

**Arginase-1 (D4E3M) & CO-0075-488
SignalStar™ Oligo-Antibody Pair**

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1 Kit (10 slides)

UniProt ID: #P05089
Entrez-Gene Id: #383

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

Product Includes	Product #	Volume	Reactivity	Isotype
Arginase-1 (D4E3M™) XP® Rabbit mAb (SignalStar™ Conjugate 0075)	59537	50 µl	H M	Rabbit IgG
Complementary Oligo (CO-0075-488)	78706	22 µl		

Storage

SignalStar conjugates are supplied in PBS (pH 7.2), less than 0.1% sodium azide, 2 mM EDTA, 0.05% Triton X-100, 2 mg/mL BSA, and 50% glycerol. Complementary oligos are supplied in nuclease-free water. Store at -20°C. *Do not aliquot the antibody.* All components in this kit are stable for at least 12 months when stored at the recommended temperature.

Description

SignalStar multiplex immunohistochemistry (IHC) is an advanced technology for labeling multiple proteins simultaneously in tissue samples using specific primary antibodies and fluorescent detection reagents. This technology offers accuracy and reliability in visualizing and analyzing protein expression while maintaining spatial context and tissue architecture.

SignalStar Oligo-Antibody Pairs are compatible with the SignalStar Multiplex IHC Buffer Kits for use in fluorescent multiplex imaging experiments. This product includes the oligo-conjugated antibodies and complementary oligos required for labeling your target protein on up to 10 slides. SignalStar Multiplex IHC Buffer Kits are required to amplify and image the target signal. Multiple oligo-antibody pairs can be conveniently combined into a multiplex panel using the SignalStar Multiplex IHC Panel Builder. SignalStar Multiplex IHC Kits & Reagents are not compatible with all of Cell Signaling Technology® products and protocols that are recommended for use in immunohistochemical assays.

Specificity/Sensitivity

Arginase-1 (D4E3M) XP® Rabbit mAb (SignalStar™ Conjugate 0075) 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

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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 Seifar, N. (2015) *Hepat Mon* 15, e30336.

Species Reactivity

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

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