

CYP7A1 (H-58): sc-25536

BACKGROUND

P450 enzymes constitute a family of monooxygenase enzymes that are involved in the metabolism of a wide array of endogenous and xenobiotic compounds. P450 enzymes can be classified, based on their sequence similarities, into distinct subfamilies, which include CYP1A and CYP2A. Other P450 family members include CYP19, also designated aromatase (P450_{arom}), which catalyzes the conversion of C19 steroids to estrogens in various tissues, including placenta, gonads, adipose tissue, skin and brain. CYP19 expression is controlled by hormonally regulated promoters in different tissues and increased aromatase activity is associated with familial gynecomastia. Also, a polymorphic allele of CYP19 (repeat (TTTA)₁₂) is present in a majority of breast cancer patients. P450 cholesterol 7 α -hydroxylase, CYP7A1, is the rate limiting enzyme of bile acid synthesis in the liver, and its expression is mediated by the bile acid receptor FXR. CYP27A1 catalyzes vitamin D 25-hydroxylation and is localized to the mitochondria in kidney and liver.

REFERENCES

- Nelson, D.R., et al. 1996. P450 superfamily: update on new sequences, gene mapping, accession numbers and nomenclature. *Pharmacogenetics* 6: 1-42.
- Peterson, J.A., et al. 1997. P450_{BM-3}: a tale of two domains — or is it three? *Steroids* 62: 117-123.
- Bulun, S.E., et al. 1997. Endocrine disorders associated with inappropriately high aromatase expression. *J. Steroid Biochem. Mol. Biol.* 61: 133-139.
- Braunstein, G.D. 1999. Aromatase and gynecomastia. *Endocr. Relat. Cancer* 6: 315-324.
- Kristensen, V.N., et al. 2000. Genetic variants of CYP19 (aromatase) and breast cancer risk. *Oncogene* 19: 1329-1333.
- Repa, J.J., et al. 2000. Regulation of absorption and ABC1-mediated efflux of cholesterol by RXR heterodimers. *Science* 289: 1524-1529.
- Sawada, N., et al. 2000. Metabolism of vitamin D₃ by human CYP27A1. *Biochem. Biophys. Res. Commun.* 273: 977-984.

CHROMOSOMAL LOCATION

Genetic locus: CYP7A1 (human) mapping to 8q12.1; Cyp7a1 (mouse) mapping to 4 A1.

SOURCE

CYP7A1 (H-58) is a rabbit polyclonal antibody raised against amino acids 447-504 of CYP7A1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Available as agarose conjugate for immunoprecipitation, sc-25536 AC, 500 μ g/0.25 ml agarose in 1 ml.

APPLICATIONS

CYP7A1 (H-58) is recommended for detection of CYP7A1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for CYP7A1 siRNA (h): sc-41490, CYP7A1 siRNA (m): sc-41491, CYP7A1 shRNA Plasmid (h): sc-41490-SH, CYP7A1 shRNA Plasmid (m): sc-41491-SH, CYP7A1 shRNA (h) Lentiviral Particles: sc-41490-V and CYP7A1 shRNA (m) Lentiviral Particles: sc-41491-V.

Molecular Weight of CYP7A1: 58 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/ 2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

- Gutiérrez-Juárez, R., et al. 2006. Critical role of stearyl-CoA desaturase-1 (SCD1) in the onset of diet-induced hepatic insulin resistance. *J. Clin. Invest.* 116: 1686-1695.
- Ma, K., et al. 2009. Circadian dysregulation disrupts bile acid homeostasis. *PLoS ONE* 4: e6843.
- Li, Q., et al. 2010. NO-1886 suppresses diet-induced insulin resistance and cholesterol accumulation through STAT5-dependent upregulation of IGF1 and CYP7A1. *J. Endocrinol.* 204: 47-56.
- He, J., et al. 2011. PXR prevents cholesterol gallstone disease by regulating biosynthesis and transport of bile salts. *Gastroenterology* 140: 2095-2106.
- Letona, A.Z., et al. 2011. CLA-enriched diet containing t10,c12-CLA alters bile acid homeostasis and increases the risk of cholelithiasis in mice. *J. Nutr.* 141: 1437-1444.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.