SANTA CRUZ BIOTECHNOLOGY, INC.

Arginase 1 (8C9): sc-47715

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Arginase 1 (also designated liver-type arginase), which is expressed almost exclusively in the liver, catalyzes the conversion of arginine to ornithine and urea. Arginase 1 exists as a homotrimeric protein and contains a binuclear manganese cluster. Arginase II catalyzes the same reaction as arginase I, but differs in its tissue specificity and subcellular location. Specifically, arginase II localizes to the mitochondria. Arginase II is expressed in non-hepatic tissues, with the highest levels of expression in the kidneys, but, unlike arginase I, is not expressed in liver. In addition, arginase II contains a putative amino-terminal mitochondrial localization sequence.

REFERENCES

1. Diez, A., et al. 1994. Immunological identity of the two different molecular mass constitutive subunits of liver arginase. Biol. Chem. Hoppe Seyler 375: 537-541.
2. Gotoh, T., et al. 1996. Molecular cloning of cDNA for nonhepatic mitochondrial arginase (arginase II) and comparison of its induction with nitric oxide synthase in a murine macrophage-like cell line. FEBS Lett. 395: 119-122.
3. Gotoh, T., et al. 1997. Chromosomal localization of the human arginase II gene and tissue distribution of its mRNA. Biochem. Biophys. Res. Commun. 233: 487-491.
4. Carraway, M.S., et al. 1998. Differential expression of arginase and iNOS in the lung in sepsis. Exp. Lung Res. 24: 253-268.

CHROMOSOMAL LOCATION

Genetic locus: ARG1 (human) mapping to 6q23.2, ARG2 (human) mapping to 14q24.1; Arg1 (mouse) mapping to 10 A4, Arg2 (mouse) mapping to 12 C3.

SOURCE

Arginase 1 (8C9) is a mouse monoclonal antibody raised against recombinant Arginase 1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Arginase 1 (8C9) is recommended for detection of Arginase 1 and Arg2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Molecular Weight of Arginase 1 isoforms: 35/38 kDa.

Positive Controls: Arginase 1 (h): 293T Lysate: sc-159833 or mouse liver extract: sc-2256.

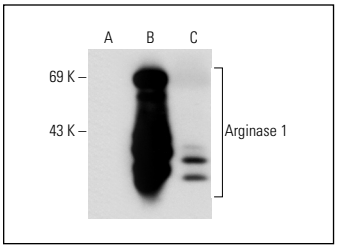
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



Arginase 1 (8C9): sc-47715. Western blot analysis of Arginase 1 expression in non-transfected: sc-117752 (**A**) and human Arginase 1 transfected: sc-159833 (**B**) 293T whole cell lysates and mouse liver tissue extract (**C**).

SELECT PRODUCT CITATIONS

1. Benoit, M., et al. 2008. *Coxiella burnetii,* the agent of Q fever, stimulates an atypical M2 activation program in human macrophages. Eur. J. Immunol. 38: 1065-1070.
2. Gannon, P.O., et al. 2010. Androgen-regulated expression of Arginase 1, arginase 2 and interleukin-8 in human prostate cancer. PLoS ONE 5: e12107.
3. Duraiswamy, J., et al. 2013. Therapeutic PD-1 pathway blockade augments with other modalities of immunotherapy T-cell function to prevent immune decline in ovarian cancer. Cancer Res. 73: 6900-6912.
4. Chen, B., et al. 2014. Resveratrol prevents hypoxia-induced arginase II expression and proliferation of human pulmonary artery smooth muscle cells via Akt-dependent signaling. Am. J. Physiol. Lung Cell. Mol. Physiol. 307: L317-L325.
5. Harman, M.F., et al. 2015. Expansion of myeloid-derived suppressor cells with arginase activity lasts longer in aged than in young mice after CpG-ODN plus IFA treatment. Oncotarget 6: 13448-13461.
6. Wang, D., et al. 2020. Exosome-encapsulated miRNAs contribute to CXCL12/CXCR4-induced liver metastasis of colorectal cancer by enhancing M2 polarization of macrophages. Cancer Lett. 474: 36-52.
7. Su, J.C., et al. 2021. Hydrogen regulates the M1/M2 polarization of alveolar macrophages in a rat model of chronic obstructive pulmonary disease. Exp. Lung Res. 47: 301-310.
8. Kalezic, A., et al. 2022. l-arginine induces white adipose tissue browning—a new pharmaceutical alternative to cold. Pharmaceutics 14: 1368.
9. Cai, Z., et al. 2022. Branched-chain ketoacids derived from cancer cells modulate macrophage polarization and metabolic reprogramming. Front. Immunol. 13: 966158.

CONJUGATES

See **Arginase 1 (C-2): sc-166920** for Arginase 1 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.