SANTA CRUZ BIOTECHNOLOGY, INC.

ABCG5 siRNA (m): sc-41153

BACKGROUND

ABCG5 (also designated Sterolin-1) is a member of the evolutionarily conserved family of ATP-binding cassette (ABC) transporters. ABC transporters couple the energy of ATP hydrolysis to the translocation of various molecules across biological membranes. These proteins contain characteristic ATP-binding domains at the amino-terminus and a transmembrane domain in the carboxy-terminus, which forms a channel-like structure for transport. The ABCG5 gene maps to human chromosome 2p21 and is highly expressed in liver and intestine. ABCG5 and a highly homologous gene, ABCG8 (also designated Sterolin-2), are thought to regulate the uptake of dietary cholesterol and block the absorption of plant and shellfish sterols. Mutations in either ABCG5 or ABCG8 lead to sitosterolemia, a rare autosomal recessive disorder characterized by hyperabsorption of all sterols, including cholesterol and plant and shellfish sterols. Patients with this disease are hypercholesterolemic and frequently develop xanthomas, accelerated atherosclerosis and premature coronary artery disease. Therefore, ABCG5 is a critical component of the sterol transport pathway.

REFERENCES

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2. Berge, K.E., et al. 2000. Accumulation of dietary cholesterol in sitosterolemia caused by mutations in adjacent ABC transporters. Science 290: 1771-1775.
3. Lu, K., et al. 2001. Two genes that map to the STSL locus cause sitosterolemia: genomic structure and spectrum of mutations involving Sterolin-1 and Sterolin-2, encoded by ABCG5 and ABCG8, respectively. Am. J. Hum. Genet. 69: 278-290.
4. Shulenin, S., et al. 2001. An ATP-binding cassette gene (ABCG5) from the ABCG (White) gene subfamily maps to human chromosome 2p21 in the region of the sitosterolemia locus. Cytogenet. Cell Genet. 92: 204-228.
5. Lee, M.H., et al. 2001. Genetic basis of sitosterolemia. Curr. Opin. Lipidol. 12: 141-149.
6. Lee, M.H., et al. 2001. Identification of a gene, ABCG5, important in the regulation of dietary cholesterol absorption. Nat. Genet. 27: 79-83.

CHROMOSOMAL LOCATION

Genetic locus: Abcg5 (mouse) mapping to 17 E4.

PRODUCT

ABCG5 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 ABCG5 shRNA Plasmid (m): sc-41153-SH and ABCG5 shRNA (m) Lentiviral Particles: sc-41153-V as alternate gene silencing products.

For independent verification of ABCG5 (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-41153A, sc-41153B and sc-41153C.

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

ABCG5 siRNA (m) is recommended for the inhibition of ABCG5 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ABCG5 gene expression knockdown using RT-PCR Primer: ABCG5 (m)-PR: sc-41153-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.