0/3
Bladder, urinary	0/3	Pancreas	2/3
Bone marrow	1/1	Parathyroid	0/3
Eye	0/2	Pituitary gland	0/2
Breast	0/3	Placenta	0/3
Brain, cerebellum	0/3	Prostate	0/3
Brain, cerebral cortex	0/3	Skin	2/2
Fallopian tube	0/3	Spinal cord	0/2
Esophagus	0/3	Spleen	2/2
Stomach	0/3	Skeletal muscle	0/3
Intestine, small	0/3	Testis	0/3
Intestine, colon	0/3	Thymus	0/3
Intestine, rectum	0/3	Thyroid	0/3
Heart	0/3	Tonsil	0/3
Kidney	3/5	Ureter	0/3
Liver	3/3	Uterus, cervix	0/3
Lung	0/3	Uterus, endometrium	0/3

Biocare Medical
60 Berry Drive
Pacheco, CA 94553
USA

IVD CE

EC REP EMERGO EUROPE
Prinsessegracht 20
2514 AP The Hague
The Netherlands

Rev: 062117

Tel: 800-799-9499 | www.biocare.net | Fax: 925-603-8080