SMARCA4 siRNA – Transcription Activator BRG1 Isoform B (Human)

PRODUCT OVERVIEW

Product Name	SMARCA4, siRNA
Full Product Name	SMARCA4 siRNA (Human)
Product Gene Name	SMARCA4 sirna
Product Synonym Names	BAF190A; BRG1; SNF2B; SNF2L4; Transcription activator BRG1; ATP-dependent helicase SMARCA4; BRG1-associated factor 190A; BAF190A; Mitotic growth and transcription activator; Protein BRG-1; Protein brahma homolog 1; SNF2-beta; SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A member 4
Host	Synthetic
Species Reactivity	Human
Form/Format	Lyophilized powder
Purity/Purification	> 97%
Specificity	SMARCA4 siRNA (Human) is a target-specific 19-23 nt siRNA oligo duplexes designed to knock down gene expression.
Preparation and Storage	Shipped at 4 degree C. Store at -20 degree C for one year.
Molecular Weight	181,261 Da
OMIM	603254
3D Structure	ModBase 3D Structure for P51532
Negative Control	siRNA Negative Control (Catalog# MBS8241404) is a non-targeting 21 nt siRNA recommended as a negative control for experiments using targeted siRNA transfection.
Quality Control	Oligonucleotide synthesis is monitored base by base through trityl analysis to ensure appropriate coupling efficiency. The oligo is subsequently purified by affinity-solid phase extraction. The annealed RNA duplex is further analyzed by mass spectrometry to verify the exact composition of the duplex. Each lot is compared to the previous lot by mass spectrometry to ensure maximum lot-to-lot consistency.
Directions for Use	We recommends transfection with 100 nM siRNA 48 to 72 hours prior to cell lysis. Before resuspending, briefly centrifuge the tube to ensure the lyophilized siRNA is at the bottom of the tube. Resuspend the siRNA oligos to an appropriate concentration with DEPC water. For each vial, suitable for 250 transfections in 24 well plate (20 pmol for each well).
Components	We offer pre-designed sets of 3 different target-specific siRNA oligo duplexes of human SMARCA4 gene. Each vial contains 5 nmol of lyophilized siRNA. The duplexes can be transfected individually or pooled together to achieve knockdown of the target gene, which is most commonly assessed by qPCR or western blot. Our siRNA oligos are also chemically modified (2'-OMe) at no extra charge for increased stability and enhanced knockdown in vitro and in vivo.
Applications Tested/Suitable for SMARCA4 sirna	RNA Interference (RNAi)
Related Product Information for SMARCA4 sirna	MBS8235177 is an siRNA targeting SMARCA4. Also known as SMARCA4 siRNA (Human). Reactive in Human. Host: Synthetic. siRNA to inhibit SMARCA4 expression using RNA interference
Other Notes	Small volumes of SMARCA4 sirna 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 SMARCA4. It may not necessarily be applicable to this product.

NCBI GI #	192807312
NCBI GeneID	6597
NCBI Accession #	NP_001122316.1
UniProt Primary Accession #	P51532
UniProt Secondary Accession #	O95052; Q9HBD3; B1A8Z4; B1A8Z5; B1A8Z6; B1A8Z7; E9PBR8
UniProt Related Accession #	P51532
GenBank Nucleotide #	NM_001128844.1
NCBI Official Full Name	transcription activator BRG1 isoform B
NCBI Official Synonym Full Names	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 4
NCBI Official Symbol	SMARCA4
NCBI Official Synonym Symbols	BRG1; SNF2; SWI2; MRD16; RTPS2; BAF190; SNF2L4; SNF2LB; hSNF2b; BAF190A
UniProt Protein Name	Transcription activator BRG1
UniProt Synonym Protein Names	ATP-dependent helicase SMARCA4; BRG1-associated factor 190A; BAF190A; Mitotic growth and transcription activator; Protein BRG-1; Protein brahma homolog 1; SNF2-beta; SWI/SNF-related matrix-associated actin-dependent regulator of chromatin subfamily A member 4
Protein Family	Transcription activator
UniProt Gene Name	SMARCA4
UniProt Synonym Gene Names	BAF190A; BRG1; SNF2B; SNF2L4; BAF190A
UniProt Entry Name	SMCA4_HUMAN
NCBI Protein Information	transcription activator BRG1
NCBI Summary for SMARCA4	The protein encoded by this gene is a member of the SWI/SNF family of proteins and is similar to the brahma protein of Drosophila. Members of this family have helicase and ATPase activities and are thought to regulate transcription of certain genes by altering the chromatin structure around those genes. The encoded protein is part of the large ATP-dependent chromatin remodeling complex SNF/SWI, which is required for transcriptional activation of genes normally repressed by chromatin. In addition, this protein can bind BRCA1, as well as regulate the expression of the tumorigenic protein CD44. Mutations in this gene cause rhabdoid tumor predisposition syndrome type 2. Multiple transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, May 2012]

UniProt Comments for SMARCA4	SMARCA4: a member of the SWI/SNF nucleosome remodeling complex with ATP-dependent DNA helicase activity. SWI/SNF complexes are required for mammalian development and are mutated in ~20% of all human primary tumors. Mutated in 35% (13/37) of NSCLC and 5% (1/19) of SCLC human lung cancer cell lines . A component of the CREST-BRG1 complex, a multiprotein complex that regulates promoter activation by orchestrating a calcium-dependent release of a repressor complex and a recruitment of an activator complex. Belongs to the neural progenitor-specific chromatin remodeling complex (npBAF complex) and the neuron-specific chromatin remodeling complex (nBAF complex). Component of the BAF53 complex which acetylates histone H4 and H2A within nucleosomes. Transcriptional coactivator of nuclear hormone receptors. Acts as a corepressor of ZEB1 to regulate E-cadherin transcription, and is required for induction of epithelial-mesenchymal transition (EMT) by ZEB1. Can bind BRCA1, as well as regulate the expression of the tumorigenic protein CD44. SMARCA4, in consort with ZEB1, represses the transcription of E-cadherin and promotes the epithelial-to-mesenchymal transisition (EMT). SMARCA4 is required for stem cell maintenance in the mouse intestinal epithelium. Its loss inhibits aberrant Wnt-signalling and prevents tumorigenesis in the mouse small intestine. SMARCA4 mutations are the cause of a familial cancer syndrome predisposing to renal or extrarenal malignant rhabdoid tumors and to a variety of tumors of the central nervous system, including choroid plexus carcinoma, medulloblastoma, and central primitive neuroectodermal tumors. Rhabdoid tumors are the most aggressive and lethal malignancies occurring in early childhood. Belongs to the SNF2/RAD54 helicase family. The human protein includes 5 isoforms produced by alternative splicing. Protein type: Helicase; Cell cycle regulation; Tumor suppressor; EC 3.6.4.-; Nuclear receptor co-regulator; EC 3.6.1.-; Transcription, coactivator/corepressor Chromosomal Location of Human Ortholog: 19p13.2 Cellular Component: nucleoplasm; heterochromatin; SWI/SNF complex; extracellular space; protein complex; perichromatin fibrils; membrane; nuclear chromatin; nucleolus; nucleus Molecular Function: DNA-dependent ATPase activity; protein binding; nucleosomal DNA binding; androgen receptor binding; p53 binding; Tat protein binding; transcription coactivator activity; protein N-terminus binding; transcription corepressor activity; helicase activity; ATP binding Biological Process: establishment and/or maintenance of chromatin architecture; extracellular matrix organization and biogenesis; glial cell fate determination; positive regulation of transcription, DNA-dependent; negative regulation of transcription from RNA polymerase II promoter, mitotic; cell morphogenesis; negative regulation of transcription from RNA polymerase II promoter; embryonic hindlimb morphogenesis; embryonic organ morphogenesis; epidermis morphogenesis; blastocyst hatching; forebrain development; blastocyst growth; vasculogenesis; positive regulation of Wnt receptor signaling pathway; positive regulation of DNA binding; hindbrain development; transcription, DNA-dependent; stem cell maintenance; liver development; regulation of transcription from RNA polymerase II promoter; chromatin remodeling; keratinocyte differentiation; cytosine methylation within a CG sequence; methylation-dependent chromatin silencing; nucleosome disassembly; ATP-dependent chromatin remodeling; positive regulation of transcription from RNA polymerase II promoter; positive regulation of transcription factor activity; negative regulation of cell growth; negative regulation of transcription, DNA-dependent Disease: Mental Retardation, Autosomal Dominant 16; Rhabdoid Tumor Predisposition Syndrome 2
Research Articles on SMARCA4	**1.** SMARCA4-associated CSS is a pleiotropic disorder in which the pathognomic clinical features evolve and for which the few reported individuals do not demonstrate a clear genotype-phenotype correlation.
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