SANTA CRUZ BIOTECHNOLOGY, INC.

Control siRNA-G: sc-44235

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

RNA interference (RNAi) is one of the most exciting discoveries of the past decade in functional genomics and proteomics. While first recognized in nematodes as a response to exogenously introduced long double-stranded RNA (dsRNA), it is now clear that RNAi is utilized by most eukaryotes *in vivo* for anti-viral defense, transposon activity modulation and gene regulation, and has rapidly become an important research tool for gene silencing.

Long double-stranded RNAs (typically more than 200 nucleotides) can be used to silence the expression of target genes in a variety of organisms and cell types. Upon introduction, the long dsRNAs enter a cellular pathway that is commonly referred to as the RNA interference (RNAi) pathway. The dsRNAs are processed by an RNase III-like enzyme called Dicer into small interfering RNAs (siRNAs), short RNA duplexes of 19-21 nucleotides with two nucleotide 3' overhangs on each strand. The siRNAs are then assembled into endoribonuclease-containing complexes known as RNA-induced silencing complexes (RISCs), unwinding in the process. Activated RISCs subsequently bind to complementary transcripts by base pairing interactions between the siRNA anti-sense strand and complementary mRNA. The bound mRNA is cleaved and sequence specific degradation of mRNA results in gene silencing.

In mammalian cells, introduction of long dsRNA (more than 30 nucleotides) initiates a potent anti-viral response, exemplified by nonspecific inhibition of protein synthesis and RNA degradation. The mammalian anti-viral response can be bypassed, however, by the introduction of siRNAs.

Santa Cruz Biotechnology, Inc. currently offers more than 10,000 target-specific 19-25 nucleotide siRNAs that can be used to knock down protein expression in a broad variety of mammalian cell types. Our product line includes siRNAs designed to silence a large selection of proteins, including tumor suppressors, transcription regulators, cell cycle proteins, membrane receptors, signaling intermediates, kinases, cell adhesion proteins and proteins involved in lymphocyte signaling. In addition, for each siRNA we offer an appropriate "matched" control antibody for confirmation of targeted mRNA silencing by either Western blotting or fluorescence antibody cell staining. We also offer transfection reagent, appropriate buffers and fluorescein-labeled non-targeted siRNA designed to monitor transfection efficiency. labeled non-targeted siRNA designed to monitor transfection efficiency.

PRODUCT

Control siRNA-G is a non-targeting 20-25 nt siRNA designed as a negative control. Each vial contains lyophilized siRNA sufficient for 66 µl of 10 µM solution when resuspended as directed below. Each vial contains sufficient product for 10-20 transfections. See support reagents below for additional fluorescein conjugated and non-conjugated siRNA controls.

APPLICATIONS

Control siRNA-G is recommended as a negative control for evaluating RNAi off-target effects, and in order to verify the accuracy of gene specific siRNA-dependent RNAi.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant; Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 66 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 66 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

SUPPORT REAGENTS

PRODUCT	CAT. #	DESCRIPTION	AMOUNT
Control siRNA-A	sc-37007	Control siRNAs A–J are negative controls for experiments using targeted siRNA transfection; each product consists of a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA	66 µl, 10 µM; 10-20 transfections
Control siRNA-B	sc-44230	see description above	see above
Control siRNA-C	sc-44231	see description above	see above
Control siRNA-D	sc-44232	see description above	see above
Control siRNA-E	sc-44233	see description above	see above
Control siRNA-F	sc-44234	see description above	see above
Control siRNA-G	sc-44235	see description above	see above
Control siRNA-H	sc-44236	see description above	see above
Control siRNA-I	sc-44237	see description above	see above
Control siRNA-J	sc-44238	see description above	see above
Control siRNA (Fluorescein Conjugate)-A	sc-36869	Control siRNA (Fluorescein Conujugates) A–D are controls to monitor transfection efficiency by fluorescence microscopy; each product consists of a scrambled sequence conjugated to fluorescein that will not lead to the specific degradation of any cellular mRNA.	66 µl, 10 µM; 10-20 transfections
Control siRNA (Fluorescein Conjugate)-B	sc-44239	see description above	see above
Control siRNA (Fluorescein Conjugate)-C	sc-44240	see description above	see above
Control siRNA (Fluorescein Conjugate)-D	sc-44241	see description above	see above
siRNA Dilution Buffer	sc-29527	TRIS-EDTA based buffer prepared from RNase-free water suitable for storage and dilution of siRNA; pH 8.	1.5 ml
siRNA Transfection Reagent	sc-29528	Delivers siRNA into cells with minimalcell toxicity; enables highly efficient siRNA transfection in a variety of cell lines including HeLa, A549, Jurkat and NIH-3T3.	0.3 ml; 50-100 transfections
siRNA Transfection Medium	sc-36868	Reduced-serum medium suitable for addition to siRNA suspension and siRNA transfection reagent immediately prior to cell transfection; modification of Eagle's Minimal Essential Medium, buffered with HEPES and sodium bicarbonate, and supplemented with hypoxanthine, thymidine, sodium pyruvate, L-glutamine, trace elements, growth factors and phenol red.	20 ml

siRNA support reagents are optimal for successful delivery of Santa Cruz Biotechnology, Inc.'s siRNA Gene Silencers into mammalian cells.

SELECT PRODUCT CITATIONS

1. Cohen, M.R., et al. 2015. Nerve growth factor regulates transient receptor potential vanilloid 2 via extracellular signal-regulated kinase signaling to enhance neurite outgrowth in developing neurons. Mol. Cell. Biol. 35: 4238-4252.

RESEARCH USE

For research use only, not for use in diagnostic procedures.