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KD-Validated Anti-SAMHD1 Rabbit Monoclonal Antibody

Rabbit monoclonal antibody
Catalog # AGI1644

Product Information

Application	WB, FC, ICC
Primary Accession	Q9Y3Z3
Reactivity	Human
Clonality	Monoclonal
Isotype	Rabbit IgG
Clone Names	24GB1010
Calculated MW	72201
Gene Name	SAMHD1
Aliases	SAM And HD Domain Containing Deoxynucleoside Triphosphate Triphosphohydrolase 1; MOP-5; Monocyte Protein 5; SBBI88; HDDC1; Deoxynucleoside Triphosphate Triphosphohydrolase SAMHD1; SAM Domain And HD Domain-Containing Protein 1; Dendritic Cell-Derived IFNG-Induced Protein; SAM Domain And HD Domain 1; HSAMHD1; DNTPase; Mg11; AGS5; DCIP; Aicardi-Goutieres Syndrome 5; HD Domain Containing 1; EC 3.1.5.-; CHBL2; MOP5
Immunogen	A synthesized peptide derived from human SAMHD1

Additional Information

Gene ID	25939
Other Names	Deoxynucleoside triphosphate triphosphohydrolase SAMHD1, dNTPase, 3.1.5.-, Dendritic cell-derived IFNG-induced protein, DCIP, Monocyte protein 5 {ECO:0000303|Ref.2}, MOP-5 {ECO:0000303|Ref.2}, SAM domain and HD domain-containing protein 1, hSAMHD1, SAMHD1 (HGNC:15925)

Protein Information

Name	SAMHD1 (HGNC:15925)
Function	Protein that acts both as a host restriction factor involved in defense response to virus and as a regulator of DNA end resection at stalled replication forks (PubMed:19525956, PubMed:21613998, PubMed:21720370, PubMed:22056990, PubMed:23601106, PubMed:23602554, PubMed:24336198, PubMed:26294762, PubMed:26431200, PubMed:28229507, PubMed:28834754, PubMed:29670289). Has deoxynucleoside triphosphate (dNTPase) activity, which is required to restrict infection by viruses, such as HIV-1: dNTPase activity reduces cellular dNTP levels to levels too low for retroviral reverse transcription to occur, blocking early- stage virus replication in dendritic and other myeloid cells (PubMed:19525956, PubMed:21613998, PubMed:21720370, PubMed:22056990, PubMed:23364794, PubMed:23601106,

PubMed:23602554, PubMed:24336198, PubMed:25038827, PubMed:26101257, PubMed:26294762, PubMed:26431200, PubMed:28229507). Likewise, suppresses LINE-1 retrotransposon activity (PubMed:24035396, PubMed:24217394, PubMed:29610582). Not able to restrict infection by HIV-2 virus; because restriction activity is counteracted by HIV-2 viral protein Vpx (PubMed:21613998, PubMed:21720370). In addition to virus restriction, dNTPase activity acts as a regulator of DNA precursor pools by regulating dNTP pools (PubMed:23858451). Phosphorylation at Thr-592 acts as a switch to control dNTPase-dependent and -independent functions: it inhibits dNTPase activity and ability to restrict infection by viruses, while it promotes DNA end resection at stalled replication forks (PubMed:23601106, PubMed:23602554, PubMed:29610582, PubMed:29670289). Functions during S phase at stalled DNA replication forks to promote the resection of gapped or reversed forks: acts by stimulating the exonuclease activity of MRE11, activating the ATR-CHK1 pathway and allowing the forks to restart replication (PubMed:29670289). Its ability to promote degradation of nascent DNA at stalled replication forks is required to prevent induction of type I interferons, thereby preventing chronic inflammation (PubMed:27477283, PubMed:29670289). Ability to promote DNA end resection at stalled replication forks is independent of dNTPase activity (PubMed:29670289). Enhances immunoglobulin hypermutation in B-lymphocytes by promoting transversion mutation (By similarity).

Cellular Location

Nucleus. Chromosome Note=Localizes to sites of DNA double-strand breaks in response to DNA damage.

Tissue Location

Expressed in heart, skeletal muscle, spleen, liver, small intestine, placenta, lung and peripheral blood leukocytes (PubMed:11064105). No expression is seen in brain and thymus (PubMed:11064105).