

# Calpain 6 siRNA (r): sc-270623

## 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

1. Zhao, P., et al. 2002. SLUG is a novel downstream target of MyoD. Temporal profiling in muscle regeneration. *J. Biol. Chem.* 277: 30091-30101.
2. Czogalla, A. and Sikorski, A.F. 2005. Spectrin and Calpain: a "target" and a "sniper" in the pathology of neuronal cells. *Cell. Mol. Life Sci.* 62: 1913-1924.
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.
6. Ersfeld, K. and Croall, D.E. 2007. The calpains: modular designs and functional diversity. *Genome Biol.* 8: 218-218.
7. Tonami, K., et al. 2007. Calpain 6 is involved in microtubule stabilization and cytoskeletal organization. *Mol. Cell. Biol.* 27: 2548-2561.

## CHROMOSOMAL LOCATION

Genetic locus: Capn6 (r) mapping to Xq33.

## PRODUCT

Calpain 6 siRNA (r) 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Calpain 6 shRNA Plasmid (r): sc-270623-SH and Calpain 6 shRNA (r) Lentiviral Particles: sc-270623-V as alternate gene silencing products.

For independent verification of Calpain 6 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270623A, sc-270623B and sc-270623C.

## RESEARCH USE

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

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

Calpain 6 siRNA (r) is recommended for the inhibition of Calpain 6 expression in rat 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  $\mu$ M in 66  $\mu$ l. 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 (r)-PR: sc-270623-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.