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SANTA CRUZ BIOTECHNOLOGY, INC.

POEM siRNA (m): sc-152365

BACKGROUND

POEM, also known as Nephronectin or EGFL6L, is a 565 amino acid member of the nephronectin family that contains five EGF-like domains and an Arg-Gly-Asp (RGD) cell binding motif, as well as a meprin, A5 protein and receptor protein-tyrosine phosphatase μ (MAM) domain. Expressed in kidney, thyroid and parathyroid glands, developing bone, tooth germ, skeletal and smooth muscle, brain and skin, POEM is involved in the development and function of bone, muscle and kidney tissue. The most established function of POEM is as a ligand to the receptor Integrin α8/β1. Highly expressed in the nephritic cord, Integrin α8/β1 plays a critical role in kidney morphogenesis and development. The POEM-Integrin α8β1 complex regulates the expression of GDNF, another protein that affects kidney development, specifically by regulating the growth of the uretic bud. There are two named isoforms of POEM, both of which form homodimers or homotrimers.

REFERENCES

1. Müller, U., et al. 1997. Integrin α8β1 is critically important for epithelial-mesenchymal interactions during kidney morphogenesis. Cell 88: 603-613.
2. Morimura, N., et al. 2001. Molecular cloning of POEM: a novel adhesion molecule that interacts with α8β1 integrin. J. Biol. Chem. 276: 42172-42181.
3. Miner, J.H. 2001. Mystery solved: discovery of a novel integrin ligand in the developing kidney. J. Cell Biol. 154: 257-259.
4. Brandenberger, R., et al. 2001. Identification and characterization of a novel extracellular matrix protein nephronectin that is associated with integrin α8β1 in the embryonic kidney. J. Cell Biol. 154: 447-458.
5. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 610306. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
6. Huang, J.T., et al. 2005. Identification and characterization of a novel human nephronectin gene in silico. Int. J. Mol. Med. 15: 719-724.
7. Linton, J.M., et al. 2007. The ECM protein nephronectin promotes kidney development via integrin α8β1-mediated stimulation of Gdnf expression. Development. 134: 2501-2509.

CHROMOSOMAL LOCATION

Genetic locus: Npnt (mouse) mapping to 3 G3.

PRODUCT

POEM 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 POEM shRNA Plasmid (m): sc-152365-SH and POEM shRNA (m) Lentiviral Particles: sc-152365-V as alternate gene silencing products.

For independent verification of POEM (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-152365A, sc-152365B and sc-152365C.

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

POEM siRNA (m) is recommended for the inhibition of POEM 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.

GENE EXPRESSION MONITORING

POEM (G-1): sc-393033 is recommended as a control antibody for monitoring of POEM 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 POEM gene expression knockdown using RT-PCR Primer: POEM (m)-PR: sc-152365-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.