**DESCRIPTION**

**Species Reactivity** Human/Mouse/Rat  
**Specificity** Detects mouse Thioredoxin Reductase 1/TRXR1 in direct ELISAs and human, mouse, and rat Thioredoxin Reductase 1/TRXR1 in Western blots.  
**Source** Monoclonal Mouse IgG, Clone # 489804  
**Purification** Protein A or G purified from hybridoma culture supernatant  
**Immunogen** *E. coli*-derived recombinant mouse Thioredoxin Reductase 1/TRXR1 Met1-ile497 Accession # Q16881  
**Formulation** Lyophilized from a 0.2 m filtered solution in PBS with Trehalose. See Certificate of Analysis for details.  
*Small pack size (SP) is supplied either lyophilized or as a 0.2 m filtered solution in PBS.*

**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.

<table>
<thead>
<tr>
<th>Applications</th>
<th>Recommended Concentration</th>
<th>Sample</th>
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<tbody>
<tr>
<td>Western Blot</td>
<td>0.1 μg/mL</td>
<td>See Below</td>
</tr>
<tr>
<td>Intracellular Staining by Flow Cytometry</td>
<td>2.5 μg/10⁶ cells</td>
<td>See Below</td>
</tr>
<tr>
<td>CyTOF-ready</td>
<td>Ready to be labeled using established conjugation methods. No BSA or other carrier proteins that could interfere with conjugation.</td>
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</tbody>
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**DATA**

**Western Blot**  
Detection of Human, Mouse, and Rat Thioredoxin Reductase 1/TRXR1 by Western Blot. Western blot shows lysates of HeLa human cervical epithelial carcinoma cell line, NIH-3T3 mouse embryonic fibroblast cell line, and C6 rat glioma cell line. PVDF membrane was probed with 0.1 μg/mL of Mouse Anti-Human Thioredoxin Reductase 1/TRXR1 Monoclonal Antibody (Catalog # MAB7428) followed by HRP-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # F0101B). A specific band was detected for Thioredoxin Reductase 1/TRXR1 at approximately 65 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

**Intracellular Staining by Flow Cytometry**  
Detection of Thioredoxin Reductase 1/TRXR1 in HeLa Human Cell Line by Flow Cytometry. HeLa human cervical epithelial carcinoma cell line was stained with Mouse Anti-Human/Mouse/Rat Thioredoxin Reductase 1/TRXR1 Monoclonal Antibody (Catalog # MAB7428, filled histogram) or isotype control antibody (Catalog # MAB002, open histogram), followed by Allophycocyanin-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # F0101B). To facilitate intracellular staining, cells were fixed with paraformaldehyde and permeabilized with saponin.  

**PREPARATION AND STORAGE**

**Reconstitution** Sterile PBS to a final concentration of 0.5 mg/mL.  
**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.  
*Small pack size (SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C.*  
**Stability & Storage** Use a manual defrost freezer and avoid repeated freeze-thaw cycles.  
- 12 months from date of receipt, -20 to -70 °C as supplied.  
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.  
- 6 months, -20 to -70 °C under sterile conditions after reconstitution.

**BACKGROUND**

Thioredoxin reductase 1 (TRXR1) is an approximately 70 kDa member of the class-I pyridine nucleotide-disulfide oxidoreductase family. Human TRXR1 is 649 amino acids (aa) in length. Residues 151-152 constitute a propeptide that is deleted from the mature protein. Splicing variants produce five additional isoforms for human TRXR1. Isoform 2 has a 32 aa substitution for aa 107-138 and a deletion of aa 1-106. Isoform 3 has a deletion of aa 1-51 and a 49 aa substitution for aa 52-100. Isoform 4 is missing aa 1-98 and has a 3 aa substitution for aa 99-101. Isoform 5 has a deletion of aa 1-150. Residues 56-156 make up a glutaredoxin domain, and residues 200-632 constitute a pyridine nucleotide-disulfide oxidoreductase dimerization domain. In addition, there are three phosphotyrosines at positions 161, 163, and 281, and a selenocysteine at position 648. Human TRXR1 shares 74% and 70% aa sequence identity with mouse and rat TRXR1, respectively. Isoform 1 is involved in glutaredoxin activity as well as thioredoxin reductase activity, and it induces actin and tubulin polymerization, which leads to formation of cell membrane protrusions. Isoform 4 has been shown to enhance the transcriptional activity of the beta receptor only. Finally, isoform 5 mediates cell death induced by a combination of interferon-beta and retinoic acid. Isoform 1 is expressed mostly in the Leydig cells, but also in the ovary, spleen, heart, liver, kidney, and pancreas and in a number of cancer cell lines. Isoform 4 is widely expressed with highest levels in the kidney, uterus, testis, ovary, prostate, placenta, and fetal liver.