

**Sirt1 Protein (Human). Rabbit Antigen Immunoaffinity Purified Polyclonal**  
NAD-dependent deacetylase sirtuin-1, hSIRT1, SIR2-like protein 1, hSIR2, SIRT1, SIR2L1

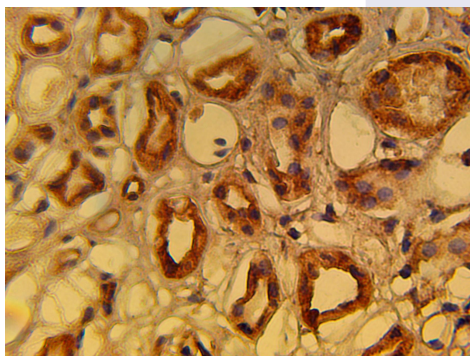
**BACKGROUND**

Sirtuin 1 (Sirt 1) is encoded by a gene that encodes a number of the sirtuin-like proteins, all homologs to the yeast Sir2 protein. Members of the sirtuin family are characterized by a sirtuin core domain. Yeast sirtuin proteins are known to regulate epigenetic gene silencing, suppress recombination of DNA and represses rDNA transcription by the RNA pol. Studies suggest that the human sirtuins regulate apoptosis by impairing proapoptotic ability and modulating cell senescence. They regulate muscle differentiation by deacetylating key proteins. They also deacetylate the following: 'Lys-382' of p53/TP53, TAF1B, 'Lys-266' of SUV39H1 (leading to its activation), 'Lys-26' of HIST1H1E, APEX1 at 'Lys-6' and 'Lys-7' and 'Lys-16' of histone H4 (in vitro), as well as H2A. Sirtuins are also involved in HES1- and HEY2-mediated transcriptional repression and inhibit skeletal muscle differentiation by deacetylating PCAF and MYOD1. They may serve as a sensor of the cytosolic ratio of NAD<sup>+</sup>/NADH, which is essential in skeletal muscle cell differentiation. The eNoSC complex is able to sense the energy status of cell: upon glucose starvation, elevation of NAD<sup>+</sup>/NADP<sup>+</sup> 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. In the case of HIV-1 infection, sirtuin interacts with and deacetylates the viral Tat protein. Cellular AP endonuclease activity is stimulated by promoting the association of APEX1 to XRCC1. Red wine, which contains resveratrol, may participate in activation of sirtuin proteins, and may therefore participate in an extended lifespan as observed in yeast.

**IMMUNOGEN**

Synthetic Peptide near C terminal of human Sirt 1

Immunohistochemical staining of normal human kidney tissue using Sirt1 antibody (Cat. No. X2739P) at 10 µg/ml and detected using anti-Rabbit HRP secondary antibody and visualized using DAB substrate and hematoxylin counterstain.



**ORDERING INFORMATION**

**CATALOG NUMBER**  
X2739P

**SIZE**

100 µg

**FORM**

Affinity Purified

**HOST/CLONE**

Rabbit

**FORMULATION**

Provided as solution in phosphate buffered saline with 0.08% sodium azide

**CONCENTRATION**

See vial for concentration

**ISOTYPE**

Ig

**APPLICATIONS**

Immunohistochemistry, Western Blot, ELISA

**SPECIES REACTIVITY**

Human

**ACCESSION NUMBER**

Human Q96EB6

**POSITIVE CONTROL/TISSUE EXPRESSION**

Widely expressed nuclear localization.

**COMMENTS**

Optimal concentration should be evaluated by serial dilutions.

**PURIFICATION**

Antigen Immunoaffinity Purification

**SHIP CONDITIONS**

Ship on gel ice, store at -20°C immediately upon arrival

**STORAGE CUSTOMER**

Product should be stored at -20°C. Aliquot to avoid freeze/thaw cycles

**STABILITY**

Products are stable for one year from purchase when stored properly

**REFERENCES**

1. SIRT1 induces EMT by cooperating with EMT transcription factors and enhances prostate cancer cell migration and metastasis. Byles V, Zhu L, Lovaas JD, Chmielewski LK, Wang J, Faller DV, Dai Y. *Oncogene*. 2012 Jan 16. doi: 10.1038/onc.2011.612.
2. SIRT1 activates MAO-A in the brain to mediate anxiety and exploratory drive. Libert S, Pointer K, Bell EL, Das A, Cohen DE, Asara JM, Kapur K, Bergmann S, Preisig M, Otowa T, Kendler KS, Chen X, Hettema JM, van den Oord EJ, Rubio JP, Guarente L. *Cell*. 2011 Dec 23;147(7):1459-72. Epub 2011 Dec 8.
3. Role of SIRT1 in heat stress- and lipopolysaccharide-induced immune and defense gene expression in human dental pulp cells. Lee SI, Min KS, Bae WJ, Lee YM, Lee SY, Lee ES, Kim EC. *J Endod*. 2011 Nov;37(11):1525-30. Epub 2011 Sep 9.
4. p53 deacetylation by SIRT1 decreases during protein kinase CKII downregulation-mediated cellular senescence. Jang SY, Kim SY, Bae YS. *FEBS Lett*. 2011 Nov 4;585(21):3360-6. Epub 2011 Sep 29.
5. SIRT1 deacetylates the DNA methyltransferase 1 (DNMT1) protein and alters its activities. Peng L, Yuan Z, Ling H, Fukasawa K, Robertson K, Olashaw N, Koomen J, Chen J, Lane WS, Seto E. *Mol Cell Biol*. 2011 Dec;31(23):4720-34. Epub 2011 Sep 26.
6. SIRT1 is essential for oncogenic signaling by estrogen/estrogen receptor  $\alpha$  in breast cancer. Elangovan S, Ramachandran S, Venkatesan N, Ananth S, Gnana-Prakasam JP, Martin PM, Browning DD, Schoenlein PV, Prasad PD, Ganapathy V, Thangaraju M. *Cancer Res*. 2011 Nov 1;71(21):6654-64. Epub 2011 Sep 15.
7. Roles of SIRT1 in high glucose-induced endothelial impairment: association with diabetic atherosclerosis. Yang J, Wang N, Zhu Y, Feng P. *Arch Med Res*. 2011 Jul;42(5):354-60. doi: 10.1016/j.arcmed.2011.07.005. Epub 2011 Jul 31.
8. Sirt1 deacetylates c-Myc and promotes c-Myc/Max association. Mao B, Zhao G, Lv X, Chen HZ, Xue Z, Yang B, Liu DP, Liang CC. *Int J Biochem Cell Biol*. 2011 Nov;43(11):1573-81. Epub 2011 Jul 22.

**PRODUCT SPECIFIC REFERENCES**