SANTA CRUZ BIOTECHNOLOGY, INC.

cyt19 (G-5): sc-515112

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Formation of methylated metabolites is a critical step in the metabolism of inorganic arsenic. Arsenite methyltransferase (cyt19) is localized to the cytoplasm and operates in the transfer of a methyl group from AdoMet to trivalent arsenicals producing methylated and dimethylated arsenicals. It methylates arsenite to form methylarsonate which is reduced to methylarsonite. Methylarsonite acts as a substrate and is converted into a much less toxic compound dimethylarsinate. cyt19 is highly expressed in liver. Inherited variation in cyt19 may contribute to variation in arsenic metabolism and possibly arsenic-dependent carcinogenesis in humans.

REFERENCES

1. Walton, F.S., et al. 2003. Selenium compounds modulate the activity of recombinant rat AsIII-methyl and the methylation of arsenite by rat and human hepatocytes. Chem. Res. Toxicol. 16: 261-265.
2. Waters, S.B., et al. 2004. Endogenous reductants support the catalytic function of recombinant rat cyt19, an arsenic methyltransferase. Chem. Res. Toxicol. 17: 404-409.
3. Thomas, D.J., et al. 2004. Elucidating the pathway for arsenic methylation. Toxicol. Appl. Pharmacol. 198: 319-326.
4. Drobná, Z., et al. 2004. Interindividual variation in the metabolism of arsenic in cultured primary human hepatocytes. Toxicol. Appl. Pharmacol. 201: 166-177.
5. Hayakawa, T., et al. 2005. A new metabolic pathway of arsenite: arsenic-glutathione complexes are substrates for human arsenic methyltransferase Cyt19. Arch. Toxicol. 79: 183-191.
6. Meza, M.M., et al. 2005. Developmentally restricted genetic determinants of human arsenic metabolism: association between urinary methylated arsenic and CYT19 polymorphisms in children. Environ. Health Perspect. 113: 775-781.
7. Wood, T.C., et al. 2006. Human arsenic methyltransferase (AS3MT) pharmacogenetics: gene resequencing and functional genomics studies. J. Biol. Chem. 281: 7364-7373.

CHROMOSOMAL LOCATION

Genetic locus: AS3MT (human) mapping to 10q24.32; As3mt (mouse) mapping to 19 C3.

SOURCE

cyt19 (G-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 65-81 near the N-terminus of cyt19 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-515112 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

cyt19 (G-5) is recommended for detection of cyt19 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 cyt19 siRNA (h): sc-60494, cyt19 siRNA (m): sc-60495, cyt19 shRNA Plasmid (h): sc-60494-SH, cyt19 shRNA Plasmid (m): sc-60495-SH, cyt19 shRNA (h) Lentiviral Particles: sc-60494-V and cyt19 shRNA (m) Lentiviral Particles: sc-60495-V.

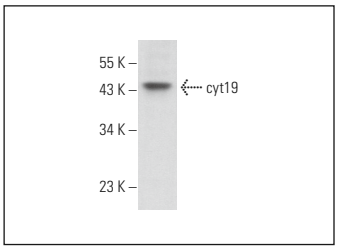
Molecular Weight of cyt19: 42 kDa.

Positive Controls: human liver extract: sc-363766 or Hep G2 cell lysate: sc-2227.

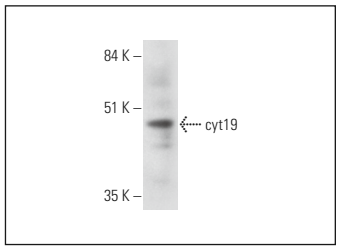
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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



cyt19 (G-5): sc-515112. Western blot analysis of cyt19 expression in Hep G2 whole cell lysate.



cyt19 (G-5): sc-515112. Western blot analysis of cyt19 expression in human liver tissue extract.

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.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.