

Rabbit SIRT2 Polyclonal Antibody | anti-SIRT2 antibody

Phospho-SIRT2 (Ser368) Antibody

CATALOG #	HOST	REACTIVITY	APPLICATIONS
AAA31286	Rabbit	Human, Mouse, Rat	Immunohistochemistry, Immunofluorescence, Immunocytochemistry, ELISA

PRODUCT SYNONYMS

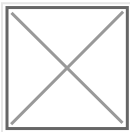
SIRT2; Polyclonal Antibody; Phospho-SIRT2 (Ser368) Antibody; FLJ35621; FLJ37491; NAD dependent deacetylase sirtuin 2; NAD-dependent deacetylase sirtuin-2; NAD-dependent protein deacetylase sirtuin-2; Regulatory protein SIR2 homolog 2; Silencing information regulator 2 like; Silent information regulator 2; SIR2; SIR2 like protein 2; Sir2 related protein type 2; S. cerevisiae; homolog-loke 2; SIR2-like protein 2; SIR2L; SIR2L2; SIRT2_HUMAN; Sirtuin (silent mating type information regulation 2 homolog) 2 (S.cerevisiae); Sirtuin 2; Sirtuin type 2; anti-SIRT2 antibody

PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Isotype	Rabbit IgG
Specificity	Phospho-SIRT2 (Ser368) Antibody detects endogenous levels of SIRT2 only when phosphorylated at Ser368. Tissue Specificity: Isoform 1 is expressed in heart, liver and skeletal muscle, weakly expressed in the cortex. Isoform 2 is strongly expressed in the cortex, weakly expressed in heart and liver. Weakly expressed in several malignancies including breast, liver, brain, kidney and prostate cancers compared to normal tissues. Weakly expressed in glioma cell lines compared to normal brain tissues (at protein level). Widely expressed. Highly expressed in heart, brain and skeletal muscle, while it is weakly expressed in placenta and lung. Down-regulated in many gliomas suggesting that it may act as a tumor suppressor gene in human gliomas possibly through the regulation of microtubule network.
Purity/Purification	The antibody is from purified rabbit serum by affinity purification via sequential chromatography on phospho-peptide and non-phospho-peptide affinity columns.
Form/Format	Liquid. Rabbit IgG in phosphate buffered saline, pH7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Concentration	1mg/ml (varies by lot)
Applicable Applications for anti-SIRT2 antibody	IHC (Immunohistochemistry), IF (Immunofluorescence), ICC (Immunocytochemistry), ELISA (Peptide ELISA)
Application Notes	IHC: 1:50-1:200 IF/ICC: 1:100-1:500 Peptide ELISA: 1:20,000-1:40,000
Immunogen	A synthesized peptide derived from human SIRT2 around the phosphorylation site of Ser368.
Conjugation	Unconjugated
Fragment	Fab fragment
Post Translational Modifications	Phosphorylated at phosphoserine and phosphothreonine. Phosphorylated at Ser-368 by a mitotic kinase CDK1/cyclin B at the G2/M transition; phosphorylation regulates the delay in cell-cycle progression. Phosphorylated at Ser-368 by a mitotic kinase G1/S-specific cyclin E/Cdk2 complex; phosphorylation inactivates SIRT2-mediated alpha-tubulin deacetylation and thereby negatively regulates cell adhesion, cell migration and neurite outgrowth during neuronal differentiation. Phosphorylated by cyclin A/Cdk2 and p35-Cdk5 complexes and to a lesser extent by the cyclin D3/Cdk4 and cyclin B/Cdk1, in vitro. Dephosphorylated at Ser-368 by CDC14A and CDC14B around early anaphase. Acetylated by EP300; acetylation leads both to the decreased of SIRT2-mediated alpha-tubulin deacetylase activity and SIRT2-mediated down-regulation of TP53 transcriptional activity.Ubiqutinated.

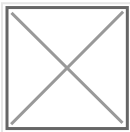
Subunit Structure	Interacts with CDC20, FOXO3 and FZR1. Associates with microtubules in primary cortical mature neurons (By similarity). Homotrimer. Isoform 1 and isoform 2 interact (via both phosphorylated, unphosphorylated, active or inactive forms) with HDAC6; the interaction is necessary for the complex to interact with alpha-tubulin, suggesting that these proteins belong to a large complex that deacetylates the cytoskeleton. Interacts with FOXO1; the interaction is disrupted upon serum-starvation or oxidative stress, leading to increased level of acetylated FOXO1 and induction of autophagy. Interacts with RELA; the interaction occurs in the cytoplasm and is increased in a TNF-alpha-dependent manner. Interacts with HOXA10; the interaction is direct. Interacts with YWHAB and YWHAG; the interactions occur in a AKT-dependent manner and increase SIRT2-dependent TP53 deacetylation. Interacts with MAPK1/ERK2 and MAPK3/ERK1; the interactions increase SIRT2 stability and deacetylation activity. Interacts (phosphorylated form) with KMT5A isoform 2; the interaction is direct, stimulates KMT5A-mediated methyltransferase activity on histone at 'Lys-20' (H4K20me1) and is increased in a H (2)O (2)-induced oxidative stress-dependent manner. Interacts with G6PD; the interaction is enhanced by H (2)O (2) treatment. Interacts with a G1/S-specific cyclin E-CDK2 complex. Interacts with AURKA, CDK5R1 (p35 form) and CDK5 and HIF1A. Isoform 1, isoform 2 and isoform 5 interact (via C-terminus region) with EP300. Interacts with the tRNA ligase SARS1; recruited to the VEGFA promoter via interaction with SARS1. Interacts with BEX4; negatively regulates alpha-tubulin deacetylation by SIRT2.
Similarity	Belongs to the sirtuin family. Class I subfamily.
Subcellular Location	Nucleus. Cytoplasm>Perinuclear region. Cytoplasm. Cytoplasm>Cytoskeleton. Cytoplasm>Cytoskeleton>Microtubule organizing center>Centrosome. Cytoplasm>Cytoskeleton>Microtubule organizing center>Centrosome>Centriole. Cytoplasm>Cytoskeleton>Spindle. Midbody. Chromosome. Perikaryon. Cell projection. Cell projection>Growth cone. Myelin membrane. Note: Deacetylates FOXO3 in the cytoplasm. Colocalizes with PLP1 in internodal regions, at paranodal axoglial junction and Schmidt-Lanterman incisures of myelin sheat. Colocalizes with CDK5R1 in the perikaryon, neurites and growth cone of hippocampal neurons. Colocalizes with alpha-tubulin in neuronal growth cone. Localizes in the cytoplasm and nucleus of germinal vesicle (GV) stage oocytes. Colocalizes with alpha-tubulin on the meiotic spindle as the oocytes enter into metaphase, and also during meiotic anaphase and telophase, especially with the midbody. Colocalizes with PARD3 in internodal region of axons. Colocalizes with acetylated alpha-tubulin in cell projection processes during primary oligodendrocyte precursor (OLP) differentiation (By similarity). Localizes in the cytoplasm during most of the cell cycle except in the G2/M transition and during mitosis, where it is localized in association with chromatin and induces deacetylation of histone at 'Lys-16' (H4K16ac). Colocalizes with KMT5A at mitotic foci. Colocalizes with CDK1 at centrosome during prophase and splindle fibers during metaphase. Colocalizes with Aurora kinase AURKA at centrosome during early prophase and in the centrioles and growing mitotic spindle throughout metaphase. Colocalizes with Aurora kinase AURKB during cytokinesis with the midbody. Colocalizes with microtubules. Detected in perinuclear foci that may be aggresomes containing misfolded, ubiquitinated proteins. Shuttles between the cytoplasm and the nucleus through the CRM1 export pathway. Colocalizes with EP300 in the nucleus. Translocates to the nucleus and chromatin upon bacterium Listeria monocytogenes infection in interphase cells.Cytoplasm. Nucleus. Note: Predominantly localized in the cytoplasmic.Cytoplasm. Nucleus. Note: Predominantly localized in the cytoplasmic.Cytoplasm. Nucleus. Note: Predominantly localized in the nucleus.
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.

IMAGES



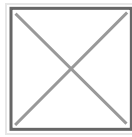
Application Data

At 25 degree C. Samples were then incubated with primary Ab(At 37 degree C. An AlexaFluor594 conjugated goat anti-rabbit IgG(H+L) Ab(Red) and an AlexaFluor488 conjugated goat anti-mouse IgG(H+L) Ab(Green) were used as the secondary antibody.The nuclear counter stain is DAPI (blue).



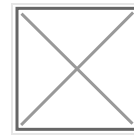
IHC (Immunohistochemistry)

At 1/100 staining Mouse kidney tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the primary antibody at 4 degree C overnight. An HRP conjugated anti-Rabbit antibody was used as the secondary antibody.



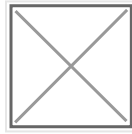
IHC (Immunohistochemistry)

At 1/100 staining Rat heart tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the primary antibody at 4 degree C overnight. An HRP conjugated anti-Rabbit antibody was used as the secondary antibody.



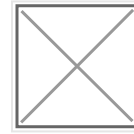
IHC (Immunohistochemistry)

At 1/100 staining Rat liver tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the primary antibody at 4 degree C overnight. An HRP conjugated anti-Rabbit antibody was used as the secondary antibody.



IHC (Immunohistochemistry)

Staining Rat lung tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the primary antibody at 4 degree C overnight. An HRP conjugated anti-Rabbit antibody was used as the secondary antibody.



IHC (Immunohistochemistry)

At 1/100 staining Rat kidney tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the primary antibody at 4 degree C overnight. An HRP conjugated anti-Rabbit antibody was used as the secondary antibody.

ADDITIONAL INFORMATION

Related Product Information for anti-SIRT2 antibody	NAD-dependent protein deacetylase, which deacetylates internal lysines on histone and alpha-tubulin as well as many other proteins such as key transcription factors. Participates in the modulation of multiple and diverse biological processes such as cell cycle control, genomic integrity, microtubule dynamics, cell differentiation, metabolic networks, and autophagy. Plays a major role in the control of cell cycle progression and genomic stability. Functions in the antephasic checkpoint preventing precocious mitotic entry in response to microtubule stress agents, and hence allowing proper inheritance of chromosomes. Positively regulates the anaphase promoting complex/cyclosome (APC/C) ubiquitin ligase complex activity by deacetylating CDC20 and FZR1, then allowing progression through mitosis. Associates both with chromatin at transcriptional start sites (TSSs) and enhancers of active genes. Plays a role in cell cycle and chromatin compaction through epigenetic modulation of the regulation of histone H4 'Lys-20' methylation (H4K20me1) during early mitosis. Specifically deacetylates histone H4 at 'Lys-16' (H4K16ac) between the G2/M transition and metaphase enabling H4K20me1 deposition by KMT5A leading to ulterior levels of H4K20me2 and H4K20me3 deposition throughout cell cycle, and mitotic S-phase progression. Deacetylates KMT5A modulating KMT5A chromatin localization during the mitotic stress response. Deacetylates also histone H3 at 'Lys-57' (H3K56ac) during the mitotic G2/M transition. Upon bacterium Listeria monocytogenes infection, deacetylates 'Lys-18' of histone H3 in a receptor tyrosine kinase MET- and PI3K/Akt-dependent manner, thereby inhibiting transcriptional activity and promoting late stages of listeria infection. During oocyte meiosis progression, may deacetylate histone H4 at 'Lys-16' (H4K16ac) and alpha-tubulin, regulating spindle assembly and chromosome alignment by influencing microtubule dynamics and kinetochore function. Deacetylates histone H4 at 'Lys-16' (H4K16ac) at the VEGFA promoter and thereby contributes to regulate expression of VEGFA, a key regulator of angiogenesis. Deacetylates alpha-tubulin at 'Lys-40' and hence controls neuronal motility, oligodendroglial cell arbor projection processes and proliferation of non-neuronal cells. Phosphorylation at Ser-368 by a G1/S-specific cyclin E-CDK2 complex inactivates SIRT2-mediated alpha-tubulin deacetylation, negatively regulating cell adhesion, cell migration and neurite outgrowth during neuronal differentiation. Deacetylates PARD3 and participates in the regulation of Schwann cell peripheral myelination formation during early postnatal development and during postinjury remyelination. Involved in several cellular metabolic pathways. Plays a role in the regulation of blood glucose homeostasis by deacetylating and stabilizing phosphoenolpyruvate carboxykinase PCK1 activity in response to low nutrient availability. Acts as a key regulator in the pentose phosphate pathway (PPP) by deacetylating and activating the glucose-6-phosphate G6PD enzyme, and therefore, stimulates the production of cytosolic NADPH to counteract oxidative damage. Maintains energy homeostasis in response to nutrient deprivation as well as energy expenditure by inhibiting adipogenesis and promoting lipolysis. Attenuates adipocyte differentiation by deacetylating and promoting FOXO1 interaction to PPARG and subsequent repression of PPARG-dependent transcriptional activity. Plays a role in the regulation of lysosome-mediated degradation of protein aggregates by autophagy in neuronal cells. Deacetylates FOXO1 in response to oxidative stress or serum deprivation, thereby negatively regulating FOXO1-mediated autophagy. Deacetylates a broad range of transcription factors and co-regulators regulating target gene expression. Deacetylates transcriptional factor FOXO3 stimulating the ubiquitin ligase SCF (SKP2)-mediated FOXO3 ubiquitination and degradation (By similarity). Deacetylates HIF1A and therefore promotes HIF1A degradation and inhibition of HIF1A transcriptional activity in tumor cells in response to hypoxia. Deacetylates RELA in the cytoplasm inhibiting NF-kappaB-dependent transcription activation upon TNF-alpha stimulation. Inhibits transcriptional activation by deacetylating p53/TP53 and EP300. Deacetylates also EIF5A. Functions as a negative regulator on oxidative stress-tolerance in response to anoxia-reoxygenation conditions. Plays a role as tumor suppressor. Deacetylates EP300, alpha-tubulin and histone H3 and H4. Deacetylates EP300, alpha-tubulin and histone H3 and H4. Lacks deacetylation activity.
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NCBI AND UNIPROT INFORMATION

NCBI GI #	300797705
NCBI GeneID	22933
NCBI Accession #	NP_001180215.1
NCBI GenBank Nucleotide #	NM_001193286.1
UniProt Accession #	Q8IXJ6; O95889; Q924Y7; Q9P0G8; Q9UNT0; Q9Y6E9; A8K3V1; B2RB45
Molecular Weight	43,182 Da
NCBI Official Full Name	NAD-dependent protein deacetylase sirtuin-2 isoform 3
NCBI Official Synonym Full Names	sirtuin 2
NCBI Official Symbol	SIRT2

NCBI Official Synonym Symbols	SIR2; SIR2L; SIR2L2
NCBI Protein Information	NAD-dependent protein deacetylase sirtuin-2; sirtuin type 2; SIR2-like protein 2; sir2-related protein type 2; silent information regulator 2; regulatory protein SIR2 homolog 2; NAD-dependent deacetylase sirtuin-2
UniProt Protein Name	NAD-dependent protein deacetylase sirtuin-2
UniProt Gene Name	SIRT2
UniProt Synonym Gene Names	SIR2L; SIR2L2
UniProt Entry Name	SIR2_HUMAN

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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