SANTA CRUZ BIOTECHNOLOGY, INC.

CYPOR (F-2): sc-55477

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

P450 enzymes constitute a family of monooxygenase enzymes that are involved in the metabolism of a wide array of endogenous and xenobiotic compounds. Several P450 enzymes have been classified by sequence similarities as members of the CYP1A and CYP2A subfamilies. CYPOR, also known as cytochrome P450 reductase and NADPH cytochrome P450 reductase, is a microsomal enzyme responsible for the transfer of electrons from NADPH to cytochrome P450 enzymes during the P450 catalytic cycle. CYPOR is localized to the endoplasmic reticulum, where it is also able to transfer electrons to heme oxygenase and cytochrome b5. CYPOR is structurally related to two separate flavoprotein families, ferredoxin nucleotide reductase (FNR) and flavodoxin. Electron transfer of CYPOR requires the binding of two flavin cofactors, FAD and FMN, to the FNR and flavodoxin domains, respectively.

REFERENCES

1. Vermilion, J.L., et al. 1978. Purified liver microsomal NADPH-cytochrome P450 reductase. Spectral characterization of oxidation-reduction states. J. Biol. Chem. 253: 2694-2704.
2. Shen, A.L., et al. 1989. Structural analysis of the FMN binding domain of NADPH-cytochrome P450 oxidoreductase by site-directed mutagenesis. J. Biol. Chem. 264: 7584-7589.

CHROMOSOMAL LOCATION

Genetic locus: POR (human) mapping to 7q11.23; Por (mouse) mapping to 5 G2.

SOURCE

CYPOR (F-2) is a mouse monoclonal antibody raised against amino acids 1-300 of cytochrome P450 reductase of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

CYPOR (F-2) is recommended for detection of CYPOR of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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 CYPOR siRNA (h): sc-35147, CYPOR siRNA (m): sc-35148, CYPOR siRNA (r): sc-156033, CYPOR shRNA Plasmid (h): sc-35147-SH, CYPOR shRNA Plasmid (m): sc-35148-SH, CYPOR shRNA Plasmid (r): sc-156033-SH, CYPOR shRNA (h) Lentiviral Particles: sc-35147-V, CYPOR shRNA (m) Lentiviral Particles: sc-35148-V and CYPOR shRNA (r) Lentiviral Particles: sc-156033-V.

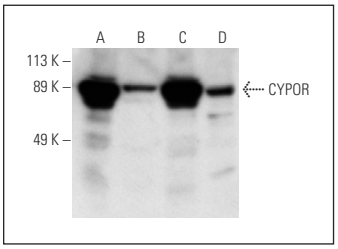
Molecular Weight of CYPOR: 76 kDa.

Positive Controls: CYPOR (h): 293T Lysate: sc-113650, Hep G2 cell lysate: sc-2227 or KNRK whole cell lysate: sc-2214.

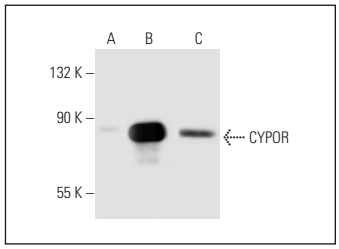
RECOMMENDED SUPPORT REAGENTS

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). 3) 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.

DATA



CYPOR (F-2): sc-55477. Western blot analysis of CYPOR expression in HeLa (**A**), K-562 (**B**), Hep G2 (**C**) and KNRK (**D**) whole cell lysates.



CYPOR (F-2): sc-55477. Western blot analysis of CYPOR expression in non-transfected 293T: sc-117752 (**A**), human CYPOR transfected 293T: sc-113650 (**B**) and A-431 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Marohnic, C.C., et al. 2010. Human cytochrome P450 oxidoreductase deficiency caused by the Y181D mutation: molecular consequences and rescue of defect. Drug Metab. Dispos. 38: 332-340.
2. Gocek, E., et al. 2014. NADPH-cytochrome P450 reductase is regulated by all-*trans* retinoic acid and by 1,25-dihydroxyvitamin D_3 in human acute myeloid leukemia cells. PLoS ONE 9: e91752.
3. Wang, D., et al. 2017. Effects of tetrahydroberberine and tetrahydropalmatine on hepatic cytochrome P450 expression and their toxicity in mice. Chem. Biol. Interact. 268: 47-52.
4. Wei, Y., et al. 2017. *Atractylodes lancea* rhizome water extract reduces triptolide-induced toxicity and enhances anti-inflammatory effects. Chin. J. Nat. Med. 15: 905-911.
5. Wei, Y., et al. 2018. Generation and characterization of a CYP2C11-null rat model by using the CRISPR/Cas9 method. Drug Metab. Dispos. 46: 525-531.
6. Zhou, H., et al. 2019. CYP2D1 gene knockout reduces the metabolism and efficacy of venlafaxine in rats. Drug Metab. Dispos. 47: 1425-1432.

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.