

Rabbit Anti-SIRT1 antibody

SL0921R

Product Name **[KO validated anti]** SIRT1

Chinese Name 沉默调节蛋白 1 抗体

Alias SIR2L1; NAD-dependent protein deacetylase sirtuin-1; EC:2.3.1.286; hSIRT1; NAD-dependent protein deacylase sirtuin-1; Regulatory protein SIR2 homolog 1; SIR2-like protein 1 (hSIR2); SirtT1 75 kDa fragment; SIR1_HUMAN;

Research Area Cell biology immunology Chromatin and nuclear signals Microbiology The new supersedes the old Epigenetics

Immunogen Species Rabbit

Clonality Polyclonal

React Species Human, Mouse, (predicted: Rat, Chicken, Cow, Horse, Rabbit,)

WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500,Flow-Cyt=1ug/Test
(Paraffin sections need antigen repair)

Applications not yet tested in other applications.
optimal dilutions/concentrations should be determined by the end user.

Theoretical molecular weight 58/81kDa

Cellular localization The nucleus cytoplasmic

Form Liquid

Concentration 1mg/ml

immunogen KLH conjugated synthetic peptide derived from human SirtT1: 101-200/747

Lsotype IgG

Purification affinity purified by Protein A

Buffer Solution 1M TBS(pH7.4) with 1% BSA, 3% Proclin300 and 50% Glycerol.

Storage Shipped at 4°C. Store at -20 °C for one year. Avoid repeated freeze/thaw cycles.

Attention This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.

PubMed [PubMed](#)

This gene encodes a member of the sirtuin family of proteins, homologs to the yeast Sir2 protein. Members of the sirtuin family are characterized by a sirtuin core domain and grouped into four classes. The functions of human sirtuins have not yet been determined; however, yeast sirtuin proteins are known to regulate epigenetic gene silencing and suppress recombination of rDNA. Studies suggest that the human sirtuins may function as intracellular regulatory proteins with mono-ADP-ribosyltransferase activity. The protein encoded by this gene is included in class I of the sirtuin family. Alternative splicing results in multiple transcript variants.

Function:

NAD-dependent protein deacetylase, which regulates processes such as apoptosis and muscle differentiation by deacetylating key proteins. Deacetylates 'Lys-382' of p53/TP53 and impairs its ability to induce proapoptotic program and modulate cell senescence. Deacetylates TAF1B and thereby represses rDNA transcription by the RNA polymerase I. Deacetylates 'Lys-266' of SUV39H1, leading to its activation. Deacetylates 'Lys-26' of HIST1H1E. Involved in HES1- and HEY2-mediated transcriptional repression. Inhibits skeletal muscle differentiation by deacetylating PCAF and MYOD1. May serve as a sensor of the cytosolic ratio of NAD(+)/NADH, which is essential in skeletal muscle cell differentiation. Deacetylates 'Lys-16' of histone H4 (in vitro). Component of the eNoSC (energy-dependent nucleolar silencing) complex, a complex that mediates silencing of rDNA in response to intracellular energy status and acts by recruiting histone-modifying enzymes. The eNoSC complex is able to sense the energy status of cell: upon glucose starvation, elevation of NAD(+)/NADP(+) ratio activates SIRT1, leading to histone H3 deacetylation followed by dimethylation of H3 at 'Lys-9' (H3K9me2) by SUV39H1 and the formation of silent chromatin in the rDNA locus. Deacetylates H2A. In case of HIV-1 infection, interacts with and deacetylates the viral Tat protein. Deacetylates APEX1 at 'Lys-6' and 'Lys-7'. Stimulates cellular AP endonuclease activity by promoting the association of APEX1 to XRCC1.

**Product
Detail**

Subunit:

Found in a complex with PCAF and MYOD1. Component of the eNoSC complex, composed of SIRT1, SUV39H1 and RRP8. Interacts with HES1, HEY2 and PML. Interacts with RPS19BP1/AROS. Interacts with KIAA1967/DBC1 (via N-terminus); the interaction disrupts the interaction between SIRT1 and p53/TP53. Interacts with SETD7; the interaction induces the dissociation of SIRT1 from p53/TP53 and increases p53/TP53 activity. Interacts with MYCN, NR1I2, CREBZF, TSC2, TLE1, FOS, JUN, NR0B2, PPARG, NCOR, IRS1, IRS2 and NMNAT1. Interacts with HNF1A; the interaction occurs under nutrient restriction. Interacts with SUZ12; the interaction mediates the association with the PRC4 histone methylation complex which is specific as an association with PCR2 and PCR3 complex variants is not found. Interacts with HIV-1 tat.

Subcellular Location:

Nucleus, PML body. Cytoplasm. Note=Recruited to the nuclear bodies via its interaction with PML. Colocalized with APEX1 in the nucleus. May be found in nucleolus, nuclear

euchromatin, heterochromatin and inner membrane. Shuttles between nucleus and cytoplasm.

SirtT1 75 kDa fragment: Cytoplasm. Mitochondrion.

Tissue Specificity:

Widely expressed.

Post-translational modifications:

Methylated on multiple lysine residues; methylation is enhanced after DNA damage and is dispensable for deacetylase activity toward p53/TP53.

Phosphorylated. Phosphorylated by STK4/MST1, resulting in inhibition of SIRT1-mediated p53/TP53 deacetylation. Phosphorylation by MAPK8/JNK1 at Ser-27, Ser-47, and Thr-530 leads to increased nuclear localization and enzymatic activity.

Phosphorylation at Thr-530 by DYRK1A and DYRK3 activates deacetylase activity and promotes cell survival. Phosphorylation by mammalian target of rapamycin complex 1 (mTORC1) at Ser-47 inhibits deacetylation activity. Phosphorylated by CaMK2, leading to increased p53/TP53 and NF-kappa-B p65/RELA deacetylation activity (By similarity). Phosphorylation at Ser-27 implicating MAPK9 is linked to protein stability. There is some ambiguity for some phosphosites: Ser-159/Ser-162 and Thr-544/Ser-545. Proteolytically cleaved by cathepsin B upon TNF-alpha treatment to yield catalytic inactive but stable SirtT1 75 kDa fragment (75SirT1).

S-nitrosylated by GAPDH, leading to inhibit the NAD-dependent protein deacetylase activity.

Similarity:

Belongs to the sirtuin family.

Contains 1 deacetylase sirtuin-type domain.

SWISS:

Q96EB6

Gene ID:

23411

Database links:

[Entrez Gene: 23411](#) Human

[Entrez Gene: 93759](#) Mouse

[Entrez Gene: 309757](#) Rat

[Omim: 604479](#) Human

[SwissProt: Q96EB6](#) Human

[SwissProt: Q923E4](#) Mouse

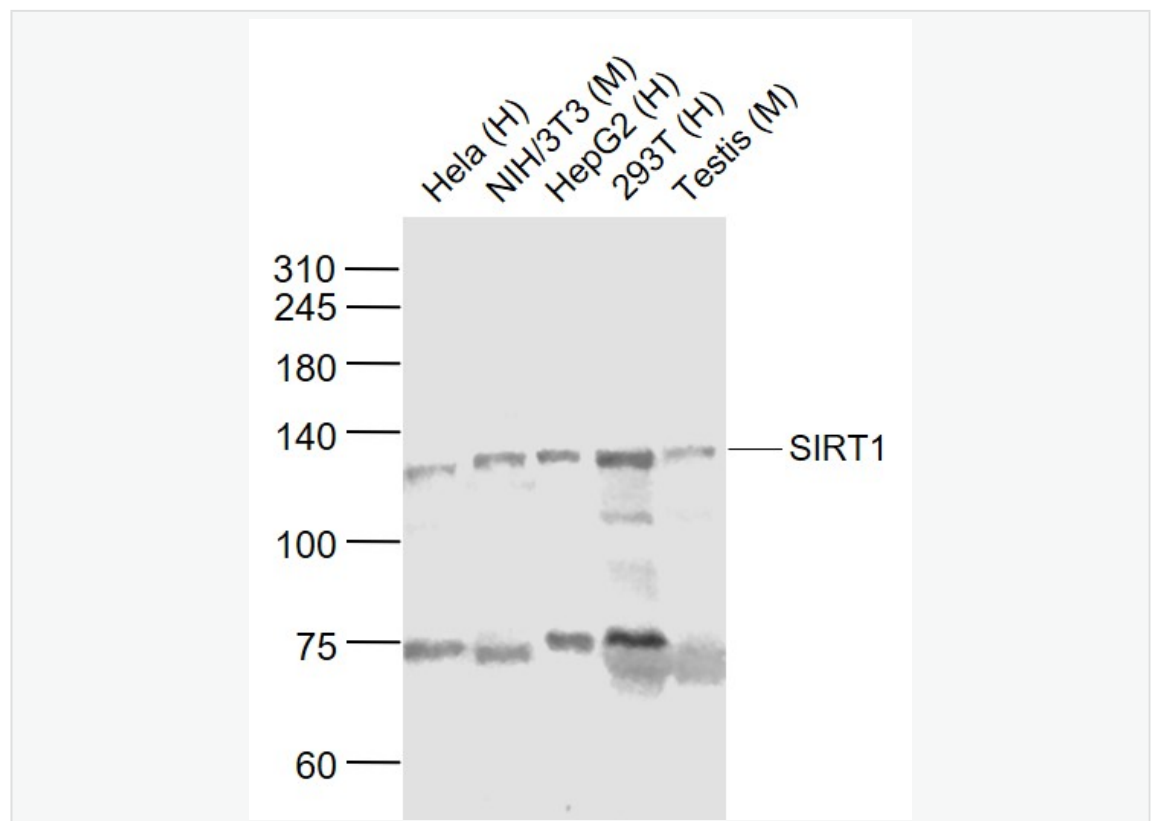
[Unigene: 369779](#) Human

[Unigene: 351459](#) Mouse

在 Sirtuin 蛋白家族中, sirtuin 1(沉默信息调节子)参与多种活动, 包括 DNA 的自我保护和修复, 抑制脂质过氧化积累, 抑制其他 Apoptosis 相关基因的表达以及和细胞寿命相关的活动。限制摄入的热量可以加强 SIRT1 的表达, 从而延长了寿命。

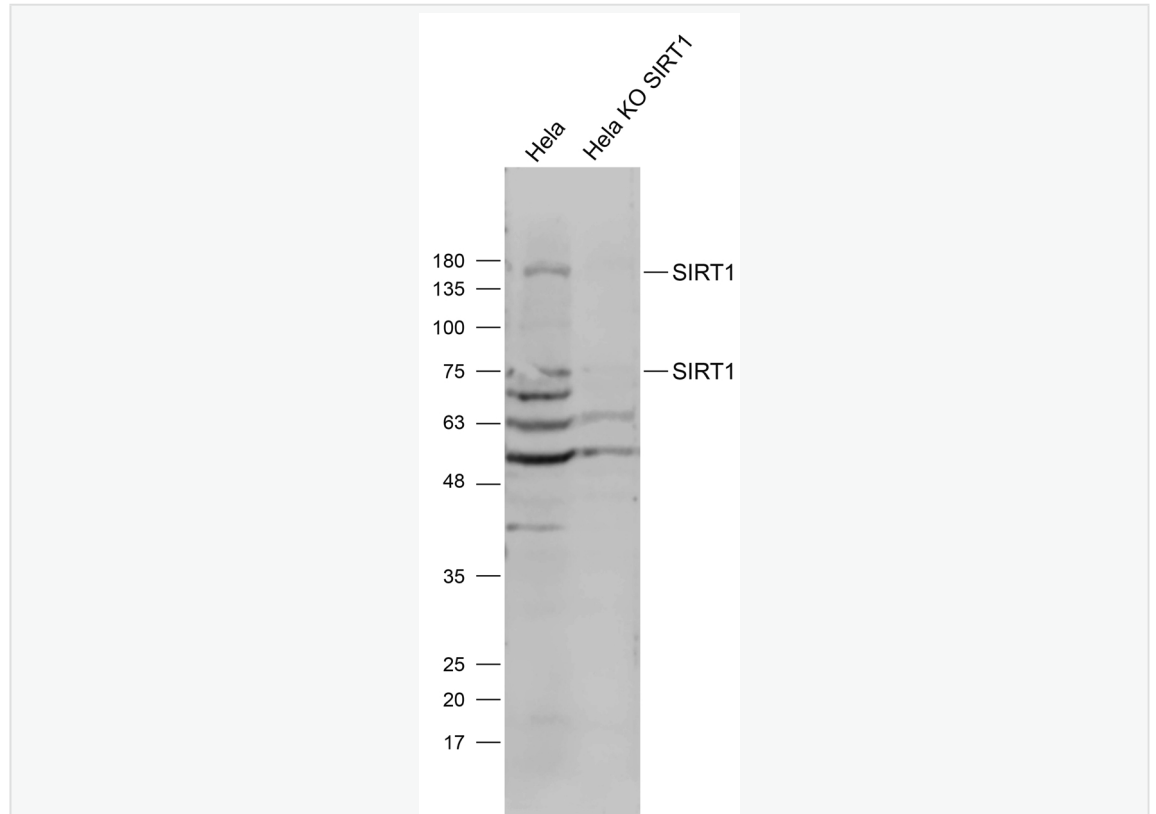
SIRT 蛋白成为多种生物过程的调节者也参与衰老的调控。在研究最多的 SIRT 蛋白中, SIRT1 与各种非组蛋白或者转录因子相互作用, 包括 p53、FOXO 蛋白、p300、NFkB 和 MyoD, sirtuins 可参与凋亡、细胞存活、转录和代谢等过程。以 sirtuins 为靶标的药物可能在治疗衰老、癌症、Diabetes 和神经退行性变中 useful。

**Product
Picture**



Sample: Lane 1: HeLa (Human) Cell Lysate at 30 ug Lane 2: NIH/3T3 (Mouse) Cell Lysate at 30 ug Lane 3: HepG2 (Human) Cell Lysate at 30 ug Lane 4: 293T (Human)

Cell Lysate at 30 ug Lane 5: Testis (Mouse) Lysate at 40 ug Primary: Anti-SIRT1 (SL0921R) at 1/1000 dilution Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution Predicted band size: 116/95 kD Observed band size: 116 kD



Sample:

HeLa(Human) Cell Lysate at 30 ug

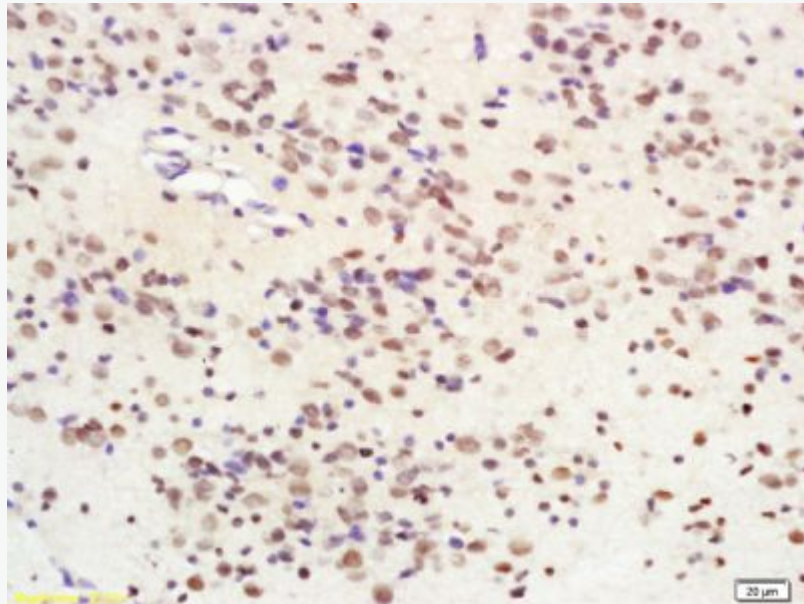
HeLa KO SIRT1 (Human) Cell Lysate at 30 ug

Primary: Anti- SIRT1 (SL0921R) at 1/500 dilution

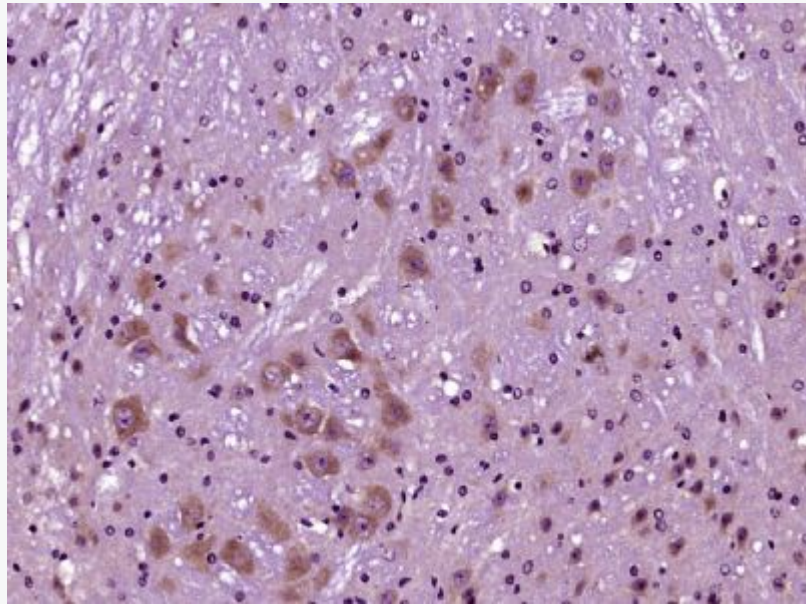
Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution

Predicted band size: 58/81 kD

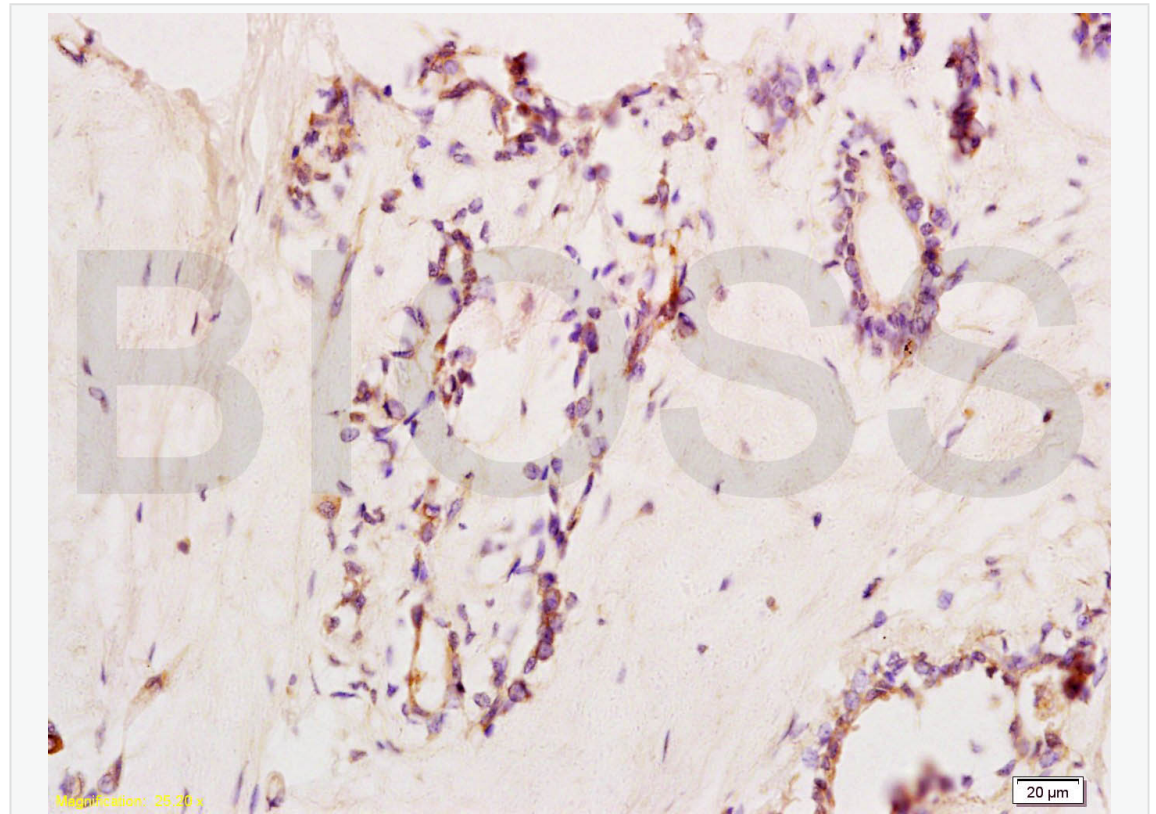
Observed band size: 75/150 kD



Paraformaldehyde-fixed, paraffin embedded (human glioma tissue); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (SIRT1) Polyclonal Antibody, Unconjugated (SL0921R) at 1:200 overnight at 4°C, followed by operating according to SP Kit(Rabbit) (sp-0023) instructions and DAB staining.



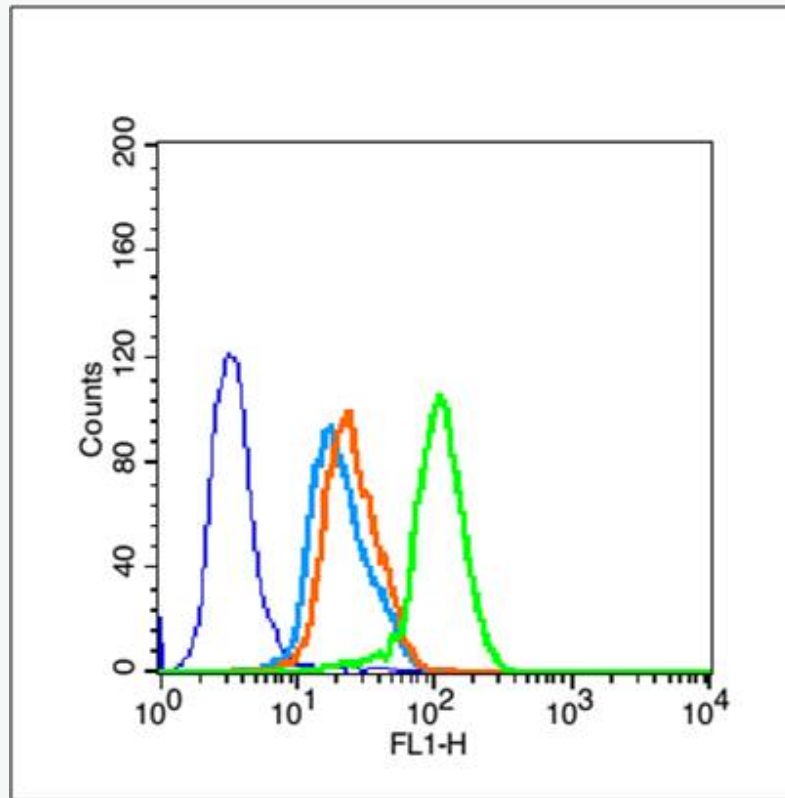
Paraformaldehyde-fixed, paraffin embedded (mouse brain); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (SIRT1) Polyclonal Antibody, Unconjugated (SL0921R) at 1:200 overnight at 4°C, followed by operating according to SP Kit(Rabbit) (sp-0023) instructions and DAB staining.



Tissue/cell: human endometrium carcinoma; 4% Paraformaldehyde-fixed and paraffin-embedded;

Antigen retrieval: citrate buffer (1M, pH 6.0), Boiling bathing for 15min; Block endogenous peroxidase by 3% Hydrogen peroxide for 30min; Blocking buffer (normal goat serum,C-0005) at 37°C for 20 min;

Incubation: Anti-SIRT1 Polyclonal Antibody, Unconjugated(SL0921R) 1:200, overnight at 4°C, followed by conjugation to the secondary antibody(SP-0023) and DAB(C-0010) staining



Blank control (blue line): MCF 7 (blue).

Primary Antibody (green line): Rabbit Anti-SIRT1 antibody (SL0921R)

Dilution: $3\mu\text{g} / 10^5$ cells;

Isotype Control Antibody (orange line): Rabbit IgG .

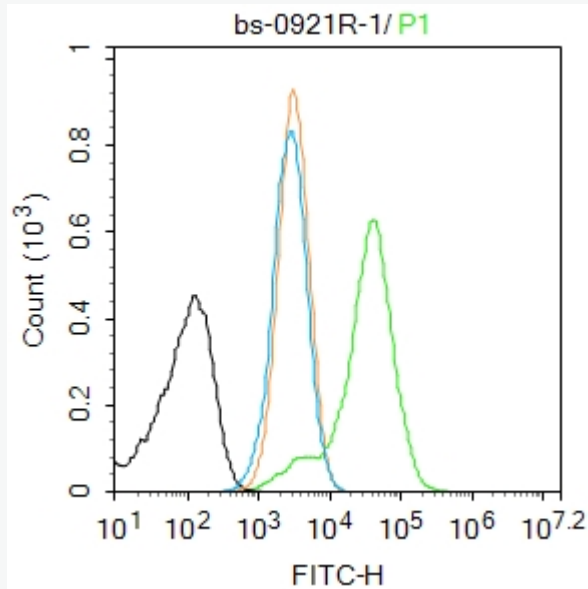
Secondary Antibody (white blue line): Goat anti-rabbit IgG-FITC

Dilution: $1\mu\text{g} / \text{test}$.

Protocol

The cells were fixed with 70% methanol (Overnight at 4°C) and then permeabilized with 90% ice-cold methanol for 30 min on ice. Cells stained with Primary Antibody for 30 min at room temperature. The cells were then incubated in 1 X

PBS/2%BSA/10% goat serum to block non-specific protein-protein interactions followed by the antibody for 15 min at room temperature. The secondary antibody used for 40 min at room temperature. Acquisition of 20,000 events was performed.



Blank control:HL-60.

Primary Antibody (green line): Rabbit Anti-SIRT1 antibody (SL2257R)

Dilution: 1 μ g /10⁶ cells;

Isotype Control Antibody (orange line): Rabbit IgG .

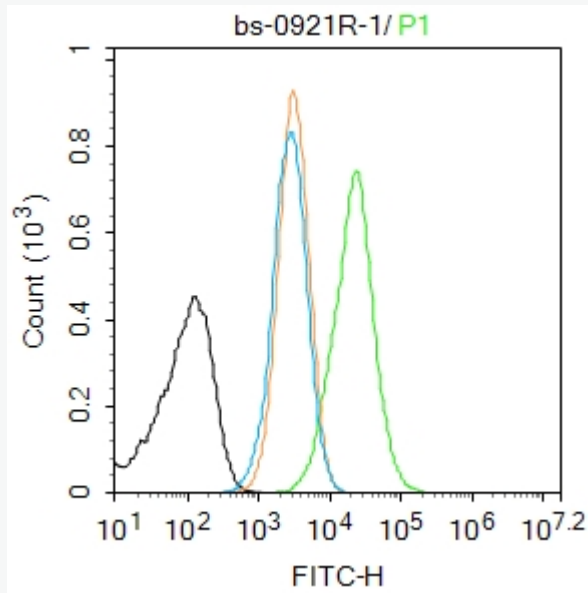
Secondary Antibody : Goat anti-rabbit IgG-AF488

Dilution: 1 μ g /test.

Protocol

The cells were fixed with 4% PFA (10min at room temperature)and then permeabilized with 0.1% PBST for 20 min at room temperature. The cells were then

incubated in 5%BSA to block non-specific protein-protein interactions for 30 min at room temperature .Cells stained with Primary Antibody for 30 min at room temperature. The secondary antibody used for 40 min at room temperature. Acquisition of 20,000 events was performed.



Blank control:HL-60.

Primary Antibody (green line): Rabbit Anti-SIRT1 antibody (SL0921R)

Dilution: 1 μ g /10⁶ cells;

Isotype Control Antibody (orange line): Rabbit IgG .

Secondary Antibody : Goat anti-rabbit IgG-AF488

Dilution: 1 μ g /test.

Protocol

The cells were fixed with 4% PFA (10min at room temperature)and then

permeabilized with 0.1% PBST for 20 min at room temperature. The cells were then incubated in 5%BSA to block non-specific protein-protein interactions for 30 min at room temperature .Cells stained with Primary Antibody for 30 min at room temperature. The secondary antibody used for 40 min at room temperature. Acquisition of 20,000 events was performed.