

PRODUCT INFORMATION



Thioredoxin 1 Rabbit Monoclonal Antibody (Clone 092)

Item No. 37073

Overview and Properties

Contents:	This vial contains 50 or 100 µl of protein A-affinity purified monoclonal antibody.
Synonyms:	Trx1, Txn1
Immunogen:	Recombinant mouse Trx1
Cross Reactivity:	(+) Trx1
Species Reactivity:	(+) Mouse; other species not tested
Uniprot No.:	P10639
Form:	Liquid
Storage:	-80°C (as supplied)
Stability:	≥1 year
Storage Buffer:	0.2 µm filtered solution in PBS
Clone:	092
Host:	Rabbit
Isotype:	IgG
Applications:	ELISA; the recommended starting dilution is 1:5,000-1:10,000. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Description

Thioredoxin 1 (Trx1) is a thiol-disulfide oxidoreductase and part of the antioxidant thioredoxin system that is involved in the maintenance of cellular thiol redox homeostasis.¹⁻³ It is ubiquitously expressed, localizes primarily to the cytoplasm with some nuclear localization, and is upregulated in and released from cells under conditions of oxidative stress.^{1,2,4} Trx1 contains two active site cysteine residues at positions 32 and 35, with additional cysteines at positions 62, 69, and 73.² During the catalytic cycle, the active site cysteines are oxidized to a disulfide upon reduction of oxidized protein disulfide substrates and are subsequently restored to their reduced state by thioredoxin reductase (TrxR) and NADPH.^{1,2} It regulates redox-sensitive transcription factors including NF-κB, p53, and the glucocorticoid receptor, as well as inhibits apoptosis through redox-sensitive binding and regulation of apoptosis signal-regulating kinase 1 (ASK1).^{2,4} Homozygous disruption of the gene encoding Trx1, *Txn1*, is embryonic lethal in mice.^{1,5} Cayman's Thioredoxin 1 Rabbit Monoclonal Antibody (Clone 092) can be used for ELISA.

References

1. Haendeler, J. Thioredoxin-1 and posttranslational modifications. *Antioxid. Redox Signal.* **8(9-10)**, 1723-1728 (2006).
2. Watanabe, R., Nakamura, H., Masutani, H., *et al.* Anti-oxidative, anti-cancer and anti-inflammatory actions by thioredoxin 1 and thioredoxin-binding protein-2. *Pharmacol. Ther.* **127(3)**, 261-270 (2010).
3. Berndt, C., Lillig, C.H., and Holmgren, A. Thiol-based mechanisms of the thioredoxin and glutaredoxin systems: Implications for diseases in the cardiovascular system. *Am. J. Physiol. Heart Circ. Physiol.* **292(3)**, H1227-H1236 (2007).
4. Raffel, J., Bhattacharyya, A.K., Gallegos, A., *et al.* Increased expression of thioredoxin-1 in human colorectal cancer is associated with decreased patient survival. *J. Lab. Clin. Med.* **142(1)**, 46-51 (2003).
5. Matsui, M., Oshima, M., Oshima, H., *et al.* Early embryonic lethality caused by targeted disruption of the mouse thioredoxin gene. *Dev. Biol.* **178(1)**, 179-185 (1996).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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