Data Sheet (Cat.No.TMPY-02084)

TargetMol

Thioredoxin 2/TRX2 Protein, Human, Recombinant (His)

General Information

Synonyms:	MT-TRX;RP5-1119A7. 13-005;TRX2;MTRX;thioredoxin 2
Protein Construction:	A DNA sequence encoding the mature form of human TXN2 (Q99757) (Thr 60-Gly 166) was expressed, with a polyhistide tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	Q99757
Molecular Weight:	13.4 kDa (predicted); 13 kDa (reducing conditions)

QC Testing

Biological Activity:	Measured by its ability to catalyze the reduction of insulin. The reaction leads to precipitation, which can be measured by absorbance at 650 nm. The specific activity is 5-8 A650/min/mg.
Purity:	> 97 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 8.3. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Thioredoxin-2, also known as TXN2, MTRX and TRX2, is a member of the thioredoxin family. Tryparedoxins (TXN) are thioredoxin-related proteins which, as trypanothione:peroxiredoxin oxidoreductases, constitute the trypanothione-dependent antioxidant defense and may also serve as substrates for ribonucleotide reductase in trypanosomatids. Thioredoxin-2 / TXN2 contains one thioredoxin domain. It is widely expressed in adult (at protein level) and fetal tissues. Human Thioredoxin-2 / TXN2 is a small redox protein important in cellular

antioxidant defenses, as well as in the regulation of apoptosis. Thioredoxin-2 / TXN2 has an anti-apoptotic function and plays an important role in the regulation of mitochondrial membrane potential. Thioredoxin-2 / TXN2 could be involved in the resistance to anti-tumor agents. It possesses a dithiol-reducing activity. Thioredoxin-2 / TXN2 plays an important role in protecting the mitochondria against oxidative stress and in sensitizing the cells to ROS-induced apoptosis. Mammalian Thioredoxin-2 / TXN2 is a mitochondrial isoform of highly evolutionary conserved thioredoxins. Thioredoxins are small ubiquitous protein-disulfide oxidoreductases implicated in a large variety of biological functions.

Reference

Chen Y., et al., 2002, J. Biol. Chem. 277: 33242-8.
Smeets A., et al., 2005, Protein Sci. 14: 2610-21.
Wen,S. et al., 2009, Am J Med Genet A 149A (2): 155-60.
Choudhary C., et al., 2009, Science 325: 834-40.

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