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SIRT6 Rabbit mAb

Catalog # AP76087

Product Information

Application	WB, IP
Primary Accession	Q8N6T7
Reactivity	Rat, Human, Mouse
Host	Rabbit
Clonality	Monoclonal Antibody
Isotype	IgG
Conjugate	Unconjugated
Purification	Affinity Purified
Calculated MW	39119

Additional Information

Gene ID	51548
Other Names	SIRT6
Dilution	WB~~1:500-1:1000 IP~~1:20-1:50
Format	Liquid in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and 0.05% BSA.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

Name	SIRT6 {ECO:0000303|PubMed:10873683, ECO:0000312|HGNC:HGNC:14934}
Function	NAD-dependent protein deacetylase, deacylase and mono-ADP-ribosyltransferase that plays an essential role in DNA damage repair, telomere maintenance, metabolic homeostasis, inflammation, tumorigenesis and aging (PubMed:18337721, PubMed:19135889, PubMed:19625767, PubMed:21362626, PubMed:21680843, PubMed:23217706, PubMed:23552949, PubMed:23653361, PubMed:24052263, PubMed:27180906, PubMed:27322069, PubMed:29555651, PubMed:30374165). Displays protein- lysine deacetylase or defatty-acylase (demyristoylase and depalmitoylase) activity, depending on the context (PubMed:23552949, PubMed:24052263, PubMed:27322069). Acts as a key histone deacetylase by catalyzing deacetylation of histone H3 at 'Lys-9', 'Lys-18' and 'Lys- 56' (H3K9ac, H3K18ac and H3K56ac, respectively), suppressing target gene expression of several transcription factors, including NF-kappa-B (PubMed:19625767, PubMed:21362626, PubMed:23892288, PubMed:23911928, PubMed:24012758, PubMed:26456828,

PubMed:26898756, PubMed:27043296, PubMed:27180906, PubMed:30374165, PubMed:33067423). Acts as an inhibitor of transcription elongation by mediating deacetylation of H3K9ac and H3K56ac, preventing release of NELFE from chromatin and causing transcriptional pausing (By similarity). Involved in DNA repair by promoting double-strand break (DSB) repair: acts as a DSB sensor by recognizing and binding DSB sites, leading to (1) recruitment of DNA repair proteins, such as SMARCA5/SNF2H, and (2) deacetylation of histone H3K9ac and H3K56ac (PubMed:23911928, PubMed:31995034, PubMed:32538779). SIRT6 participation to DSB repair is probably involved in extension of life span (By similarity). Also promotes DNA repair by deacetylating non-histone proteins, such as DDB2 and p53/TP53 (PubMed:29474172, PubMed:32789493). Specifically deacetylates H3K18ac at pericentric heterochromatin, thereby maintaining pericentric heterochromatin silencing at centromeres and protecting against genomic instability and cellular senescence (PubMed:27043296). Involved in telomere maintenance by catalyzing deacetylation of histone H3 in telomeric chromatin, regulating telomere position effect and telomere movement in response to DNA damage (PubMed:18337721, PubMed:19625767, PubMed:21847107). Required for embryonic stem cell differentiation by mediating histone deacetylation of H3K9ac (PubMed:25915124, PubMed:29555651). Plays a major role in metabolism by regulating processes such as glycolysis, gluconeogenesis, insulin secretion and lipid metabolism (PubMed:24012758, PubMed:26787900). Inhibits glycolysis via histone deacetylase activity and by acting as a corepressor of the transcription factor HIF1A, thereby controlling the expression of multiple glycolytic genes (By similarity). Has tumor suppressor activity by repressing glycolysis, thereby inhibiting the Warburg effect (PubMed:23217706). Also regulates glycolysis and tumorigenesis by mediating deacetylation and nuclear export of non-histone proteins, such as isoform M2 of PKM (PKM2) (PubMed:26787900). Acts as a negative regulator of gluconeogenesis by mediating deacetylation of non-histone proteins, such as FOXO1 and KAT2A/GCN5 (PubMed:23142079, PubMed:25009184). Promotes beta-oxidation of fatty acids during fasting by catalyzing deacetylation of NCOA2, inducing coactivation of PPARA (By similarity). Acts as a regulator of lipid catabolism in brown adipocytes, both by catalyzing deacetylation of histones and non-histone proteins, such as FOXO1 (By similarity). Also acts as a regulator of circadian rhythms, both by regulating expression of clock-controlled genes involved in lipid and carbohydrate metabolism, and by catalyzing deacetylation of PER2 (By similarity). The defatty-acylase activity is specifically involved in regulation of protein secretion (PubMed:23552949, PubMed:24052263, PubMed:27322069, PubMed:28406396). Has high activity toward long-chain fatty acyl groups and mediates protein-lysine demyristoylation and depalmitoylation of target proteins, such as RRAS2 and TNF, thereby regulating their secretion (PubMed:23552949, PubMed:28406396). Also acts as a mono-ADP-ribosyltransferase by mediating mono-ADP-ribosylation of PARP1, TRIM28/KAP1 or SMARCC2/BAF170 (PubMed:21680843, PubMed:22753495, PubMed:27322069, PubMed:27568560). Mono-ADP-ribosyltransferase activity is involved in DNA repair, cellular senescence, repression of LINE-1 retrotransposon elements and regulation of transcription (PubMed:21680843, PubMed:22753495, PubMed:27568560).

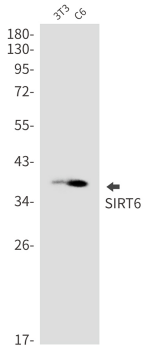
Cellular Location

Nucleus. Chromosome. Chromosome, telomere. Endoplasmic reticulum. Note=Predominantly nuclear (PubMed:18337721). Associated with pericentric heterochromatin and telomeric heterochromatin regions (PubMed:18337721, PubMed:27043296) Localizes to DNA damage sites: directly recognizes and binds double- strand breaks (DSBs) sites via a tunnel-like structure that has high affinity for DSBs (PubMed:21680843, PubMed:23911928, PubMed:27568560, PubMed:31995034, PubMed:32538779). A fraction localizes to the endoplasmic reticulum (PubMed:23552949).

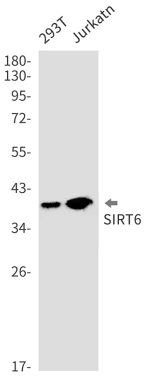
Background

The Silent Information Regulator (Sir2) family of genes is a highly conserved group of genes that encode nicotinamide adenine dinucleotide (NAD)-dependent protein deacetylases, also known as class III histone deacetylases. SirT6, a mammalian homolog of Sir2, is a nuclear, chromatin-associated protein that promotes the normal maintenance of genome integrity mediated by the base excision repair (BER) pathway.

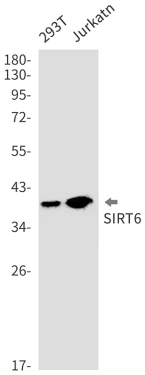
Images



Western blot analysis of SIRT6 in 3T3, C6 lysates using SIRT6 antibody.



Western blot analysis of SIRT6 in 293T, Jurkat lysates using SIRT6 antibody.



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