SIRT1 cDNA Clone – Sirtuin (Silent Mating Type Information Regulation 2 Homolog) 1 (S. Cerevisiae) (Human)

PRODUCT OVERVIEW

Product Name	SIRT1, cDNA Clone
Full Product Name	SIRT1 cDNA Clone
Product Gene Name	SIRT1 cdna clone
Sequence	atgattggca cagatcctcg aacaattctt aaagatttat tgccggaaac aatacctcca cctgagttgg atgatatgac actgtggcag attgttatta atatcctttc agaaccacca aaaaggaaaa aaagaaaaga tattaataca attgaagatg ctgtgaaatt actgcaagag tgcaaaaaaa ttatagttct aactggagct ggggtgtctg tttcatgtgg aatacctgac ttcaggtcaa gggatggtat ttatgctcgc cttgctgtag acttcccaga tcttccagat cctcaagcga tgtttgatat tgaatatttc agaaaagatc caagaccatt cttcaagttt gcaaaggaaa tatatcctgg acaattccag ccatctctct gtcacaaatt catagccttg tcagataagg aaggaaaact acttcgcaac tatacccaga acatagacac gctggaacag gttgcgggaa tccaaaggat aattcagtgt catggttcct ttgcaacagc atcttgcctg atttgtaaat acaaagttga ctgtgaagct gtacgaggag ctctttttag tcaggtagtt cctcgatgtc ctaggtgccc agctgatgaa ccgcttgcta tcatgaaacc agagattgtg ttttttggtg aaaatttacc agaacagttt catagagcca tgaagtatga caaagatgaa gttgacctcc tcattgttat tgggtcttcc ctcaaagtaa gaccagtagc actaattcca agttccatac cccatgaagt gcctcagata ttaattaata gagaaccttt gcctcatctg cattttgatg tagagcttct tggagactgt gatgtcataa ttaatgaatt gtgtcatagg ttaggtggtg aatatgccaa actttgctgt aaccctgtaa agctttcaga aattactgaa aaacctccac gaacacaaaa agaattggct tatttgtcag agttgccacc cacacctctt catgtttcag aagactcaag ttcaccagaa agaacttcac caccagattc ttcagtgatt gtcacacttt tagaccaagc agctaagagt aatgatgatt tagatgtgtc tgaatcaaaa ggttgtatgg aagaaaaacc acaggaagta caaacttcta ggaatgttga aagtattgct gaacagatgg aaaatccgga tttgaagaat gttggttcta gtactgggga gaaaaatgaa agaacttcag tggctggaac agtgagaaaa tgctggccta atagagtggc aaaggagcag attagtaggc ggcttgatgg taatcagtat ctgtttttgc caccaaatcg ttacattttc catggcgctg aggtatattc agactctgaa gatgacgtct tatcctctag ttcttgtggc agtaacagtg atagtgggac atgccagagt ccaagtttag aagaacccat ggaggatgaa agtgaaattg aagaattcta caatggctta gaagatgagc ctgatgttcc agagagagct ggaggagctg gatttgggac tgatggagat gatcaagagg caattaatga agctatatct gtgaaacagg aagtaacaga catgaactat ccatcaaaca aatcatag
Molecular Weight	61,066 Da
OMIM	604479
Vector	pENTR223.1 or pUC
Clone Sequence Report	Provided with product shipment
ISO Certification	Manufactured in an ISO 9001:2015 Certified Laboratory.
Related Product Information for SIRT1 cdna clone	MBS1271679 is a cDNA clone targeting SIRT1.
Other Notes	Small volumes of SIRT1 cdna clone vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for SIRT1. It may not necessarily be applicable to this product.

NCBI GI #	15214729
NCBI GeneID	23411
NCBI Accession #	BC012499
UniProt Secondary Accession #	Q2XNF6; Q5JVQ0; Q9GZR9; Q9Y6F0
UniProt Related Accession #	Q96EB6
NCBI Official Full Name	Homo sapiens sirtuin (silent mating type information regulation 2 homolog) 1 (S. cerevisiae), mRNA

NCBI Official Synonym Full Names	sirtuin 1
NCBI Official Symbol	SIRT1
NCBI Official Synonym Symbols	SIR2; SIR2L1; SIR2alpha
UniProt Protein Name	NAD-dependent protein deacetylase sirtuin-1
UniProt Synonym Protein Names	Regulatory protein SIR2 homolog 1; SIR2-like protein 1; hSIR2
Protein Family	NAD-dependent protein deacetylase sirtuin
UniProt Gene Name	SIRT1
UniProt Synonym Gene Names	SIR2L1; hSIRT1; hSIR2; 75SirT1
UniProt Entry Name	SIR1_HUMAN
NCBI Protein Information	NAD-dependent protein deacetylase sirtuin-1
NCBI Summary for SIRT1	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. [provided by RefSeq, Dec 2008]

UniProt Comments for SIRT1	SIRT1: an NAD-dependent protein deacetylase that links transcriptional regulation directly to intracellular energetics and participates in the coordination of several separate cellular functions such as cell cycle, response to DNA damage, metobolism, apoptosis and autophagy. Deacetylates a broad range of transcription factors and coregulators, thereby regulating target gene expression positively and negatively. Serves as a sensor of the cytosolic ratio of NAD(+)/NADH which is altered by glucose deprivation and metabolic changes associated with caloric restriction. Essential in skeletal muscle cell differentiation and in response to low nutrients mediates the inhibitory effect on skeletal myoblast differentiation which also involves 5'-AMP-activated protein kinase (AMPK) and nicotinamide phosphoribosyltransferase (NAMPT). 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. Elevation of NAD(+)/NADP(+) ratio activates SIRT1. Recruited to LRH1 target gene promoters by NR0B2/SHP thereby stimulating histone H3 and H4 deacetylation leading to transcriptional repression. Implicated in regulation of adipogenesis and fat mobilization in white adipocytes by repression of PPARG. Involved in liver and muscle metabolism. Is involved in autophagy, presumably by deacetylating ATG5, ATG7 and ATG8. Deacetylates AKT1 which leads to enhanced binding of AKT1 and PDK1 to PIP3 and promotes their activation. Widely expressed. Inhibited by nicotinamide. Belongs to the sirtuin family. Class I subfamily. 2 isoforms of the human protein are produced by alternative splicing. Protein type: EC 3.5.1.-; Deacetylase; Apoptosis; Nuclear receptor co-regulator Chromosomal Location of Human Ortholog: 10q21.3 Cellular Component: chromatin silencing complex; cytoplasm; ESC/E(Z) complex; mitochondrion; nuclear chromatin; nuclear envelope; nuclear heterochromatin; nuclear inner membrane; nucleolus; nucleoplasm; nucleus; PML body Molecular Function: bHLH transcription factor binding; deacetylase activity; enzyme binding; histone binding; histone deacetylase activity; HLH domain binding; identical protein binding; mitogen-activated protein kinase binding; NAD+ ADP-ribosyltransferase activity; NAD-dependent histone deacetylase activity; NAD-dependent histone deacetylase activity (H3-K9 specific); nuclear hormone receptor binding; p53 binding; protein binding; protein C-terminus binding; protein deacetylase activity; transcription corepressor activity; transcription factor binding Biological Process: angiogenesis; cell aging; cell glucose homeostasis; cellular response to starvation; cholesterol homeostasis; chromatin silencing; chromatin silencing at rDNA; circadian regulation of gene expression; DNA damage response, signal transduction by p53 class mediator resulting in induction of apoptosis; DNA repair; DNA replication; DNA synthesis during DNA repair; establishment and/or maintenance of chromatin architecture; establishment of chromatin silencing; fatty acid homeostasis; histone deacetylation; inhibition of NF-kappaB transcription factor; leptin-mediated signaling pathway; macrophage differentiation; maintenance of chromatin silencing; methylation-dependent chromatin silencing; negative regulation of apoptosis; negative regulation of cell growth; negative regulation of DNA damage response, signal transduction by p53 class mediator; negative regulation of fat cell differentiation; negative regulation of helicase activity; negative regulation of I-kappaB kinase/NF-kappaB cascade; negative regulation of phosphorylation; negative regulation of prostaglandin biosynthetic process; negative regulation of protein kinase B signaling cascade; negative regulation of TOR signaling pathway; negative regulation of transcription factor activity; negative regulation of transcription from RNA polymerase II promoter; negative regulation of transcription, DNA-dependent; negative regulation of transforming growth factor beta receptor signaling pathway; peptidyl-lysine acetylation; positive regulation of adaptive immune response; positive regulation of angiogenesis; positive regulation of apoptosis; positive regulation of caspase activity; positive regulation of cell proliferation; positive regulation of chromatin silencing; positive regulation of DNA repair; positive regulation of endothelial cell proliferation; positive regulation of histone H3-K9 methylation; positive regulation of insulin receptor signaling pathway; positive regulation of macroautophagy; positive regulation of MHC class II biosynthetic process; positive regulation of phosphoinositide 3-kinase cascade; positive regulation of protein amino acid phosphorylation; positive regulation of transcription from RNA polymerase II promoter; proteasomal ubiquitin-dependent protein catabolic process; protein amino acid ADP-ribosylation; protein amino acid deacetylation; protein destabilization; protein ubiquitination; pyrimidine dimer repair via nucleotide-excision repair; regulation of cell proliferation; regulation of endodeoxyribonuclease activity; regulation of mitotic cell cycle; regulation of protein import into nucleus, translocation; response to DNA damage stimulus; response to hydrogen peroxide; response to insulin stimulus; response to oxidative stress; single strand break repair; triacylglycerol mobilization; white fat cell differentiation
Research Articles on SIRT1	**1.** SIRT1 expression correlated positively with Fra-1 expression, metastasis and overall survival in patients with colorectal cancer

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