

myoglobin siRNA (h): sc-35993

BACKGROUND

Myoglobin is a cytosolic oxygen binding protein responsible for the storage and diffusion of oxygen within myocytes. Expression of myoglobin is highest in skeletal and cardiac muscle. Myoglobin is necessary for the maintenance of mitochondrial respiration during heavy and sustained contractile activity, and it is thought to transport oxygen from erythrocytes to mitochondria. The genomic structure of myoglobin appears to be conserved across a broad range of species, and contains a putative polyadenylation signal and a polypyrimidine-rich region. Human myoglobin is specified by a single gene, and it has been identified in human smooth muscle.

REFERENCES

1. Kagen, L., et al. 1977. Serum myoglobin in myocardial infarction: the "staccato phenomenon". Is acute myocardial infarction in man an intermittent event? *Am. J. Med.* 62: 86-92.
2. Jeffreys, A.J., et al. 1984. The human myoglobin gene: a third dispersed globin locus in the human genome. *Nucleic Acids Res.* 12: 3235-3243.
3. Akaboshi, E. 1985. Cloning of the human myoglobin gene. *Gene* 33: 241-249.
4. Blanchetot, A., et al. 1986. The mouse myoglobin gene. Characterisation and sequence comparison with other mammalian myoglobin genes. *Eur. J. Biochem.* 59: 469-474.
5. Van Nieuwenhoven, F.A., et al. 1995. Discrimination between myocardial and skeletal muscle injury by assessment of the plasma ratio of myoglobin over fatty acid-binding protein. *Circulation* 92: 2848-2854.
6. Qiu, Y., et al. 1998. Identification of myoglobin in human smooth muscle. *J. Biol. Chem.* 273: 23426-23432.
7. Garry, D.J., et al. 1998. Mice without myoglobin. *Nature* 395: 905-905.
8. Srinivas, V.S., et al. 2001. Myoglobin levels at 12 hours identify patients at low risk for 30-day mortality after thrombolysis in acute myocardial infarction: a Thrombolysis in Myocardial Infarction 10B substudy. *Am. Heart J.* 142: 29-36.
9. Penttilä, K., et al. 2002. Myoglobin, creatine kinase MB isoforms and creatine kinase MB mass in early diagnosis of myocardial infarction in patients with acute chest pain. *Clin. Biochem.* 35: 647-653.

CHROMOSOMAL LOCATION

Genetic locus: MB (human) mapping to 22q12.3.

PRODUCT

myoglobin 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see myoglobin shRNA Plasmid (h): sc-35993-SH and myoglobin shRNA (h) Lentiviral Particles: sc-35993-V as alternate gene silencing products.

For independent verification of myoglobin (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-35993A, sc-35993B and sc-35993C.

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

myoglobin siRNA (h) is recommended for the inhibition of myoglobin 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 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.

GENE EXPRESSION MONITORING

myoglobin (A-6): sc-393020 is recommended as a control antibody for monitoring of myoglobin 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 myoglobin gene expression knockdown using RT-PCR Primer: myoglobin (h)-PR: sc-35993-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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.