

# ALKB (C-20): sc-48121

## 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  $\alpha$ -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., et al. 2004. ALKB restores the biological function of mRNA and tRNA inactivated by chemical methylation. *Mol. Cell* 16: 107-116.
- Drabløs, F., et al. 2004. Alkylation damage in DNA and RNA—repair mechanisms and medical significance. *DNA Repair* 3: 1389-1407.
- Falnes, P.Ø. 2004. Repair of 3-methylthymine and 1-methylguanine lesions by bacterial and human ALKB proteins. *Nucleic Acids Res.* 32: 6260-6267.
- Koivisto, P., et al. 2004. Demethylation of 3-methylthymine in DNA by bacterial and human DNA dioxygenases. *J. Biol. Chem.* 279: 40470-40474.
- Henshaw, T.F., et al. 2004. Aberrant activity of the DNA repair enzyme ALKB. *J. Inorg. Biochem.* 98: 856-861.
- Sedgwick, B., et al. 2006. Direct removal of alkylation damage from DNA by ALKB and related DNA dioxygenases. *Methods Enzymol.* 408: 108-120.

## CHROMOSOMAL LOCATION

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

## SOURCE

ALKB (C-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of ALKB of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-48121 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

## APPLICATIONS

ALKB (C-20) is recommended for detection of ALKB of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 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 donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

## DATA



ALKB (C-20): sc-48121. Immunoperoxidase staining of formalin fixed, paraffin-embedded human gall bladder tissue showing nuclear and cytoplasmic staining of glandular cells.

## RESEARCH USE

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