Revision 6

Store at -20C

#70720

ASS1 (D4O4B) 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:	UniProt ID:	Entrez-Gene Id:
W, IP, IHC-P, IF-IC, FC-FP	H M R	Endogenous	47	Rabbit IgG	#P00966	445

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:100
Immunohistochemistry (Paraffin)	1:250
Immunofluorescence (Immunocytochemistry)	1:1600
Flow Cytometry (Fixed/Permeabilized)	1:50 - 1:200

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 #54846.

Specificity/Sensitivity

ASS1 (D4O4B) XP® Rabbit mAb recognizes endogenous levels of total ASS1 protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Glu401 of human ASS1 protein.

Background

Argininosuccinate synthetase (ASS1) catalyzes the formation of argininosuccinate from citrulline and aspartate, the rate-limiting step in the urea cycle that is responsible for the synthesis of arginine and the clearance of nitrogenous waste (1). ASS1 is ubiquitously and differentially expressed in different cell types and tissues. Mutations in ASS1 are associated with citrullinemia type I, an autosomal recessive disease characterized primarily by elevated serum and urine citrulline levels in human patients (2, 3).

Loss of ASS1 expression is one of the common metabolic alterations observed in many cancers, and it is a prognostic biomarker of reduced metastasis-free survival. ASS1 deficiency leads to the dependence of extracellular arginine for survival, proliferation, and cell growth. Ariginine starvation induces autophagy and apoptosis in ASS1 deficient cells and this has been exploited as a therapeutic intervention for the tumors with loss of ASS1 expression (4, 5). Pegylated arginine deiminase (ADI-PEG20), an enzyme that degrades arginine into citrulline, causes significant growth inhibition in tumors that have lost ASS1 expression, such as hepatocellular carcinoma, breast cancer, and sarcoma (6-8).

Background References

1. Haines, R.J. et al. (2011) *Int J Biochem Mol Biol* 2, 8-23.
2. Engel, K. et al. (2009) *Hum Mutat* 30, 300-7.
3. Woo, H.I. et al. (2014) *Clin Chim Acta* 431, 1-8.
4. Delage, B. et al. (2010) *Int J Cancer* 126, 2762-72.
5. Feun, L. et al. (2008) *Curr Pharm Des* 14, 1049-57.
6. Ensor, C.M. et al. (2002) *Cancer Res* 62, 5443-50.
7. Qiu, F. et al. (2014) *Sci Signal* 7, ra31.
8. Bean, G.R. et al. (2016) *Cell Death Dis* 7, e2406.

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 BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation **IHC-P:** Immunohistochemistry (Paraffin) **IF-IC:** Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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