SANTA CRUZ BIOTECHNOLOGY, INC.

casein kinase Iα siRNA (h): sc-29912

BACKGROUND

Casein kinase I (also designated CKI) and casein kinase II (CKII) compose a family of serine/threonine protein kinases which are present in all eukaryotes examined to date. Casein kinase I family members, which include casein kinase Iα, Iγ, Iδ and Iε, have been implicated in the control of cytoplasmic and nuclear processes, including DNA replication and repair, membrane trafficking, circadian rhythm, cell cycle progression, chromosome segregation, apoptosis and cellular differentiation. Casein kinase Iα, also known as CSNK1A1L, is a 337 amino acid protein that shares a high degree of sequence similarity with the α isoform of casein kinase 1. Casein kinase Iα resides in the cytoplasm and participates in the Wnt signaling pathway. By utilizing ATP within its protein kinase domain, casein kinase Iα phosphorylates a large number of proteins.

REFERENCES

1. Lozeman, F.J., et al. 1990. Isolation and characterization of human cDNA clones encoding the α and the α' subunits of casein kinase II. Biochemistry 29: 8436-8447.
2. Tuazon, P.T. and Traugh, J.A. 1991. Casein kinase I and II—multipotential Serine protein kinases: structure, function, and regulation. Adv. Second Messenger Phosphoprotein Res. 23: 123-164.

CHROMOSOMAL LOCATION

Genetic locus: CSNK1A1 (human) mapping to 5q32.

PRODUCT

casein kinase Iα siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see casein kinase Iα shRNA Plasmid (h): sc-29912-SH and casein kinase Iα shRNA (h) Lentiviral Particles: sc-29912-V as alternate gene silencing products.

For independent verification of casein kinase Iα (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-29912A, sc-29912B and sc-29912C.

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 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 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.

APPLICATIONS

casein kinase Iα siRNA (h) is recommended for the inhibition of casein kinase Iα expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

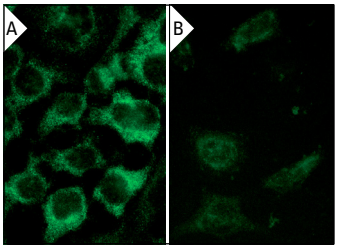
GENE EXPRESSION MONITORING

casein kinase Iα (H-7): sc-74582 is recommended as a control antibody for monitoring of casein kinase Iα gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor casein kinase Iα gene expression knockdown using RT-PCR Primer: casein kinase Iα (h)-PR: sc-29912-PR (20 µl, 498 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



casein kinase Iα siRNA (h): sc-29912. Immunofluorescence staining of methanol-fixed, control HeLa (**A**) and casein kinase Iα siRNA silenced HeLa (**B**) cells showing diminished cytoplasmic staining in the siRNA silenced cells. Cells probed with casein kinase Iα (C-19): sc-6477.

SELECT PRODUCT CITATIONS

1. Sinnberg, T., et al. 2010. Suppression of casein kinase 1α in melanoma cells induces a switch in β-catenin signaling to promote metastasis. Cancer Res. 70: 6999-7009.
2. Park, H.Y., et al. 2014. Calotropin: a cardenolide from calotropis gigantea that inhibits Wnt signaling by increasing casein kinase 1α in colon cancer cells. Chembiochem 15: 872-878.
3. Shi, H., et al. 2024. LASS2 enhances chemosensitivity to cisplatin by inhibiting PP2A-mediated β-catenin dephosphorylation in a subset of stem-like bladder cancer cells. BMC Med. 22: 19.

RESEARCH USE

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