SANTA CRUZ BIOTECHNOLOGY, INC.

CYP46 (1F11): sc-136148

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Cytochrome P450 proteins are heme-thiolate monooxygenases that mediate NADPH-dependent electron transport and function to oxidize a variety of structurally unrelated compounds, including steroids, fatty acids and xenobiotics. Specifically, Cytochrome P450s are responsible for metabolizing arachidonic acid to hydroxyeicosatetraenoic acid (a regulator of blood pressure) and epoxyeicosatrienoic acid (a molecule involved in signaling events). CYP46, also known as CYP46A1 (cytochrome P450, family 46, subfamily A, polypeptide 1) or CP46, is a 500 amino acid protein that localizes to the endoplasmic reticulum and shares 95% sequence identity with its mouse counterpart. Expressed predominately in brain tissue, CYP46 catalyzes the conversion of cholesterol into 24S-hydroxycholesterol and, to a lesser extent, 25-hydroxycholesterol, thereby playing an important role in cholesterol homeostasis and turnover. Variations in the gene encoding CYP46 that influence brain cholesterol metabolism are associated with an increased risk for Alzheimer's disease (AD).

REFERENCES

1. Björkhem, I., et al. 1998. Cholesterol homeostasis in human brain: turnover of 24S-hydroxycholesterol and evidence for a cerebral origin of most of this oxysterol in the circulation. J. Lipid Res. 39: 1594-1600.
2. Online Mendelian Inheritance in Man, OMIM™. 2004. Johns Hopkins University, Baltimore, MD. MIM Number: 604087. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Papassotiropoulos, A., et al. 2005. A cluster of cholesterol-related genes confers susceptibility for Alzheimer's disease. J. Clin. Psychiatry 66: 940-947.
4. Golanska, E., et al. 2005. CYP46: a risk factor for Alzheimer's disease or a coincidence? Neurosci. Lett. 383: 105-108.

CHROMOSOMAL LOCATION

Genetic locus: CYP46A1 (human) mapping to 14q32.2; Cp46a1 (mouse) mapping to 12 F1.

SOURCE

CYP46 (1F11) is a mouse monoclonal antibody raised against partially purified recombinant CYP46 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CYP46 (1F11) is available conjugated to agarose (sc-136148 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-136148 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-136148 PE), fluorescein (sc-136148 FITC), Alexa Fluor® 488 (sc-136148 AF488), Alexa Fluor® 546 (sc-136148 AF546), Alexa Fluor® 594 (sc-136148 AF594) or Alexa Fluor® 647 (sc-136148 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-136148 AF680) or Alexa Fluor® 790 (sc-136148 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

CYP46 (1F11) is recommended for detection of CYP46 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for CYP46 siRNA (h): sc-77075, CYP46 siRNA (m): sc-77076, CYP46 shRNA Plasmid (h): sc-77075-SH, CYP46 shRNA Plasmid (m): sc-77076-SH, CYP46 shRNA (h) Lentiviral Particles: sc-77075-V and CYP46 shRNA (m) Lentiviral Particles: sc-77076-V.

Molecular Weight of CYP46: 62 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) 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.

SELECT PRODUCT CITATIONS

1. Fourgeux, C., et al. 2012. Steady-state levels of retinal 24S-hydroxycholesterol are maintained by glial cells intervention after elevation of intraocular pressure in the rat. Acta Ophthalmol. 90: e560-e567.
2. Fourgeux, C., et al. 2014. *In vivo* consequences of cholesterol-24S-hydroxylase (CYP46A1) inhibition by voriconazole on cholesterol homeostasis and function in the rat retina. Biochem. Biophys. Res. Commun. 446: 775-781.
3. Kreilaus, F., et al. 2016. Evidence for altered cholesterol metabolism in Huntington's disease post mortem brain tissue. Neuropathol. Appl. Neurobiol. 42: 535-546.
4. Tonini, C., et al. 2021. Effects of late-life caloric restriction on age-related alterations in the rat cortex and hippocampus. Nutrients 13: 232.
5. Azizidoost, S., et al. 2021. Amyloid β increases ABCA1 and HMGCR protein expression, and cholesterol synthesis and accumulation in mice neurons and astrocytes. Biochim. Biophys. Acta Mol. Cell Biol. Lipids 1867: 159069.
6. Li, Z., et al. 2022. Cholesterol efflux regulator ABCA1 exerts protective role against high shear stress-induced injury of HBMECs via regulating PI3K/Akt/eNOS signaling. BMC Neurosci. 23: 61.
7. Parente, M., et al. 2022. Brain cholesterol biosynthetic pathway is altered in a preclinical model of fragile X syndrome. Int. J. Mol. Sci. 23: 3408.

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.