Revision 7

#93668 Store at -20C

Arginase-1 (D4E3M™) XP® Rabbit mAb

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:
WB, W-S, IHC-Bond, IHC-P, IF-F, IF-IC, FC-FP	H M R	Endogenous	40	Rabbit IgG

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Simple Western™	1:10 - 1:50
IHC Leica Bond	1:200 - 1:800
Immunohistochemistry (Paraffin)	1:50 - 1:200
Immunofluorescence (Frozen)	1:50 - 1:200
Immunofluorescence (Immunocytochemistry)	1:50 - 1:200
Flow Cytometry (Fixed/Permeabilized)	1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

For a carrier free (BSA and azide free) version of this product see product #89872.

Specificity / Sensitivity

Arginase-1 (D4E3M™) XP® Rabbit mAb recognizes endogenous levels of total arginase-1 protein. This antibody does not cross-react with arginase-2.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Val47 of human arginase-1 protein.

Background

L-arginine plays a critical role in regulating the immune system (1-3). In inflammation, cancer, and certain other pathological conditions, myeloid cell differentiation is inhibited leading to a heterogeneous population of immature myeloid cells, known as myeloid-derived suppressor cells (MDSCs). MDSCs are recruited to sites of cancer-associated inflammation and express high levels of arginase-1 (4). Arginase-1 catalyzes the final step of the urea cycle converting L-arginine to L-ornithine and urea (5). Thus, MDSCs increase the catabolism of L-arginine resulting in L-arginine depletion in the inflammatory microenvironment of cancer (4,6). The reduced availability of L-arginine suppresses T cell proliferation and function and thus contributes to tumor progression (4,6). Arginase-1 is of great interest to researchers looking for a therapeutic target to inhibit the function of MDSCs in the context of cancer immunotherapy (7). In addition, research studies have demonstrated that arginase-1 distinguishes primary hepatocellular carcinoma (HCC) from metastatic tumors in the liver, indicating its value as a potential biomarker in the diagnosis of HCC (8,9).

Background References

1. Albina, J.E. et al. (1989) *J Exp Med* 169, 1021-9.
2. Mills, C.D. (2001) *Crit Rev Immunol* 21, 399-425.
3. Rodriguez, P.C. et al. (2004) *Cancer Res* 64, 5839-49.
4. Gabrilovich, D.I. and Nagaraj, S. (2009) *Nat Rev Immunol* 9, 162-74.
5. Wu, G. and Morris, S.M. (1998) *Biochem J* 336 (Pt 1), 1-17.
6. Raber, P. et al. (2012) *Immunol Invest* 41, 614-34.
7. Wesolowski, R. et al. (2013) *J Immunother Cancer* 1, 10.
8. Sang, W. et al. (2015) *Tumour Biol* 36, 3881-6.
9. Geramizadeh, B. and Seirfar, N. (2015) *Hepat Mon* 15, e30336.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **W-S:** Simple Western™ **IHC-Bond:** IHC Leica Bond
IHC-P: Immunohistochemistry (Paraffin) **IF-F:** Immunofluorescence (Frozen)
IF-IC: Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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Limited Uses