

Multimerin-1 siRNA (m): sc-149708

BACKGROUND

Multimerin-1, also known as MMRN1, EMILIN-4 or ECM (endothelial cell multimerin), is a 1,228 amino acid secreted protein that contains one C1q domain, one EMI domain and one EGF-like domain. Synthesized in megakaryocytes and endothelial cells and present in liver, lung and placenta, Multimerin-1 exists as a multimeric structure composed of varying disulfide-linked multimers and functions as a carrier protein for platelet factors (specifically platelet factor V), playing a role in the stabilization and storage of factor V in platelets. In addition, Multimerin-1 acts as a ligand for select Integrins and may participate in extracellular matrix adhesion. Defects in the gene encoding Multimerin-1 that lead to Multimerin-1 deficiency are associated with autosomal dominant bleeding disorders due to platelet factor malfunction. Multiple isoforms of Multimerin-1 exist due to alternative splicing events.

REFERENCES

1. Hayward, C.P., Hassell, J.A., Denomme, G.A., Rachubinski, R.A., Brown, C. and Kelton, J.G. 1995. The cDNA sequence of human endothelial cell multimerin. A unique protein with RGDS, coiled-coil, and epidermal growth factor-like domains and a carboxyl terminus similar to the globular domain of complement C1q and collagens type VIII and X. *J. Biol. Chem.* 270: 18246-18251.
2. Hayward, C.P., Cramer, E.M., Song, Z., Zheng, S., Fung, R., Masse, J.M., Stead, R.H. and Podor, T.J. 1998. Studies of multimerin in human endothelial cells. *Blood* 91: 1304-1317.
3. Torres, M.D., Van Tuinen, P. and Kroner, P.A. 2000. The human multimerin gene MMRN maps to chromosome 4q22. *Cytogenet. Cell Genet.* 88: 275-277.
4. Jeimy, S.B., Woram, R.A., Fuller, N., Quinn-Allen, M.A., Nicolaes, G.A., Dahlbäck, B., Kane, W.H. and Hayward, C.P. 2004. Identification of the MMRN1 binding region within the C2 domain of human factor V. *J. Biol. Chem.* 279: 51466-51471.
5. Hayward, C.P., Fuller, N., Zheng, S., Adam, F., Jeimy, S.B., Horsewood, I., Quinn-Allen, M.A. and Kane, W.H. 2004. Human platelets contain forms of factor V in disulfide-linkage with multimerin. *Thromb. Haemost.* 92: 1349-1357.
6. Adam, F., Zheng, S., Joshi, N., Kelton, D.S., Sandhu, A., Suehiro, Y., Jeimy, S.B., Santos, A.V., Masse, J.M., Kelton, J.G., Cramer, E.M. and Hayward, C.P. 2005. Analyses of cellular Multimerin 1 receptors: *in vitro* evidence of binding mediated by α IIb β 3 and α v β 3. *Thromb. Haemost.* 94: 1004-1011.
7. Jeimy, S.B., Fuller, N., Tasneem, S., Segers, K., Stafford, A.R., Weitz, J.I., Camire, R.M., Nicolaes, G.A. and Hayward, C.P. 2008. Multimerin 1 binds factor V and activated factor V with high affinity and inhibits thrombin generation. *Thromb. Haemost.* 100: 1058-1067.
8. Jeimy, S.B., Quinn-Allen, M.A., Fuller, N., Kane, W.H. and Hayward, C.P. 2008. Location of the Multimerin 1 binding site in coagulation factor V: an update. *Thromb. Res.* 123: 352-354.
9. Online Mendelian Inheritance in Man, OMIM[™]. 2008. Johns Hopkins University, Baltimore, MD. MIM Number: 601456. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: Mmrn1 (mouse) mapping to 6 B3.

PRODUCT

Multimerin-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 Multimerin-1 shRNA Plasmid (m): sc-149708-SH and Multimerin-1 shRNA (m) Lentiviral Particles: sc-149708-V as alternate gene silencing products.

For independent verification of Multimerin-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-149708A, sc-149708B and sc-149708C.

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

Multimerin-1 siRNA (m) is recommended for the inhibition of Multimerin-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 Multimerin-1 gene expression knockdown using RT-PCR Primer: Multimerin-1 (m)-PR: sc-149708-PR (20 μ l). 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.