SANTA CRUZ BIOTECHNOLOGY, INC.

casein kinase IIα siRNA (h): sc-29918

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. CKII is usually expressed as a tetrameric complex consisting of either an α2β2 or an αα'β2 structure. The α catalytic subunit is stimulated by the β regulatory subunit, which undergoes autophosphorylation. Casein kinase II activity is high in the cytosol and nucleus of proliferating and differentiating cells. Casein kinase II is known to phosphorylate more than 100 different substrates including nuclear oncoproteins, transcription factors and enzymes involved in DNA metabolism.

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., et al. 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: CSNK2A1 (human) mapping to 20p13.

PRODUCT

casein kinase IIα 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 IIα shRNA Plasmid (h): sc-29918-SH and casein kinase IIα shRNA (h) Lentiviral Particles: sc-29918-V as alternate gene silencing products.

For independent verification of casein kinase IIα (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-29918A, sc-29918B and sc-29918C.

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 IIα siRNA (h) is recommended for the inhibition of casein kinase IIα 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 IIα (E-7): sc-373894 is recommended as a control antibody for monitoring of casein kinase IIα 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 IIα gene expression knockdown using RT-PCR Primer: casein kinase IIα (h)-PR: sc-29918-PR (20 µl, 506 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yang, H., et al. 2007. pVHL acts as an adaptor to promote the inhibitory phosphorylation of the NFκB agonist Card9 by CK2. Mol. Cell 28: 15-27.
2. Yao, K., et al. 2012. Casein kinase 2 inhibition attenuates androgen receptor function and cell proliferation in prostate cancer cells. Prostate 72: 1423-1430.
3. Zhao, T., et al. 2013. Inhibition of CK2 enhances UV-triggered apoptotic cell death in lung cancer cell lines. Oncol. Rep. 30: 377-384.
4. Basnet, H., et al. 2014. Tyrosine phosphorylation of Histone H2A by CK2 regulates transcriptional elongation. Nature 516: 267-271.
5. So, K.S., et al. 2015. Akt/mTOR down-regulation by CX-4945, a CK2 inhibitor, promotes apoptosis in chemorefractory non-small cell lung cancer cells. Anticancer Res. 35: 1537-1542.
6. German, P., et al. 2016. Phosphorylation-dependent cleavage regulates von Hippel Lindau proteostasis and function. Oncogene 35: 4973-4980.
7. Huang, B., et al. 2018. The E3 ubiquitin ligase Trim13 regulates Nur77 stability via casein kinase 2α. Sci. Rep. 8: 13895.
8. Im, J., et al. 2019. Fibroblasts from patients with idiopathic pulmonary fibrosis are resistant to cisplatin-induced cell death via enhanced CK2-dependent XRCC1 activity. Apoptosis 24: 499-510.

RESEARCH USE

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