SANTA CRUZ BIOTECHNOLOGY, INC.

MsrB2 (G-12): sc-163097

BACKGROUND

Methionine is one of the most readily oxidized essential amino acids and an intermediate in the biosynthesis of cysteine, carnitine, taurine, lecithin, phosphatidylcholine and other phospholipids. In its oxidative state, Methionine is regulated *in vivo* by methionine sulfoxide reductases (Msr). MsrB2 (methionine sulfoxide reductase B2), also known as CBS1, MSRB, PILB, CBS-1 or CGI-131, is a 182 amino acid mitochondrial protein that is ubiquitously expressed. Belonging to the MsrB Met sulfoxide reductase family, MsrB2 acts as a catalyst for the reduction of free and protein-bound methionine sulfoxide to methionine. Upon oxidative stress, MsrB2 is suggested to play a role in the preservation of mitochondrial integrity by decreasing the intracellular reactive oxygen species build-up through its scavenging role, hence contributing to cell survival and protein maintenance. MsrB2 utilizes zinc ions, one per subunit, as cofactors.

REFERENCES

1. Huang, W., et al. 1999. Identification, expression and chromosome localization of a human gene encoding a novel protein with similarity to the pilB family of transcriptional factors (pilin) and to bacterial peptide methionine sulfoxide reductases. Gene 233: 233-240.
2. Marchetti, M.A., et al. 2005. Methionine sulfoxide reductases B1, B2, and B3 are present in the human lens and confer oxidative stress resistance to lens cells. Invest. Ophthalmol. Vis. Sci. 46: 2107-2112.
3. Cabreiro, F., et al. 2006. Methionine sulfoxide reductases: relevance to aging and protection against oxidative stress. Ann. N.Y. Acad. Sci. 1067: 37-44.
4. Binger, K.J., et al. 2008. Methionine oxidation inhibits assembly and promotes disassembly of apolipoprotein C-II amyloid fibrils. Biochemistry 47: 10208-10217.
5. Cabreiro, F., et al. 2008. Overexpression of mitochondrial methionine sulfoxide reductase B2 protects leukemia cells from oxidative stress-induced cell death and protein damage. J. Biol. Chem. 283: 16673-16681.
6. Kwak, G.H., et al. 2009. Inhibition of methionine sulfoxide reduction by dimethyl sulfoxide. BMB Rep. 42: 580-585.
7. Binger, K.J., et al. 2010. Methionine-oxidized amyloid fibrils are poor substrates for human methionine sulfoxide reductases A and B2. Biochemistry 49: 2981-2983.
8. Pascual, I., et al. 2010. Methionine sulfoxide reductase B2 is highly expressed in the retina and protects retinal pigmented epithelium cells from oxidative damage. Exp. Eye Res. 90: 420-428.
9. Laugier, E., et al. 2010. *Arabidopsis thaliana* plastidial methionine sulfoxide reductases B, MSRBs, account for most leaf peptide MSR activity and are essential for growth under environmental constraints through a role in the preservation of photosystem antennae. Plant J. 61: 271-282.

CHROMOSOMAL LOCATION

Genetic locus: MSRB2 (human) mapping to 10p12.2.

RESEARCH USE

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

SOURCE

MsrB2 (G-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MsrB2 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-163097 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MsrB2 (G-12) is recommended for detection of MsrB2 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with MsrB3.

Suitable for use as control antibody for MsrB2 siRNA (h): sc-90627, MsrB2 shRNA Plasmid (h): sc-90627-SH and MsrB2 shRNA (h) Lentiviral Particles: sc-90627-V.

Molecular Weight of MsrB2: 20 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.

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 or our catalog for detailed protocols and support products.