SANTA CRUZ BIOTECHNOLOGY, INC.

Glutathione reductase (B-12): sc-133159

BACKGROUND

Glutathione reductase, also designated Glutathione reductase mitochondrial precursor, GRase, GSR or GR, belongs to the class-I pyridine nucleotide-disulfide oxidoreductase family. The main function of the protein is to maintain high levels of reduced glutathione in the cytosol. With the concomitant oxidation of NADPH, Glutathione reductase transforms oxidized glutathione to the reduced form. Glutathione reductase, which can localize to mitochondria or to the cytoplasm, can form a disulfide-linked homodimer. The active site of the protein is a redox-active disulfide bond.

REFERENCES

1. Staal, G.E., et al. 1969. Purification and properties of an abnormal Glutathione reductase from human erythrocytes. Biochim. Biophys. Acta 185: 63-69.
2. Karplus, P.A., et al. 1987. Refined structure of Glutathione reductase at 1.54 A resolution. J. Mol. Biol. 195: 701-729.
3. Stoll, V.S., et al. 1997. Glutathione reductase turned into trypanothione reductase: structural analysis of an engineered change in substrate specificity. Biochemistry 36: 6437-6447.

CHROMOSOMAL LOCATION

Genetic locus: GSR (human) mapping to 8p12; Gsr (mouse) mapping to 8 A4.

SOURCE

Glutathione reductase (B-12) is a mouse monoclonal antibody raised against amino acids 391-510 mapping near the C-terminus of Glutathione reductase of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Glutathione reductase (B-12) is recommended for detection of Glutathione reductase 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), 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 Glutathione reductase siRNA (h): sc-44843, Glutathione reductase siRNA (m): sc-44844, Glutathione reductase shRNA Plasmid (h): sc-44843-SH, Glutathione reductase shRNA Plasmid (m): sc-44844-SH, Glutathione reductase shRNA (h) Lentiviral Particles: sc-44843-V and Glutathione reductase shRNA (m) Lentiviral Particles: sc-44844-V.

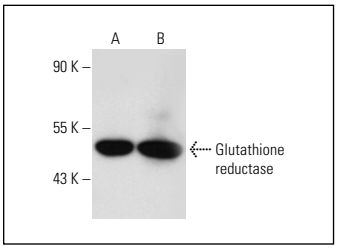
Molecular Weight of Glutathione reductase: 50-65 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409, JEG-3 whole cell lysate: sc-364255 or mouse brain extract: sc-2253.

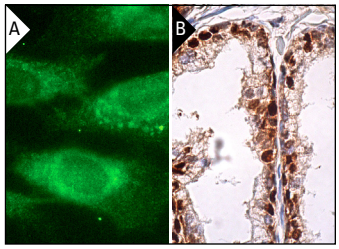
STORAGE

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

DATA



Glutathione reductase (B-12): sc-133159. Western blot analysis of Glutathione reductase expression in IMR-32 (**A**) and JEG-3 (**B**) whole cell lysates.



Glutathione reductase (B-12): sc-133159. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing nuclear and cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Liang, Q., et al. 2011. The gender-dependent difference of liver GSH antioxidant system in mice and its influence on isoline-induced liver injury. Toxicology 280: 61-69.
2. Quintana-Cabrera, R., et al. 2012. γ-glutamylcysteine detoxifies reactive oxygen species by acting as glutathione peroxidase-1 cofactor. Nat. Commun. 3: 718.
3. Prusty, B.K., et al. 2012. Imbalanced oxidative stress causes chlamydial persistence during non-productive human herpes virus co-infection. PLoS ONE 7: e47427.
4. Lee, H.M., et al. 2014. Defensive mechanism in cholangiocarcinoma cells against oxidative stress induced by chlorin e6-based photodynamic therapy. Drug Des. Devel. Ther. 8: 1451-1462.
5. Gallorini, M., et al. 2015. Activation of the Nrf2-regulated antioxidant cell response inhibits HEMA-induced oxidative stress and supports cell viability. Biomaterials 56: 114-128.
6. Plauth, A., et al. 2016. Hormetic shifting of redox environment by pro-oxidative resveratrol protects cells against stress. Free Radic. Biol. Med. 99: 608-622.
7. Li, S., et al. 2019. Glutathione contributes to efficient post-Golgi trafficking of incoming HPV16 genome. PLoS ONE 14: e0225496.
8. Quintana-Cabrera, R., et al. 2021. Opa1 relies on cristae preservation and ATP synthase to curtail reactive oxygen species accumulation in mitochondria. Redox Biol. 41: 101944.
9. Liao, C.Y., et al. 2021. Novel function of PERP-428 variants impacts lung cancer risk through the differential regulation of PTEN/MDM2/p53-mediated antioxidant activity. Free Radic. Biol. Med. 167: 307-320.

RESEARCH USE

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