

HPR siRNA (h): sc-105538

BACKGROUND

Haptoglobin (Hp) is a blood plasma protein that functions to bind free Hemoglobin that has been released from erythrocytes, thereby inhibiting its oxidative activity. During this process, Haptoglobin sequesters the iron within Hemoglobin, preventing iron-utilizing bacteria from benefitting from hemolysis. This function suggests that Haptoglobin concentrations may increase in response to inflammation. The resulting Haptoglobin-Hemoglobin complex is then removed by the reticulo-endothelial system. Due to cleavage of a common precursor protein during protein synthesis, Haptoglobin consists of two α and two β chains, connected by disulfide bridges. In human, Haptoglobin exists in two allelic forms designated Haptoglobin 1 (Hp1) and Haptoglobin 2 (Hp2), where Hp2 is the result of a partial Hp1 gene duplication. There are three known phenotypes of human Haptoglobin: Hp1-1, Hp2-1 and Hp2-2, which may be associated with diabetes and cardiovascular disease pathology and a susceptibility to Parkinson's and Crohn's disease. Haptoglobin levels are useful in diagnosing hemolytic anemia, the abnormal breakdown of red blood cells. Haptoglobin is expressed in mammalian hepatocytes as well as other tissues such as skin, lung and kidney.

REFERENCES

1. Suleiman, M., et al. 2005. Haptoglobin polymorphism predicts 30-day mortality and heart failure in patients with diabetes and acute myocardial infarction. *Diabetes* 54: 2802-2806.
2. Na, N., et al. 2005. Serum free hemoglobin concentrations in healthy individuals are related to Haptoglobin type. *Clin. Chem.* 51: 1754-1755.
3. Yerbury, J.J., et al. 2005. The acute phase protein Haptoglobin is a mammalian extracellular chaperone with an action similar to clusterin. *Biochemistry* 44: 10914-10925.
4. Mihailovic, M., et al. 2005. Acute-phase related binding ability of p53 for the hormone response element of the Haptoglobin gene in adult rats. *Cell Biol. Int.* 29: 968-970.
5. Ship, N.J., et al. 2005. Binding of acellular, native and cross-linked human hemoglobins to Haptoglobin: enhanced distribution and clearance in the rat. *Am. J. Physiol. Gastrointest. Liver Physiol.* 288: G1301-G1309.
6. Sharpe-Timms, K.L., et al. 2005. Haptoglobin expression by shed endometrial tissue fragments found in peritoneal fluid. *Fertil. Steril.* 84: 22-30.

CHROMOSOMAL LOCATION

Genetic locus: HPR (human) mapping to 16q22.2.

PRODUCT

HPR siRNA (h) is a pool of 2 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 HPR shRNA Plasmid (h): sc-105538-SH and HPR shRNA (h) Lentiviral Particles: sc-105538-V as alternate gene silencing products.

For independent verification of HPR (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-105538A and sc-105538B.

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

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

Haptoglobin β (F-8): sc-390962 is recommended as a control antibody for monitoring of HPR 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 HPR gene expression knockdown using RT-PCR Primer: HPR (h)-PR: sc-105538-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.