SANTA CRUZ BIOTECHNOLOGY, INC.

MUTYH (C-6): sc-374571

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

MUTYH (mutY homolog *(E. coli)*) is a DNA glycosylase mismatch repair enzyme that in conjunction with mutM (OGG1), cleaves adenine residues paired with either oxidized (8-hydroxyguanines) or non-modified guanines in order to correct A/G and A/C mismatches. Repair of most modified and mispaired bases in the genome is initiated by DNA glycosylases, which bind and cleave N-glycosyl bonds to initiate base excision repair. MUTYH is crucial for the avoidance of mutations resulting from oxidative DNA damage. Multiple N-terminal splice variants of MUTYH exist in mammalian cells. Increasing levels of MUTYH in A549 cells exposed to oxygen and infrared radiation leads to improvements in cell survival. Biallelic MUTYH germ-line mutations predispose humans to colorectal adenomas and carcinomas. MUTYH is abundant in neurons where mitochondrial genomes exposed to reactive oxygen species (ROS) that damage DNA must maintain integrity over the entire mammalian life span.

REFERENCES

1. Hayashi, H., et al. 2002. Replication-associated repair of adenine: 8-oxoguanine mispairs by MYH. Curr. Biol. 12: 335-339.
2. Englander, E.W., et al. 2002. Rat MYH, a glycosylase for repair of oxidatively damaged DNA, has brain-specific isoforms that localize to neuronal mitochondria. J. Neurochem. 83: 1471-1480.
3. Halford, S.E., et al. 2003. Germline mutations but not somatic changes at the MYH locus contribute to the pathogenesis of unselected colorectal cancers. Am. J. Pathol. 162: 1545-1548.
4. Lee, H.M., et al. 2004. Developmental changes in expression and subcellular localization of the DNA repair glycosylase, MYH, in the rat brain. J. Neurochem. 88: 394-400.
5. Tao, H., et al. 2004. A novel splice-site variant of the base excision repair gene MYH is associated with production of an aberrant mRNA transcript encoding a truncated MYH protein not localized in the nucleus. Carcinogenesis 25: 1859-1866.
6. Kim, C.J., et al. 2004. Genetic alterations of the MYH gene in gastric cancer. Oncogene 23: 6820-6822.
7. Ma, H., et al. 2004. N-terminus of the rat adenine glycosylase MYH affects excision rates and processing of MYH-generated abasic sites. Nucleic Acids Res. 32: 4332-4339.

CHROMOSOMAL LOCATION

Genetic locus: MUTYH (human) mapping to 1p34.1; Mutyh (mouse) mapping to 4 D1.

SOURCE

MUTYH (C-6) is a mouse monoclonal antibody raised against amino acids 182-225 mapping within an internal region of MUTYH of human origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

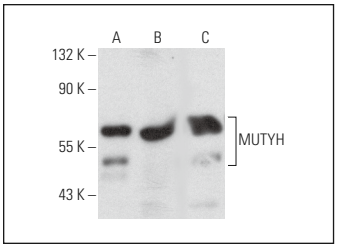
MUTYH (C-6) is recommended for detection of MUTYH of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MUTYH siRNA (h): sc-37407, MUTYH siRNA (m): sc-45816, MUTYH shRNA Plasmid (h): sc-37407-SH, MUTYH shRNA Plasmid (m): sc-45816-SH, MUTYH shRNA (h) Lentiviral Particles: sc-37407-V and MUTYH shRNA (m) Lentiviral Particles: sc-45816-V.

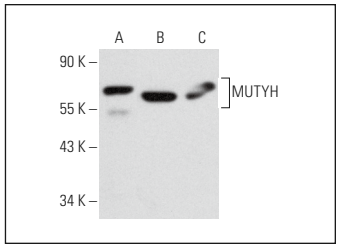
Molecular Weight of MUTYH: 65 kDa.

Positive Controls: C3H/10T1/2 cell lysate: sc-3801, NIH/3T3 whole cell lysate: sc-2210 or 3T3-L1 cell lysate: sc-2243.

DATA



MUTYH (C-6): sc-374571. Western blot analysis of MUTYH expression in ES-D3 (**A**), C3H/10T1/2 (**B**) and C6 (**C**) whole cell lysates.



MUTYH (C-6): sc-374571. Western blot analysis of MUTYH expression in P 23 (**A**), NIH/3T3 (**B**) and 3T3-L1 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Fan, Y.G., et al. 2019. Paricalcitol accelerates BACE1 lysosomal degradation and inhibits calpain-1 dependent neuronal loss in APP/PS1 transgenic mice. EBioMedicine 45: 393-407.
2. Zhang, Y.H., et al. 2020. α-lipoic acid maintains brain glucose metabolism via BDNF/TrkB/HIF-1α signaling pathway in P301S mice. Front. Aging Neurosci. 12: 262.
3. Liu, X., et al. 2022. Co-exposure of polystyrene microplastics and iron aggravates cognitive decline in aging mice via ferroptosis induction. Ecotoxicol. Environ. Saf. 233: 113342.

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.