

Homer-1 siRNA (m): sc-35582

BACKGROUND

Homer family proteins, also designated Ves1 (for VASP/Ena-related gene up-regulated during seizure) and LTP, are immediate early gene products that bind to group 1 metabotropic glutamate receptors (mGluRs), proteins involved in triggering intracellular calcium release. Unlike Homer-1a, the prototype member of the Homer family, other Homer family members (Homer-1b and -1c, Homer-2a, -2b and -2c and Homer-3) are constitutively expressed and contain a coiled-coil (CC) domain that mediates self-multimerization. Homer-1a is enriched at excitatory synapses, does not multimerize and appears to block the association of mGluRs to CC-Homer proteins. Homer proteins have also been shown to link mGluRs with the inositol triphosphate receptors (IP3R).

REFERENCES

1. Brakeman, P.R., et al. 1997. Homer: a protein that selectively binds metabotropic glutamate receptors. *Nature* 386: 284-288.
2. Kato, A., et al. 1997. Ves1, a gene encoding VASP/Ena family related protein, is upregulated during seizure, long-term potentiation and synaptogenesis. *FEBS Lett.* 412: 183-189.
3. Kato, A., et al. 1998. Novel members of the Ves1/Homer family of PDZ proteins that bind metabotropic glutamate receptors. *J. Biol. Chem.* 273: 23969-23975.
4. Xiao, B., et al. 1998. Homer regulates the association of group 1 metabotropic glutamate receptors with multivalent complexes of Homer-related, synaptic proteins. *Neuron* 21: 707-716.
5. Tu, J.C., et al. 1998. Homer binds a novel proline-rich motif and links group 1 metabotropic glutamate receptors with IP3 receptors. *Neuron* 21: 717-726.

CHROMOSOMAL LOCATION

Genetic locus: Homer1 (mouse) mapping to 13 C3.

PRODUCT

Homer-1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Homer-1 shRNA Plasmid (m): sc-35582-SH and Homer-1 shRNA (m) Lentiviral Particles: sc-35582-V as alternate gene silencing products.

For independent verification of Homer-1 (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-35582A, sc-35582B and sc-35582C.

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

Homer-1 siRNA (m) is recommended for the inhibition of Homer-1 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 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Homer-1 gene expression knockdown using RT-PCR Primer: Homer-1 (m)-PR: sc-35582-PR (20 μ l, 459 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, Q., et al. 2014. Homer-1 alternative splicing is regulated by gonadotropin-releasing hormone and modulates gonadotropin gene expression. *Mol. Cell. Biol.* 34: 1747-1756.
2. Kim, Y.M., et al. 2015. Glycyrrhizin reduces HMGB1 secretion in lipopolysaccharide-activated RAW 264.7 cells and endotoxemic mice by p38/Nrf2-dependent induction of HO-1. *Int. Immunopharmacol.* 26: 112-118.
3. Park, S.Y., et al. 2016. 2,3,4',5-tetrahydroxystilbene-2-O- β -d-glucoside exerts anti-inflammatory effects on lipopolysaccharide-stimulated microglia by inhibiting NF κ B and activating AMPK/Nrf2 pathways. *Food Chem. Toxicol.* 97: 159-167.
4. Jiang, H.Z., et al. 2016. Downregulation of Homer1b/c in SOD1 G93A models of ALS: a novel mechanism of neuroprotective effect of lithium and valproic acid. *Int. J. Mol. Sci.* 17 pii: E2129.
5. Park, S.Y., et al. 2019. Anti-neuroinflammatory effects of *Ephedra sinica* Stapf extract-capped gold nanoparticles in microglia. *Int. J. Nanomedicine* 14: 2861-2877.

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.