SANTA CRUZ BIOTECHNOLOGY, INC.

CYP27B1 (C-12): sc-49642

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The Power to Question

BACKGROUND

The cytochrome P450 proteins are monooxygenases that catalyze many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids. P450 enzymes are classified into subfamilies based on their sequence similarities. CYP27B1, a 508-amino acid protein that belongs to the XXVIIB subfamily of the cytochrome P450 family, localizes to the mitochondrion and is expressed in the kidney. The CYP27B1 protein catalyzes the conversion of 25-hydroxyvitamin D3 (25(OH)D) to 1-α, 25-dihydroxyvitamin D3 (1,25(OH)2D) and functions in calcium metabolism, normal bone growth and tissue differentiation. Mutations in the gene which encodes for CYP27B1 cause vitamin D-dependent rickets type 1 (VDDR-1), also designated pseudovitamin D deficiency rickets (PDDR), an autosomal recessive disease characterized by early onset of rickets with hypocalcemia and muscle weakness.

REFERENCES

1. Dardenne, O., et al. 2001. Targeted inactivation of the 25-hydroxyvitamin D3-1α-hydroxylase gene (CYP27B1) creates an animal model of pseudovitamin D-deficiency rickets. Endocrinology 142: 3135-3141.
2. Sawada, N., et al. 2001. Structure-function analysis of CYP27B1 and CYP27A1. Studies on mutants from patients with vitamin D-dependent rickets type I (VDDR-I) and cerebrotendinous xanthomatosis (CTX). Eur. J. Biochem. 268: 6607-6615.
3. Dardenne, O., et al. 2003. Correction of the abnormal mineral ion homeostasis with a high-calcium, high-phosphorus, high-lactose diet rescues the PDDR phenotype of mice deficient for the 25-hydroxyvitamin D-1 α-hydroxylase (CYP27B1). Bone 32: 332-340.
4. Anderson, P.H., et al. 2005. Modulation of CYP27B1 and CYP24 mRNA expression in bone is independent of circulating 1,25(OH)2D3 levels. Bone 36: 654-662.
5. Diesel, B., et al. 2005. Vitamin D(3) metabolism in human glioblastoma multiforme: functionality of CYP27B1 splice variants, metabolism of calcidiol, and effect of calcitriol. Clin. Cancer Res. 11: 5370-5380.
6. Dwivedi, P.P., et al. 2005. Identification of growth factor independent-1 (GFI1) as a repressor of 25-hydroxyvitamin D 1-α hydroxylase (CYP27B1) gene expression in human prostate cancer cells. Endocr. Relat. Cancer 12: 351-365.
7. Kurylowicz, A., et al. 2005. CYP27B1 Gene polymorphism is associated with Graves' disease in a Polish population study. Thyroid 15: 1107-1108.

CHROMOSOMAL LOCATION

Genetic locus: CYP27B1 (human) mapping to 12q14.1; Cyp27b1 (mouse) mapping to 10 D3.

SOURCE

CYP27B1 (C-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of CYP27B1 of human origin.

RESEARCH USE

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

PRODUCT

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

Blocking peptide available for competition studies, sc-49642 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CYP27B1 (C-12) is recommended for detection of CYP27B1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

CYP27B1 (C-12) is also recommended for detection of CYP27B1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for CYP27B1 siRNA (h): sc-60479, CYP27B1 siRNA (m): sc-60480, CYP27B1 shRNA Plasmid (h): sc-60479-SH, CYP27B1 shRNA Plasmid (m): sc-60480-SH, CYP27B1 shRNA (h) Lentiviral Particles: sc-60479-V and CYP27B1 shRNA (m) Lentiviral Particles: sc-60480-V.

Molecular Weight of CYP27B1: 56 kDa.

Positive Controls: mouse kidney extract: sc-2255.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Stubbs, J.R., et al. 2010. Cholecalciferol supplementation alters calcitriol-responsive monocyte proteins and decreases inflammatory cytokines in ESRD. J. Am. Soc. Nephrol. 21: 353-361.
2. Lopes, N., et al. 2010. Alterations in vitamin D signalling and metabolic pathways in breast cancer progression: a study of VDR, CYP27B1 and CYP24A1 expression in benign and malignant breast lesions. BMC Cancer 10: 483.
3. Dai, B., et al. 2012. A comparative transcriptome analysis identifying FGF23 regulated genes in the kidney of a mouse CKD model. PLoS ONE 7: e44161.

STORAGE

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