Arginase-1

Concentrated and Prediluted Rabbit Monoclonal Antibody
902-3058-121117

BIOCARE MEDICAL

Catalog Number:	**ACR 3058 A, B**	**APR 3058 AA**
Description:	0.1, 0.5 ml, concentrated	6.0 ml, prediluted
Dilution:	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:
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, an enzyme labeled polymer is added to bind to the primary antibody. The detection of the bound antibody is evidenced by a colorimetric reaction.

Source: Rabbit monoclonal
Species Reactivity: Human
Clone: EP261 (previously known as EPR6672(B))
Isotype: IgG
Total Protein Concentration: ~10 mg/ml. 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. 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. Diluted reagents should be used promptly; any remaining reagent should be stored at 2ºC to 8ºC.

Staining Protocol Recommendations:
Peroxide Block: Block for 5 minutes with Biocare's Peroxidazed 1.
Pretreatment: Perform heat retrieval using Biocare's Diva Decloaker. Refer to the Diva Decloaker data sheet for specific instructions.
Protein Block (Optional): Incubate for 5-10 minutes at RT with Biocare's 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 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.

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.

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 (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 in 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.

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

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.

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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

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