

Calpain 2 siRNA (r): sc-60100

BACKGROUND

Calpain, an intracellular calcium-dependent protease that cleaves cytoskeletal and submembranous proteins, is thought to play a role in cytoskeletal reorganization and muscle protein degradation. Calpain exists as a heterodimer composed of a small regulatory subunit and one of three large catalytic subunits, designated Calpain 1, Calpain 2 and Calpain p94. Calpastatin regulates Calpain by inhibiting both the proteolytic activity of Calpain and its binding to membranes. Calpastatin exists in two types, tissue type and erythrocyte type, resulting from both alternative splicing and proteolytic processing.

REFERENCES

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2. Takano, E., Ueda, M., Tsunekawa, S., Murakami, T., Maki, M., Hatanaka, M. and Murachi, T. 1991. Molecular diversity of erythrocyte Calpastatin. *Biomed. Biochim. Acta* 50: 517-521.
3. Takano, E., Nosaka, T., Lee, W.J., Nakamura, K., Takahashi, T., Funaki, M., Okada, H., Hatanaka, M. and Maki M. 1993. Molecular diversity of Calpastatin in human erythroid cells. *Arch. Biochem. Biophys.* 303: 349-354.
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CHROMOSOMAL LOCATION

Genetic locus: Capn2 (rat) mapping to 13q26.

PRODUCT

Calpain 2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Calpain 2 shRNA Plasmid (r): sc-60100-SH and Calpain 2 shRNA (r) Lentiviral Particles: sc-60100-V as alternate gene silencing products.

For independent verification of Calpain 2 (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-60100A, sc-60100B and sc-60100C.

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

APPLICATIONS

Calpain 2 siRNA (r) is recommended for the inhibition of Calpain 2 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 μ M in 66 μ 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.

GENE EXPRESSION MONITORING

Calpain 2 (E-10): sc-373966 is recommended as a control antibody for monitoring of Calpain 2 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 2 gene expression knockdown using RT-PCR Primer: Calpain 2 (r)-PR: sc-60100-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zheng, D., Wang, G., Li, S., Fan, G.C. and Peng, T. 2015. Calpain-1 induces endoplasmic reticulum stress in promoting cardiomyocyte apoptosis following hypoxia/reoxygenation. *Biochim. Biophys. Acta* 1852: 882-892.
2. Tang, F., Chan, E., Lu, M., Zhang, X.W., Dai, C.M., Mei, M., Zhang, S.P., Wang, H.X. and Song, Q. 2015. Calpain-1 mediated disorder of pyrophosphate metabolism contributes to vascular calcification induced by oxLDL. *PLoS ONE* 10: e0129128.
3. Xie, R.J., Hu, X.X., Zheng, L., Cai, S., Chen, Y.S., Yang, Y., Yang, T., Han, B. and Yang, Q. 2020. Calpain-2 activity promotes aberrant endoplasmic reticulum stress-related apoptosis in hepatocytes. *World J. Gastroenterol.* 26: 1450-1462.

RESEARCH USE

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