HFE siRNA – Hereditary Hemochromatosis Protein Isoform 1 (Human)

PRODUCT OVERVIEW

Product Name	HFE, siRNA
Full Product Name	HFE siRNA (Human)
Product Gene Name	HFE sirna
Product Synonym Names	HLAH; Hereditary hemochromatosis protein; HLA-H
Host	Synthetic
Species Reactivity	Human
Form/Format	Lyophilized powder
Purity/Purification	> 97%
Specificity	HFE 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	8,208 Da
OMIM	176200
3D Structure	ModBase 3D Structure for Q30201
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 HFE 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 HFE sirna	RNA Interference (RNAi)
Related Product Information for HFE sirna	MBS8240956 is an siRNA targeting HFE. Also known as HFE siRNA (Human). Reactive in Human. Host: Synthetic. siRNA to inhibit HFE expression using RNA interference
Other Notes	Small volumes of HFE 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 HFE. It may not necessarily be applicable to this product.

NCBI GI #	4504377
NCBI GeneID	3077
NCBI Accession #	NP_000401.1
UniProt Primary Accession #	Q30201
UniProt Secondary Accession #	O75929; O75930; O75931; Q17RT0; Q96KU5; Q96KU6; Q96KU7; Q96KU8; Q9HC64; Q9HC68; B2CKL0
UniProt Related Accession #	Q30201
GenBank Nucleotide #	NM_000410.3
NCBI Official Full Name	hereditary hemochromatosis protein isoform 1
NCBI Official Synonym Full Names	hemochromatosis
NCBI Official Symbol	HFE
NCBI Official Synonym Symbols	HH; HFE1; HLA-H; MVCD7; TFQTL2
UniProt Protein Name	Hereditary hemochromatosis protein
UniProt Synonym Protein Names	HLA-H
Protein Family	Hereditary hemochromatosis protein
UniProt Gene Name	HFE
UniProt Synonym Gene Names	HLAH
UniProt Entry Name	HFE_HUMAN
NCBI Protein Information	hereditary hemochromatosis protein
NCBI Summary for HFE	The protein encoded by this gene is a membrane protein that is similar to MHC class I-type proteins and associates with beta2-microglobulin (beta2M). It is thought that this protein functions to regulate iron absorption by regulating the interaction of the transferrin receptor with transferrin. The iron storage disorder, hereditary haemochromatosis, is a recessive genetic disorder that results from defects in this gene. At least nine alternatively spliced variants have been described for this gene. Additional variants have been found but their full-length nature has not been determined. [provided by RefSeq, Jul 2008]

UniProt Comments for HFE	HFE: Binds to transferrin receptor (TFR) and reduces its affinity for iron-loaded transferrin. Defects in HFE are a cause of hemochromatosis (HFE). A disorder of iron metabolism characterized by iron overload. Excess iron is deposited in a variety of organs leading to their failure, and resulting in serious illnesses including cirrhosis, hepatomas, diabetes, cardiomyopathy, arthritis, and hypogonadotropic hypogonadism. Severe effects of the disease usually do not appear until after decades of progressive iron loading. Defects in HFE are associated with variegate porphyria (VP). Porphyrias are inherited defects in the biosynthesis of heme, resulting in the accumulation and increased excretion of porphyrins or porphyrin precursors. They are classified as erythropoietic or hepatic, depending on whether the enzyme deficiency occurs in red blood cells or in the liver. VP is the most common form of porphyria in South Africa. It is characterized by skin hyperpigmentation and hypertrichosis, abdominal pain, tachycardia, hypertension and neuromuscular disturbances. High fecal levels of protoporphyrin and coproporphyrin, increased urine uroporphyrins and iron overload are typical markers of the disease. Iron overload due to HFE mutations is a precipitating or exacerbating factor in variegate porphyria. Defects in HFE are associated with susceptibility to microvascular complications of diabetes type 7 (MVCD7). These are pathological conditions that develop in numerous tissues and organs as a consequence of diabetes mellitus. They include diabetic retinopathy, diabetic nephropathy leading to end-stage renal disease, and diabetic neuropathy. Diabetic retinopathy remains the major cause of new-onset blindness among diabetic adults. It is characterized by vascular permeability and increased tissue ischemia and angiogenesis. Belongs to the MHC class I family. 11 isoforms of the human protein are produced by alternative splicing. Protein type: Membrane protein, integral Chromosomal Location of Human Ortholog: 6p21.3 Cellular Component: recycling endosome; apical part of cell; perinuclear region of cytoplasm; integral to plasma membrane; early endosome; plasma membrane; cytoplasmic vesicle; MHC class I protein complex Molecular Function: protein binding; peptide antigen binding; antigen binding; receptor binding Biological Process: antigen processing and presentation; antigen processing and presentation of peptide antigen via MHC class I; positive regulation of T cell mediated cytotoxicity; cellular iron ion homeostasis; protein complex assembly; immune response; female pregnancy; hormone biosynthetic process; cellular response to iron ion starvation Disease: Microvascular Complications Of Diabetes, Susceptibility To, 7; Transferrin Serum Level Quantitative Trait Locus 2; Alzheimer Disease; Hemochromatosis, Type 1; Porphyria Variegata; Porphyria Cutanea Tarda
Research Articles on HFE	**1.** A new tool predicts the probability of being a C282Y homozygote of the HFE gene from serum ferritin and transferrin saturation value.
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