SANTA CRUZ BIOTECHNOLOGY, INC.

cerberus siRNA (h): sc-39406

BACKGROUND

The cerberus (Cer1, Cer-1 or Cerr) protein is a member of the cysteine knot superfamily and is expressed in anterior regions of the gastrula. Cerberus induces the differentiation of structural components in the head during embryonic development. A segmental pattern of expression of cerberus is also observed in nascent and newly formed somites. This suggests an additional role in development of the axial skeleton, musculature and peripheral nervous system. Cerberus is secreted and functions in the surrounding extracellular space by inhibiting signaling molecules. The neural-inducing and mesoderm-inhibiting activities of cerberus result from specific binding of cerberus to BMP and Nodal molecules, respectively. In mouse, cerberus is expressed in the anterior mesendoderm that underlies the presumptive anterior neural plate.

REFERENCES

1. Agius, P.E., et al. 1999. The head inducer cerberus in a multivalent extracellular inhibitor. J. Soc. Biol. 193: 347-354.
2. Simpson, E.H., et al. 1999. The mouse Cer1 (cerberus related or homologue) gene is not required for anterior pattern formation. Dev. Biol. 213: 202-206.
3. Shawlot, W., et al. 2000. The cerberus-related gene, Cerr1, is not essential for mouse head formation. Genesis 26: 253-258.
4. Belo, J.A., et al. 2000. Cerberus-like is a secreted BMP and nodal antagonist not essential for mouse development. Genesis 26: 265-270.
5. Bachiller, D., et al. 2000. The organizer factors Chordin and Noggin are required for mouse forebrain development. Nature 403: 658-661.

CHROMOSOMAL LOCATION

Genetic locus: CER1 (human) mapping to 9p22.3.

PRODUCT

cerberus 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 cerberus shRNA Plasmid (h): sc-39406-SH and cerberus shRNA (h) Lentiviral Particles: sc-39406-V as alternate gene silencing products.

For independent verification of cerberus (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-39406A, sc-39406B and sc-39406C.

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

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

cerberus (C-1): sc-515324 is recommended as a control antibody for monitoring of cerberus 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 cerberus gene expression knockdown using RT-PCR Primer: cerberus (h)-PR: sc-39406-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.