SANTA CRUZ BIOTECHNOLOGY, INC.

CaMKIIγ siRNA (m): sc-29899

BACKGROUND

Ca^{2+}/calmodulin-dependent protein kinase II (CaMKII) is a Ca^{2+}-signaling intermediate that contains α, β, γ and δ subunits. Calcium oscillations, autophosphorylation and subunit composition of CaMKII influences the level of regulation of cellular events, including cell cycle and transcription. Several CaMKIIγ protein isoforms are present in biliary epithelium.

REFERENCES

1. Nghiem, P., et al. 1993. Cloning and analysis of two new isoforms of multifunctional Ca^{2+}/calmodulin-dependent protein kinase. Expression in multiple human tissues. J. Biol. Chem. 268: 5471-5479.
2. Kwiatkowski, A.P. and McGill, J.M. 2000. Alternative splice variant of γ calmodulin-dependent protein kinase II alters activation by calmodulin. Arch. Biochem. Biophys. 378: 377-383.
3. Bui, J.D., et al. 2000. A role for CaMKII in T cell memory. Cell 100: 457-467.
4. Lorenz, J.M., et al. 2002. Differential autophosphorylation of CaMKII from phasic and tonic smooth muscle tissues. Am. J. Physiol., Cell Physiol. 283: 1399-1413.
5. Gloyn, A.L., et al. 2002. Human calcium/calmodulin-dependent protein kinase II γ gene (CAMK2G): cloning, genomic structure and detection of variants in subjects with type II diabetes. Diabetologia 45: 580-583.
6. Gaertner, T.R., et al. 2004. Comparative analyses of the three-dimensional structures and enzymatic properties of α, β, γ and δ isoforms of Ca^{2+}-calmodulin-dependent protein kinase II. J. Biol. Chem. 279: 12484-12494.
7. LocusLink Report (LocusID: 818). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: Camk2g (mouse) mapping to 14 A3.

PRODUCT

CaMKIIγ siRNA (m) 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 CaMKIIγ shRNA Plasmid (m): sc-29899-SH and CaMKIIγ shRNA (m) Lentiviral Particles: sc-29899-V as alternate gene silencing products.

For independent verification of CaMKIIγ (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-29899A, sc-29899B and sc-29899C.

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

CaMKIIγ siRNA (m) is recommended for the inhibition of CaMKIIγ expression in mouse 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

CaMKII (G-1): sc-5306 is recommended as a control antibody for monitoring of CaMKIIγ 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CaMKIIγ gene expression knockdown using RT-PCR Primer: CaMKIIγ (m)-PR: sc-29899-PR (20 µl, 452 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

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