SANTA CRUZ BIOTECHNOLOGY, INC.

GCM1 siRNA (h): sc-75117

BACKGROUND

GCM1 (glial cells missing homolog 1), also known as GCMA or hGCMa, is a 436 amino acid human homolog of the *Drosophila* glial cells missing protein (gcm). Localized to the nucleus and expressed specifically in placenta, GCM1 functions as a transcription factor that binds the novel sequence (A/G)CCCGCAT and, through this binding, regulates placental development. Additionally, GCM1 is thought to regulate syncytin SU-mediated trophoblastic fusion, an event that produces syncytiotrophoblast structures which, in turn, function as the outermost covering of the placental villi. GCM1 contains one N-terminal GCM (glial cell missing) DNA-binding domain, a conserved 150 amino acid residue that conveys DNA-binding activity for a variety of transcription factors involved in developmental processes.

REFERENCES

1. Akiyama, Y., et al. 1996. The GCM-motif: a novel DNA-binding motif conserved in *Drosophila* and mammals. Proc. Natl. Acad. Sci. USA 93: 14912-14916.
2. Yamada, K., et al. 1999. A GCM motif protein is involved in placenta-specific expression of human aromatase gene. J. Biol. Chem. 274: 32279-32286.
3. Yamada, K., et al. 2000. Genomic organization, chromosomal localization, and the complete 22 kb DNA sequence of the human GCMa/GCM1, a placenta-specific transcription factor gene. Biochem. Biophys. Res. Commun. 278: 134-139.
4. Yu, C., et al. 2002. GCMa regulates the syncytin-mediated trophoblastic fusion. J. Biol. Chem. 277: 50062-50068.
5. Baczyk, D., et al. 2004. Complex patterns of GCM1 mRNA and protein in villous and extravillous trophoblast cells of the human placenta. Placenta 25: 553-559.
6. Chang, C.W., et al. 2005. Stimulation of GCMa transcriptional activity by cyclic AMP/protein kinase A signaling is attributed to CBP-mediated acetylation of GCMa. Mol. Cell. Biol. 25: 8401-8414.
7. Knerr, I., et al. 2005. Stimulation of GCMa and syncytin via cAMP mediated PKA signaling in human trophoblastic cells under normoxic and hypoxic conditions. FEBS Lett. 579: 3991-3998.

CHROMOSOMAL LOCATION

Genetic locus: GCM1 (human) mapping to 6p12.1.

PRODUCT

GCM1 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 GCM1 shRNA Plasmid (h): sc-75117-SH and GCM1 shRNA (h) Lentiviral Particles: sc-75117-V as alternate gene silencing products.

For independent verification of GCM1 (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-75117A, sc-75117B and sc-75117C.

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

GCM1 siRNA (h) is recommended for the inhibition of GCM1 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

GCM1 (R-06): sc-101173 is recommended as a control antibody for monitoring of GCM1 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 GCM1 gene expression knockdown using RT-PCR Primer: GCM1 (h)-PR: sc-75117-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.