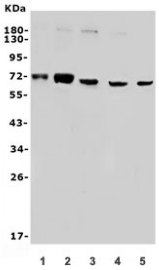
SAMHD1 Antibody / SAMHD1 Polyclonal Antibody (RQ5761)

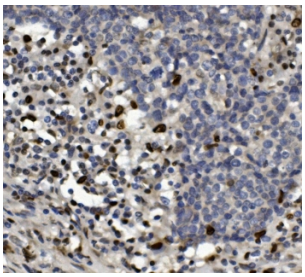
Catalog No.	Formulation	Size
RQ5761	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

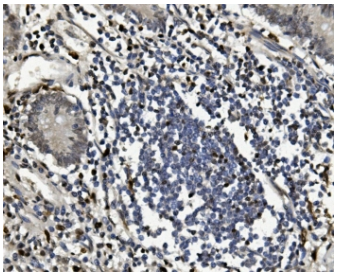
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose and 0.025% sodium azide
UniProt	Q9Y3Z3
Localization	Nuclear
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry: 2-5ug/ml Flow cytometry: 1-3ug/million cells Immunofluorescence: 5ug/ml Direct ELISA: 0.1-0.5ug/ml
Limitations	This SAMHD1 Antibody / SAMHD1 Polyclonal Antibody is available for research use only.



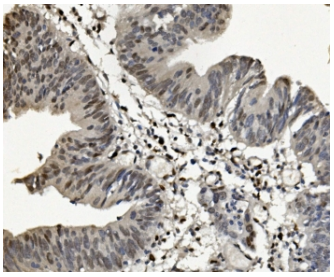
SAMHD1 Antibody WB Analysis of HeLa, HepG2, K562, Raji and NIH 3T3 Cells. Western blot analysis of human HeLa (lane 1), HepG2 (lane 2), K562 (lane 3), Raji (lane 4), and mouse NIH 3T3 (lane 5) cell lysates using SAMHD1 Polyclonal Antibody. A prominent band is detected near 72 kDa in all five samples, consistent with the predicted molecular weight of SAMHD1. The results demonstrate detection of SAMHD1-sized proteins in human and mouse cell lysates.



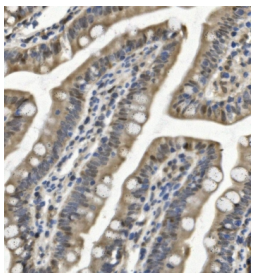
SAMHD1 Antibody IHC Staining of Human Lung Cancer Tissue. Immunohistochemical analysis of formalin-fixed, paraffin-embedded human lung cancer tissue using SAMHD1 Polyclonal Antibody. Brown DAB staining is observed in numerous cells, with prominent nuclear staining in portions of the tissue. Hematoxylin provides blue nuclear counterstaining. Heat-induced epitope retrieval was performed using EDTA buffer (pH 8) for 20 minutes.



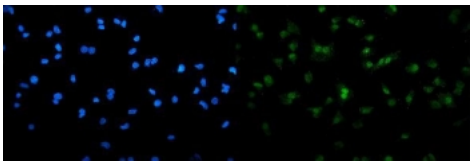
SAMHD1 Antibody IHC Staining of Human Rectal Cancer with Lymphoid Infiltration. Immunohistochemical analysis of formalin-fixed, paraffin-embedded human rectal cancer tissue using SAMHD1 Polyclonal Antibody. Brown DAB staining is observed in scattered cells surrounding glandular structures, while numerous smaller cells in the densely cellular regions show predominantly blue hematoxylin counterstaining. Heat-induced epitope retrieval was performed using EDTA buffer (pH 8) for 20 minutes.



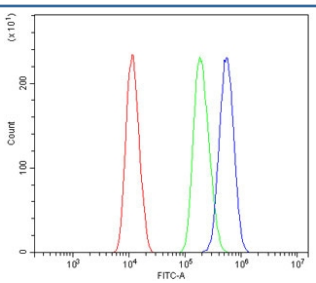
SAMHD1 Antibody IHC Staining of Glandular Structures in Human Rectal Cancer. Immunohistochemical analysis of formalin-fixed, paraffin-embedded human rectal cancer tissue using SAMHD1 Polyclonal Antibody. Brown DAB staining is visible in portions of the glandular epithelium and surrounding tissue, with variation in staining intensity across the examined field. Hematoxylin provides nuclear counterstaining. Heat-induced epitope retrieval was performed using EDTA buffer (pH 8) for 20 minutes.



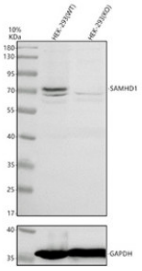
SAMHD1 Antibody IHC Staining of Rat Intestinal Tissue. Immunohistochemical analysis of formalin-fixed, paraffin-embedded rat intestinal tissue using SAMHD1 Polyclonal Antibody. Brown DAB staining is visible along portions of the intestinal glandular epithelium and in surrounding tissue regions, with hematoxylin nuclear counterstaining. Heat-induced epitope retrieval was performed using EDTA buffer (pH 8) for 20 minutes.



SAMHD1 Antibody IF Staining of Human A549 Cells. Immunofluorescence analysis of formalin-fixed, paraffin-embedded human A549 cells using SAMHD1 Polyclonal Antibody. SAMHD1-associated fluorescence is shown in green, with nuclei counterstained using DAPI (blue). Green fluorescence is visible in a subset of cells, including regions overlapping the nuclear staining. Heat-induced epitope retrieval was performed using citrate buffer (pH 6) for 20 minutes.



SAMHD1 Antibody FACS Staining of Human U-2 OS Cells. Flow cytometry analysis of human U-2 OS cells using SAMHD1 Polyclonal Antibody at 1 ug per million cells. The antibody-stained population (blue) shows a rightward fluorescence shift relative to the isotype control (green) and unstained cells (red), demonstrating antibody-associated staining consistent with SAMHD1 detection. Cells were blocked with goat serum before staining.



SAMHD1 Antibody WB Validation in HEK293 Wild-Type and SAMHD1 Knockout Cells. Western blot analysis of human HEK293 wild-type (WT) and SAMHD1 knockout (KO) whole-cell lysates using SAMHD1 Polyclonal Antibody at 0.5 ug/ml. A prominent band near 70 kDa in WT cells is markedly reduced in the KO sample, supporting SAMHD1-dependent recognition. A faint residual band remains near the corresponding position in the KO lane. GAPDH serves as the loading control. Each lane contained 30 ug of total protein.

Description

SAMHD1 Antibody / SAMHD1 Polyclonal Antibody targets SAM domain and HD domain-containing protein 1 (SAMHD1), an enzyme involved in nucleotide metabolism, innate immunity, and the regulation of cellular responses to viral infection. SAMHD1 contains an N-terminal sterile alpha motif (SAM) domain and a catalytic HD domain responsible for its deoxynucleoside triphosphate triphosphohydrolase activity. By regulating intracellular deoxynucleoside triphosphate (dNTP) concentrations, SAMHD1 influences DNA synthesis, viral replication, and processes associated with genome maintenance.

SAMHD1 hydrolyzes dNTPs into deoxynucleosides and inorganic triphosphate. Its enzymatic activity is regulated through nucleotide-dependent allosteric activation and formation of an active tetrameric structure. SAMHD1 is particularly important in nondividing and slowly proliferating cells, where restriction of intracellular dNTP availability can limit reverse transcription by certain retroviruses. This mechanism contributes to cellular resistance against HIV-1 infection in macrophages, dendritic cells, and resting CD4-positive T lymphocytes.

The antiviral activity of SAMHD1 is influenced by post-translational regulation, including phosphorylation at threonine 592. This modification is associated with changes in retroviral restriction activity, although its relationship to nucleotide hydrolysis and other cellular functions is complex. Certain lentiviruses encode Vpx or Vpr proteins that promote SAMHD1 degradation through the cellular ubiquitin-proteasome system, thereby overcoming this restriction mechanism and facilitating viral replication.

SAMHD1 also contributes to the regulation of inflammatory signaling and nucleic acid homeostasis. Biallelic pathogenic variants in SAMHD1 cause a form of Aicardi-Goutieres syndrome, an inherited inflammatory disorder associated with abnormal interferon signaling. Alterations in SAMHD1 have additionally been investigated in hematologic malignancies and other cancers, where changes in nucleotide metabolism and DNA damage responses may influence cellular proliferation and sensitivity to nucleoside-based treatments.

SAMHD1 Antibody supports investigations of this multifunctional protein and its relationship to antiviral defense, nucleotide metabolism, and inflammatory disease. Understanding how SAMHD1 expression, catalytic activity, and phosphorylation are regulated is important for distinguishing its roles in cellular homeostasis from its effects on viral restriction and immune signaling.

Explore additional antibodies targeting proteins involved in nucleotide metabolism, DNA repair, and cellular homeostasis in our Cell Biology Antibodies collection.

Application Notes

Optimal dilution of the SAMHD1 Antibody / SAMHD1 Polyclonal Antibody should be determined by the researcher.

Immunogen

Recombinant human protein (amino acids E37-M626) was used as the immunogen for the SAMHD1 antibody.

Storage

After reconstitution, the SAMHD1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

SAM domain and HD domain-containing protein 1 antibody, SAM and HD domain-containing protein 1 antibody, Deoxynucleoside triphosphate triphosphohydrolase SAMHD1 antibody, SAMHD1 protein antibody

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