SANTA CRUZ BIOTECHNOLOGY, INC.

CYPOR (G-5): sc-25263

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.

SOURCE

CYPOR (G-5) 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 (G-5) is recommended for detection of CYPOR of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:500), 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 shRNA Plasmid (h): sc-35147-SH and CYPOR shRNA (h) Lentiviral Particles: sc-35147-V.

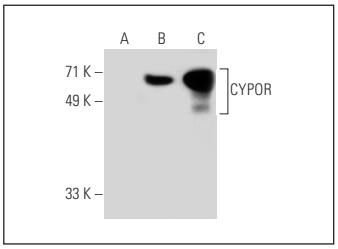
Molecular Weight of CYPOR: 76 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, CYPOR (h): 293T Lysate: sc-113650 or Hep G2 cell lysate: sc-2227.

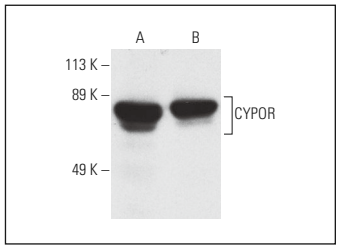
RECOMMENDED SUPPORT REAGENTS

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 (G-5): sc-25263. 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.



CYPOR (G-5): sc-25263. Western blot analysis of CYPOR expression in HeLa (**A**) and Hep G2 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zhang, B., et al. 2010. Insulin-like growth factor I enhances the expression of aromatase P450 by inhibiting autophagy. Endocrinology 151: 4949-4958.
2. Su, J., et al. 2013. Zinc finger nuclease knock-out of NADPH: cytochrome P450 oxidoreductase (POR) in human tumor cell lines demonstrates that hypoxia-activated prodrugs differ in POR dependence. J. Biol. Chem. 288: 37138-37153.
3. Hunter, F.W., et al. 2014. Dual targeting of hypoxia and homologous recombination repair dysfunction in triple-negative breast cancer. Mol. Cancer Ther. 13: 2501-2514.
4. Hunter, F.W., et al. 2015. Identification of P450 oxidoreductase as a major determinant of sensitivity to hypoxia-activated Prodrugs. Cancer Res. 75: 4211-4223.
5. Nytko, K.J., et al. 2017. The hypoxia-activated prodrug evofosfamide in combination with multiple regimens of radiotherapy. Oncotarget 8: 23702-23712.

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.