SANTA CRUZ BIOTECHNOLOGY, INC.

OPLAH (H-10): sc-398205

BACKGROUND

The γ-glutamyl cycle involves a series of reactions that are necessary for the synthesis and metabolism of glutathione (GST), which is crucial for regulating amino acid transport. OPLAH (5-oxoprolinase (ATP-hydrolysing)), also known as OPLA, 5-oxo-L-prolinase, 5-Opase or DKFZp434H244OPLA, is an enzyme that plays an important role in the γ-glutamyl cycle by catalyzing the cleavage of 5-oxo-L-proline to form L-glutamate in a reaction coupled to the hydrolysis of ATP to ADP and inorganic phosphate. OPLAH is a 1,288 amino acid protein that exists as a homodimer and belongs to the oxoprolinase family. Expressed at highest levels in kidney, OPLAH has also been found at lower levels in lung, breast, colon and ovary. The gene encoding OPLAH maps to human chromosome 8, which consists of nearly 146 million base pairs, encodes over 800 genes and is associated with a variety of diseases and malignancies including Schizophrenia, bipolar disorder, Trisomy 8, Pfeiffer syndrome and congenital hypothyroidism.

REFERENCES

1. Srivenugopal, K.S. and Ali-Osman, F. 1997. Activity and distribution of the cysteine prodrug activating enzyme, 5-oxo-L-prolinase, in human normal and tumor tissues. Cancer Lett. 117: 105-111.
2. Chen, X., et al. 1998. Characterization of 5-oxo-L-prolinase in normal and tumor tissues of humans and rats: a potential new target for biochemical modulation of glutathione. Clin. Cancer Res. 4: 131-138.
3. Jäger, M. and Wolf, S. 1999. Localization of 5-oxo-L-prolinase mRNA in the murine choroid plexus by *in situ* hybridization. Neurosci. Lett. 274: 171-174.
4. Kashino, G., et al. 2001. Preferential expression of an intact WRN gene in Werner syndrome cell lines in which a normal chromosome 8 has been introduced. Biochem. Biophys. Res. Commun. 289: 111-115.
5. Selicorni, A., et al. 2002. Cytogenetic mapping of a novel locus for type II Waardenburg syndrome. Hum. Genet. 110: 64-67.
6. Watanabe, T., et al. 2004. Bovine 5-oxo-L-prolinase: simple assay method, purification, cDNA cloning, and detection of mRNA in the coronary artery. Biol. Pharm. Bull. 27: 288-294.
7. McQueen, M.B., et al. 2005. Combined analysis from eleven linkage studies of bipolar disorder provides strong evidence of susceptibility loci on chromosomes 6q and 8q. Am. J. Hum. Genet. 77: 582-595.
8. Kaufmann, Y., et al. 2008. Glutamine affects glutathione recycling enzymes in a DMBA-induced breast cancer model. Nutr. Cancer 60: 518-525.

CHROMOSOMAL LOCATION

Genetic locus: OPLAH (human) mapping to 8q24.3; Oplah (mouse) mapping to 15 D3.

SOURCE

OPLAH (H-10) is a mouse monoclonal antibody raised against amino acids 734-1013 mapping within an internal region of OPLAH of human origin.

RESEARCH USE

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

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

OPLAH (H-10) is recommended for detection of OPLAH 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 OPLAH siRNA (h): sc-77750, OPLAH siRNA (m): sc-151309, OPLAH shRNA Plasmid (h): sc-77750-SH, OPLAH shRNA Plasmid (m): sc-151309-SH, OPLAH shRNA (h) Lentiviral Particles: sc-77750-V and OPLAH shRNA (m) Lentiviral Particles: sc-151309-V.

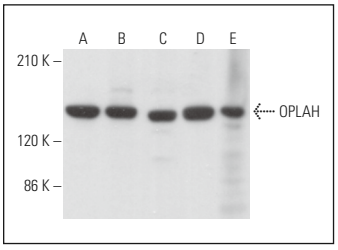
Molecular Weight of OPLAH: 137 kDa.

Positive Controls: OPLAH (h): 293T Lysate: sc-112637, Hep G2 cell lysate: sc-2227 or K-562 whole cell lysate: sc-2203.

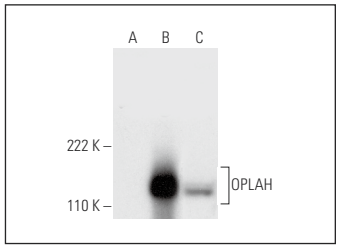
RECOMMENDED SUPPORT REAGENTS

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



OPLAH (H-10): sc-398205. Western blot analysis of OPLAH expression in Hep G2 (**A**), AN3 CA (**B**), PC-3 (**C**) and KNRK (**D**) whole cell lysates and rat liver tissue extract (**E**).



OPLAH (H-10): sc-398205. Western blot analysis of OPLAH expression in non-transfected 293T: sc-117752 (**A**), human OPLAH transfected 293T: sc-112637 (**B**) and K-562 (**C**) whole cell lysates.

STORAGE

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