Revision 4

Store at -20C

#43933

Arginase-1 (E4U1I) Mouse mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IHC-Bond, IHC-P	H	Endogenous	40	Mouse IgG2a	#P05089	383

Product Usage Information

Application	Dilution
Western Blotting	1:1000
IHC Leica Bond	1:50 - 1:200
Immunohistochemistry (Paraffin)	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 #41332.

Specificity/Sensitivity

Arginase-1 (E4U1I) Mouse mAb recognizes endogenous levels of total arginase-1 protein. This antibody does not cross-react with arginase-2 protein.

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

W: Western Blotting **IHC-Bond:** IHC Leica Bond **IHC-P:** Immunohistochemistry (Paraffin)

Cross-Reactivity Key

H: Human

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