SANTA CRUZ BIOTECHNOLOGY, INC.

Calpain 7 siRNA (h): sc-62068

BACKGROUND

Calpains are calcium-activated thiol proteases. Calpain 7 (also known as PalBH) is a member of the Non-EF-hand subfamily of calpains and may be calcium independent. Calpain 7 has 813 amino acid residues and is a divergent member of the calpain family. It has only 26-35% shared identity to other members and most of this homology is in the protease domain. Calpain 7 seems to be related to PalB, an *Aspergillus nidulans* protease that is involved in alkaline ambient pH adaptation. A long N-terminal domain (N) and a PalB homologous domain (PBH) flank the calpain protease domain of Calpain 7. Calpain 7 appears to have a ubiquitous tissue distribution but is highly expressed in the brain. It localizes to the cytoplasm and the nucleus, but its activated form is found only in the nucleus. Calpain 7 is an atypical calpain that lacks domain IV and cannot form a dimer with the 30 kDa regulatory subunit. Upregulation of Calpain 7 in striatal or cortical tissue of Huntington's disease knock-in mice suggests that this protein may be involved in the onset of the disease.

REFERENCES

1. Takano, E., et al. 1991. Molecular diversity of erythrocyte calpastatin. Biomed. Biochim. Acta 50: 517-521.
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3. Johnson, G.V., et al. 1997. Calpains: intact and active? Bioessays 19: 1011-1018.
4. Elce, J.S., et al. 1997. Autolysis, Ca^{2+} requirement, and heterodimer stability in μ-calpain. J. Biol. Chem. 272: 11268-11275.
5. Kawasaki, H., et al. 1997. Regulation of the calpain-calpastatin system by membranes (review). Mol. Membr. Biol. 13: 217-224.
6. Dear, T.N., et al. 1999. Diverse mRNA expression patterns of the mouse calpain genes Capn5, Capn6 and Capn11 during development. Mech. Dev. 89: 201-209.
7. Huang, Y., et al. 2001. The calpain family and human disease. Trends Mol. Med. 7: 355-362.
8. Suzuki, K., et al. 2004. Structure, activation, and biology of calpain. Diabetes 53: S12-S18.

CHROMOSOMAL LOCATION

Genetic locus: CAPN7 (human) mapping to 3p25.1.

PRODUCT

Calpain 7 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 Calpain 7 shRNA Plasmid (h): sc-62068-SH and Calpain 7 shRNA (h) Lentiviral Particles: sc-62068-V as alternate gene silencing products.

For independent verification of Calpain 7 (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-62068A, sc-62068B and sc-62068C.

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

Calpain 7 siRNA (h) is recommended for the inhibition of Calpain 7 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

Calpain 7 (B-7): sc-137227 is recommended as a control antibody for monitoring of Calpain 7 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 Calpain 7 gene expression knockdown using RT-PCR Primer: Calpain 7 (h)-PR: sc-62068-PR (20 µl). 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.