SANTA CRUZ BIOTECHNOLOGY, INC.

Calpain 6 siRNA (m): sc-62067

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The Power to Question

BACKGROUND

Calpains are calcium-activated thiol proteases involved in intracellular processing of proteins and signal transduction. The classic Calpains are heterodimers with one large subunit, one small subunit and five EF-hand-calcium binding structures. The large subunit varies between family members and can be active without the small subunit. Calpain 6 (Capn6), also designated calpamodulin, CalpM or Calpain-like protease X-linked, belongs to the peptidase C-2 family of proteins. It is exclusively expressed in placenta and may play a role in embryogenesis. Calpain 6, in addition to Calpain 10 and Calpain 5, differs from other subfamily members by the presence of a T-domain that is homologous to the *Caenorhabditis elegans* protein Tra-3. Calpain 6 is distinct from other Calpains in that it lacks the cysteine and histidine residues required for protease activity. Overexpression of Calpain 6 leads to failure of cytokinesis and formation of microtubule bundles. This results in cells containing multiple nuclei. Calpain 6 may function in Actin organization and microtubule stability.

REFERENCES

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3. Markmann, A., et al. 2005. Downregulation of Calpain 9 is linked to hypertensive heart and kidney disease. Cell. Physiol. Biochem. 15: 109-116.
4. Leung-Toung, R., et al. 2006. Thiol proteases: inhibitors and potential therapeutic targets. Curr. Med. Chem. 13: 547-581.
5. Paquet-Durand, F., et al. 2006. Calpain is activated in degenerating photoreceptors in the rd1 mouse. J. Neurochem. 96: 802-814.
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7. Tonami, K., et al. 2007. Calpain 6 is involved in microtubule stabilization and cytoskeletal organization. Mol. Cell. Biol. 27: 2548-2561.
8. Lee, S.J., et al. 2007. Increased expression of Calpain 6 in uterine sarcomas and carcinosarcomas: an immunohistochemical analysis. Int. J. Gynecol. Cancer 17: 248-253.
9. Evans, J.S. and Turner, M.D. 2007. Emerging functions of the calpain superfamily of cysteine proteases in neuroendocrine secretory pathways. J. Neurochem. 103: 849-859.

CHROMOSOMAL LOCATION

Genetic locus: Capn6 (mouse) mapping to X F2.

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.

PRODUCT

Calpain 6 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 Calpain 6 shRNA Plasmid (m): sc-62067-SH and Calpain 6 shRNA (m) Lentiviral Particles: sc-62067-V as alternate gene silencing products.

For independent verification of Calpain 6 (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-62067A, sc-62067B and sc-62067C.

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 6 siRNA (m) is recommended for the inhibition of Calpain 6 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Calpain 6 gene expression knockdown using RT-PCR Primer: Calpain 6 (m)-PR: sc-62067-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.