SANTA CRUZ BIOTECHNOLOGY, INC.

FMO1 siRNA (m): sc-75042

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The Flavin containing monooxygenase family consists of five gene products, FMO1-5, that are major enzymatic oxidants involved in the metabolism of various therapeutics. FMO1, also known as dimethylaniline oxidase 1 or dimethylaniline monooxygenase (N-oxide-forming) 1, is a 532 amino acid protein localized to the microsome and endoplasmic reticulum membranes. In human fetuses, the FMO1 gene is expressed in the liver, but shortly after birth, expression is switched off. However, the gene continues to be expressed in adult kidney and, to a lesser extent, in intestine. In all other mammals, the FMO1 gene continues to be expressed in liver after birth. Functionally, FMO1 is involved in the oxidative metabolism of a variety of xenobiotics, such as drugs and pesticides, primarily by catalyzing the N-oxygenation of secondary and tertiary amines. The gene encoding FMO1 is located on chromosome 1q24.3.

REFERENCES

1. Luo, Z. and Hines, R.N. 1996. Identification of multiple rabbit flavin-containing monooxygenase form 1 (FMO1) gene promoters and observation of tissue-specific DNase I hypersensitive sites. Arch. Biochem. Biophys. 336: 251-260.
2. Cereda, C., et al. 2006. Increased incidence of FMO1 gene single nucleotide polymorphisms in sporadic amyotrophic lateral sclerosis. Amyotroph. Lateral Scler. 7: 227-234.
3. Shephard, E.A., et al. 2007. Alternative promoters and repetitive DNA elements define the species-dependent tissue-specific expression of the FMO1 genes of human and mouse. Biochem. J. 406: 491-499.
4. Shaffer, C.L., et al. 2007. Metabolism and disposition of a selective α_7 nicotinic acetylcholine receptor agonist in humans. Drug Metab. Dispos. 35: 1188-1195.
5. Glenn, K.L., et al. 2007. Analysis of FMO genes and off flavour in pork. J. Anim. Breed. Genet. 124: 35-38.
6. Yoneda, K., et al. 2009. *In vitro* metabolism and inhibitory effects of pranlukast in human liver microsomes. Biol. Pharm. Bull. 32: 688-693.

CHROMOSOMAL LOCATION

Genetic locus: Fmo1 (mouse) mapping to 1 H2.1.

PRODUCT

FMO1 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 FMO1 shRNA Plasmid (m): sc-75042-SH and FMO1 shRNA (m) Lentiviral Particles: sc-75042-V as alternate gene silencing products.

For independent verification of FMO1 (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-75042A, sc-75042B and sc-75042C.

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

FMO1 siRNA (m) is recommended for the inhibition of FMO1 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.

GENE EXPRESSION MONITORING

FMO1 (H-10): sc-376924 is recommended as a control antibody for monitoring of FMO1 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 FMO1 gene expression knockdown using RT-PCR Primer: FMO1 (m)-PR: sc-75042-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.