

ALKB (H-300): sc-67186

BACKGROUND

ALKB protects DNA and RNA against damage from methylating compounds from the environment by directly reversing 1-methyladenine (1-meA) and 3-methylcytosine (3-meC) cytotoxic alkylation lesions in DNA and RNA. The enzymes act by oxidative demethylation, utilizing ferrous iron and α -ketoglutarate as cofactors, 2-oxoglutarate as a co-substrate, and molecular oxygen as the oxidizing agent. Deficiencies in DNA and RNA repair in mammals are associated with cancer, neurological disease and developmental defects. ALKB plays a role in resistance to anti-cancer drugs which attempt to damage tumor DNA. *Escherichia coli* ALKB protein belongs to the superfamily of 2-oxoglutarate- and iron(II)-dependent oxygenases.

REFERENCES

- Ougland, R., Zhang, C.M., Liiv, A., Johansen, R.F., Seeberg, E., Hou, Y.M., Remme, J. and Falnes, P.Ø. 2004. ALKB restores the biological function of mRNA and tRNA inactivated by chemical methylation. *Mol. Cell* 16: 107-116.
- Drabløs, F., Feyzi, E., Aas, P.A., Vaagbø, C.B., Kavli, B., Bratlie, M.S., Peña-Diaz, J., Otterlei, M., Slupphaug, G. and Krokan, H.E. 2004. Alkylation damage in DNA and RNA-repair mechanisms and medical significance. *DNA Repair* 3: 1389-1407.
- Falnes, P.O. 2004. Repair of 3-methylthymine and 1-methylguanine lesions by bacterial and human ALKB proteins. *Nucleic Acids Res.* 32: 6260-6267.
- Koivisto, P., Robins, P., Lindahl, T. and Sedgwick, B. 2004. Demethylation of 3-methylthymine in DNA by bacterial and human DNA dioxygenases. *J. Biol. Chem.* 279: 40470-40474.
- Henshaw, T.F., Feig, M. and Hausinger, R.P. 2004. Aberrant activity of the DNA repair enzyme ALKB. *J. Inorg. Biochem.* 98: 856-861.
- Sedgwick, B., Robins, P. and Lindahl, T. 2006. Direct removal of alkylation damage from DNA by ALKB and related DNA dioxygenases. *Meth. Enzymol.* 408: 108-120.

CHROMOSOMAL LOCATION

Genetic locus: ALKBH1 (human) mapping to 14q24.3.

SOURCE

ALKB (H-300) is a rabbit polyclonal antibody raised against amino acids 90-389 mapping at the C-terminus of ALKB of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

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.

APPLICATIONS

ALKB (H-300) is recommended for detection of ALKB of human and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

ALKB (H-300) is also recommended for detection of ALKB in additional species, including equine and canine.

Suitable for use as control antibody for ALKB siRNA (h): sc-60153, ALKB shRNA Plasmid (h): sc-60153-SH and ALKB shRNA (h) Lentiviral Particles: sc-60153-V.

Molecular Weight of ALKB: 43 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

PROTOCOLS

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



Try **ALKB (F-4): sc-374301**, our highly recommended monoclonal alternative to ALKB (H-300).