

#### DESCRIPTION

|                           |                                                                                                                                                                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Species Reactivity</b> | Human/Mouse/Rat                                                                                                                                                                                                                                                             |
| <b>Specificity</b>        | Detects human Thioredoxin-1 in direct ELISAs. Detects human, mouse, and rat Thioredoxin-1 in Western blots.                                                                                                                                                                 |
| <b>Source</b>             | Monoclonal Mouse IgG <sub>2B</sub> Clone # 763651                                                                                                                                                                                                                           |
| <b>Purification</b>       | Protein A or G purified from hybridoma culture supernatant                                                                                                                                                                                                                  |
| <b>Immunogen</b>          | <i>E. coli</i> -derived recombinant human Thioredoxin-1<br>Val2-Val105<br>Accession # P10599                                                                                                                                                                                |
| <b>Conjugate</b>          | Alexa Fluor 750<br>Excitation Wavelength: 749 nm<br>Emission Wavelength: 775 nm                                                                                                                                                                                             |
| <b>Formulation</b>        | Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide<br><br>*Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |

#### APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. [General Protocols](#) are available in the Technical Information section on our website.

|                             |                                                                        |
|-----------------------------|------------------------------------------------------------------------|
| <b>Western Blot</b>         | Optimal dilution of this antibody should be experimentally determined. |
| <b>Immunocytochemistry</b>  | Optimal dilution of this antibody should be experimentally determined. |
| <b>Immunohistochemistry</b> | Optimal dilution of this antibody should be experimentally determined. |

#### PREPARATION AND STORAGE

|                                |                                                                                                                   |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Shipping</b>                | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below. |
| <b>Stability &amp; Storage</b> | Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied                          |

#### BACKGROUND

Thioredoxins (Trxs) are a group of small ubiquitous proteins in all living cells that are key regulators of cellular redox balance (1, 2). The mammalian Trx family has three members. The Trx-1, which is a secreted and cellular protein, the mitochondria-specific Trx-2, and the Trx-like cytosolic protein p32TrxL (3-5). The active site of mammalian Trxs contains two cysteines in the conserved sequence -Y-C-G-P-C-K-. In Trx-1 the conserved cysteine residues are in positions 32 and 35, respectively. Trxs exist either in a reduced or in an oxidized state when the two cysteines at the active site form an intramolecular disulfide bridge. NADPH and the flavoprotein thioredoxin reductase can convert the oxidized Trx into the reduced Trx. Trx-1 is the only extracellular occurring thioredoxin, and is secreted by lymphocytes, hepatocytes, fibroblasts, and several tumor cells. Plasma concentrations of Trx-1 are up to 6 nM (6). In cells, Trx-1 is localized predominantly in the cytoplasm. Small amounts have been detected in the nucleus and in association with the outside surface of the cells. Expression of Trx-1 is increased under various stress conditions such as hypoxia, elevated hydrogen peroxide concentrations, photochemical oxidative stress, and viral and bacterial infections. Biological functions of Trx-1 include growth factor activity, antioxidant properties, a cofactor that provides reducing equivalents, and transcriptional regulation (1, 2). The synovial tissue of rheumatoid arthritis patients produces increased levels of Trx-1 under oxidative stress conditions, and a correlation exists between the plasma levels of Trx-1 and the severity of the disease, making Trx-1 a biomarker for this pathological condition (7, 8).

#### PRODUCT SPECIFIC NOTICES

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