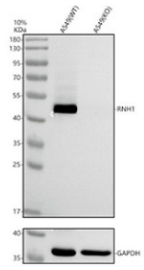
Ribonuclease Inhibitor Antibody / RNH1 Polyclonal Antibody (R31956)

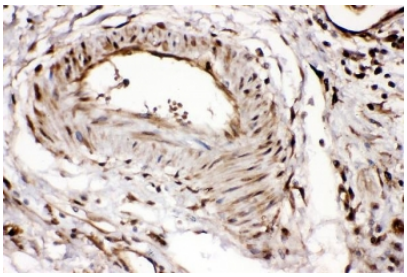
Catalog No.	Formulation	Size
R31956	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

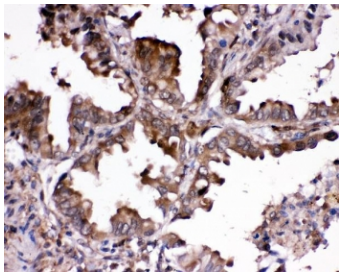
Species Reactivity	Human, Mouse, Rat, Monkey
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2.5% BSA and 0.025% sodium azide
UniProt	P13489
Localization	Cytoplasmic
Applications	Western blot: 0.5-1ug/ml Immunohistochemistry (FFPE): 2-5ug/ml Flow cytometry: 1-3ug/million cells
Limitations	This Ribonuclease Inhibitor Antibody / RNH1 Polyclonal Antibody is available for research use only.



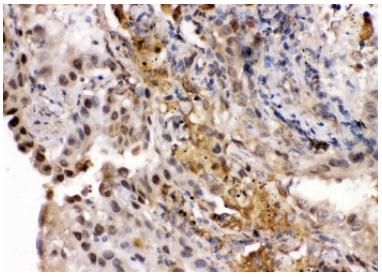
Ribonuclease Inhibitor Antibody WB Analysis of Human A549 WT and RNH1 KO Cells. Western blot analysis of wild-type (WT) A549 cell lysate (lane 1) and RNH1 knockout (KO) A549 cell lysate (lane 2) using RNH1 Polyclonal Antibody. A prominent immunoreactive band at approximately 50 kDa is detected in WT cells but is absent from RNH1 KO cells, supporting antibody specificity. GAPDH served as the loading control.



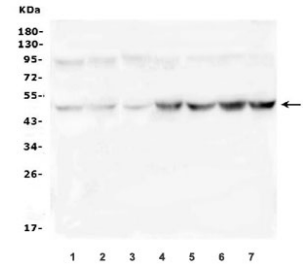
Ribonuclease Inhibitor Antibody IHC Analysis of Human Intestinal Cancer Tissue. Immunohistochemical analysis of formalin-fixed, paraffin-embedded human intestinal cancer tissue using RNH1 Polyclonal Antibody. Brown DAB staining is observed predominantly in the cytoplasm of cells within glandular structures and surrounding tissue, demonstrating RNH1 immunoreactivity. Heat-induced epitope retrieval was performed using citrate buffer (pH 6.0).



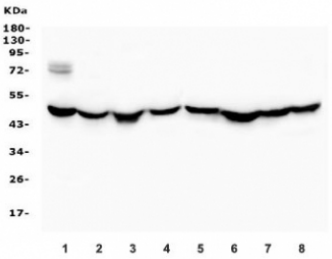
Ribonuclease Inhibitor Antibody IHC Analysis of Human Lung Cancer Tissue. Immunohistochemical analysis of formalin-fixed, paraffin-embedded human lung cancer tissue using RNH1 Polyclonal Antibody. Brown DAB staining is observed predominantly in the cytoplasm of numerous tumor cells, including cells associated with glandular structures. Heat-induced epitope retrieval was performed using citrate buffer (pH 6.0).



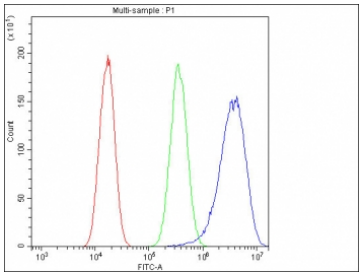
Ribonuclease Inhibitor Antibody IHC Analysis of Human Lung Cancer Tissue, Additional Field. Immunohistochemical analysis of formalin-fixed, paraffin-embedded human lung cancer tissue using RNH1 Polyclonal Antibody. An additional tissue field demonstrates brown DAB staining in numerous tumor cells, with predominantly cytoplasmic immunoreactivity. Heat-induced epitope retrieval was performed using citrate buffer (pH 6.0).



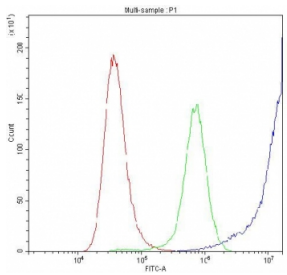
Ribonuclease Inhibitor Antibody WB Analysis of Mouse and Rat Samples. Western blot analysis using RNH1 Polyclonal Antibody. Samples include rat brain (lane 1), rat testis (lane 2), rat lung (lane 3), mouse brain (lane 4), mouse testis (lane 5), mouse lung (lane 6), and mouse HEPA1-6 cell lysate (lane 7). Immunoreactive bands are detected at approximately 50 kDa, consistent with the expected molecular weight of RNH1.



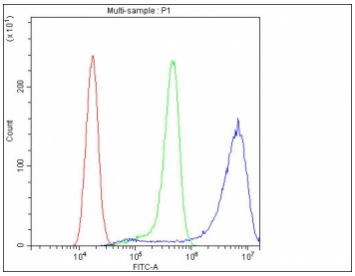
Ribonuclease Inhibitor Antibody WB Analysis of Human and Monkey Samples. Western blot analysis using RNH1 Polyclonal Antibody. Samples include human placenta (lane 1), HeLa (lane 2), SK-OV-3 (lane 3), Jurkat (lane 4), U-87 MG (lane 5), monkey COS-7 (lane 6), human SW620 (lane 7), and human Caco-2 (lane 8) lysates. Prominent immunoreactive bands are detected at approximately 50 kDa, consistent with the expected molecular weight of RNH1.



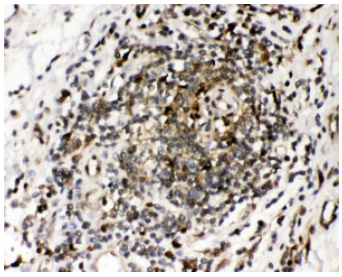
Ribonuclease Inhibitor Antibody FACS Staining of Human A549 Cells. Flow cytometry analysis of fixed and permeabilized human A549 cells using RNH1 Polyclonal Antibody at 1 ug per million cells. The antibody-stained population (blue) shows a clear rightward fluorescence shift relative to the isotype control (green) and unlabeled cells (red), demonstrating intracellular RNH1-associated staining.



Ribonuclease Inhibitor Antibody FACS Staining of Human A549 Cells, Additional Experiment. Flow cytometry analysis of fixed and permeabilized human A549 cells using RNH1 Polyclonal Antibody at 1 ug per million cells. An additional experiment demonstrates a pronounced rightward fluorescence shift in the antibody-stained population (blue) relative to the isotype control (green) and unlabeled cells (red).



Ribonuclease Inhibitor Antibody FACS Staining of Human A431 Cells. Flow cytometry analysis of fixed and permeabilized human A431 cells using RNH1 Polyclonal Antibody at 1 ug per million cells. The antibody-stained population (blue) shows a clear rightward fluorescence shift relative to the isotype control (green) and unlabeled cells (red), demonstrating intracellular RNH1-associated staining.



Ribonuclease Inhibitor Antibody IHC Analysis of Human Intestinal Cancer Tissue, Additional Field. Immunohistochemical analysis of formalin-fixed, paraffin-embedded human intestinal cancer tissue using RNH1 Polyclonal Antibody. An additional tissue field demonstrates brown DAB staining in numerous cells, with predominantly cytoplasmic immunoreactivity. Heat-induced epitope retrieval was performed using citrate buffer (pH 6.0).

Description

Ribonuclease Inhibitor Antibody / RNH1 Polyclonal Antibody targets ribonuclease inhibitor 1, a cytoplasmic protein encoded by the RNH1 gene. Also known as placental ribonuclease inhibitor, RNH1 regulates the activity of several members of the pancreatic-type ribonuclease superfamily. By binding these enzymes with exceptionally high affinity, RNH1 helps control ribonuclease activity and protects cellular RNA from inappropriate degradation.

RNH1 is a leucine-rich repeat protein characterized by a curved, horseshoe-shaped structure. Its repeating structural elements form an extensive binding surface that accommodates ribonucleases and produces highly stable inhibitory complexes. This arrangement enables RNH1 to interact with several structurally related ribonucleases despite differences in their biological activities.

One of the best-characterized interactions involves ribonuclease A, whose enzymatic activity is inhibited when bound by RNH1. The inhibitor also interacts with angiogenin, a member of the ribonuclease superfamily involved in vascular development, cellular stress responses, and RNA metabolism. RNH1 binding can regulate angiogenin activity and influence its availability for biological processes associated with cell survival and angiogenesis.

RNH1 contains numerous conserved cysteine residues and is particularly sensitive to oxidative conditions. Oxidation can disrupt its inhibitory activity, providing a potential mechanism through which changes in cellular redox status influence ribonuclease regulation. This sensitivity connects RNH1 function with oxidative stress and the maintenance of intracellular RNA integrity.

Beyond direct ribonuclease inhibition, RNH1 has been implicated in cellular stress responses, protein synthesis regulation, and the maintenance of RNA homeostasis. Its interactions with angiogenin are especially relevant during stress, when angiogenin-mediated RNA cleavage contributes to the generation of specific RNA fragments associated with changes in cellular activity.

RNH1 has also been investigated in cancer biology and vascular regulation because of its ability to modulate angiogenin and other ribonucleases. The consequences of these interactions depend on cellular conditions, ribonuclease availability, and the balance between inhibitory and enzymatic activities.

Research involving Ribonuclease Inhibitor Antibody can help characterize the expression and distribution of this regulatory protein. Understanding RNH1 function provides insight into the mechanisms connecting ribonuclease inhibition, RNA stability, oxidative stress, and angiogenin-associated cellular signaling.

Ribonuclease inhibitor 1 regulates ribonuclease activity and contributes to RNA stability, cellular stress responses, and angiogenin-associated signaling. Researchers investigating RNA metabolism and cellular regulatory proteins can explore our Cell Biology Antibodies collection for additional research antibodies.

Application Notes

Optimal dilution of the Ribonuclease Inhibitor Antibody / RNH1 Polyclonal Antibody should be determined by the researcher.

Immunogen

Amino acids SLDIQSLDIQCEELSDARWAELLPLLQQCQVVRLDD of human RNH1 were used as the immunogen for the Ribonuclease Inhibitor antibody.

Storage

After reconstitution, the Ribonuclease Inhibitor 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

RNH1 antibody, Ribonuclease inhibitor 1 antibody, Placental ribonuclease inhibitor antibody, Ribonuclease/angiogenin inhibitor 1 antibody, RNase inhibitor antibody, Ribonuclease inhibitor protein antibody

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