SANTA CRUZ BIOTECHNOLOGY, INC.

CYP7A1 (8F1): sc-293193

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 (P450arom), 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 7α-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_3 25-hydroxylation and is localized to the mitochondria in kidney and liver.

REFERENCES

1. Nelson, D.R., et al. 1996. P450 superfamily: update on new sequences, gene mapping, accession numbers and nomenclature. Pharmacogenetics 6: 1-42.
2. Peterson, J.A., et al. 1997. P450BM-3; a tale of two domains—or is it three? Steroids 62: 117-123.
3. Bulun, S.E., et al. 1997. Endocrine disorders associated with inappropriately high aromatase expression. J. Steroid Biochem. Mol. Biol. 61: 133-139.
4. Braunstein, G.D. 1999. Aromatase and gynecomastia. Endocr. Relat. Cancer 6: 315-324.
5. Kristensen, V.N., et al. 2000. Genetic variants of CYP19 (aromatase) and breast cancer risk. Oncogene 19: 1329-1333.
6. Repa, J.J., et al. 2000. Regulation of absorption and ABC1-mediated efflux of cholesterol by RXR heterodimers. Science 289: 1524-1529.
7. Sawada, N., et al. 2000. Metabolism of vitamin D_3 by human CYP27A1. Biochem. Biophys. Res. Commun. 273: 977-984.

CHROMOSOMAL LOCATION

Genetic locus: CYP7A1 (human) mapping to 8q12.1.

SOURCE

CYP7A1 (8F1) is a mouse monoclonal antibody raised against amino acids 179-277 of CYP7A1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

CYP7A1 (8F1) is recommended for detection of CYP7A1 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

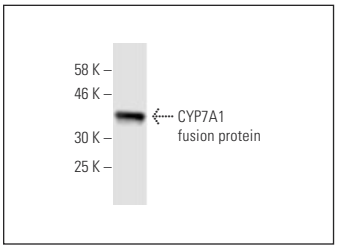
Suitable for use as control antibody for CYP7A1 siRNA (h): sc-41490, CYP7A1 shRNA Plasmid (h): sc-41490-SH and CYP7A1 shRNA (h) Lentiviral Particles: sc-41490-V.

Molecular Weight of CYP7A1: 58 kDa.

RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



CYP7A1 (8F1): sc-293193. Western blot analysis of human recombinant CYP7A1 fusion protein.

SELECT PRODUCT CITATIONS

1. Serviddio, G., et al. 2016. Effects of dietary fatty acids and cholesterol excess on liver injury: a lipidomic approach. Redox Biol. 9: 296-305.
2. Kong, Y., et al. 2018. Protective effects of yangonin from an edible botanical Kava against lithocholic acid-induced cholestasis and hepatotoxicity. Eur. J. Pharmacol. 824: 64-71.
3. Han, T., et al. 2019. Pioglitazone prevents cholesterol gallstone formation through the regulation of cholesterol homeostasis in guinea pigs with a lithogenic diet. Lipids Health Dis. 18: 218.
4. Zhao, L., et al. 2020. A Clostridia-rich microbiota enhances bile acid excretion in diarrhea-predominant irritable bowel syndrome. J. Clin. Invest. 130: 438-450.
5. Wang, F., et al. 2021. Four citrus flavanones exert atherosclerosis alleviation effects in apoE$^{-/-}$ mice via different metabolic and signaling pathways. J. Agric. Food Chem. 69: 5226-5237.

RESEARCH USE

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