**For Research Use Only.
Not for use in diagnostic procedures.**

MONOCLONAL ANTIBODY

# Anti-Thioredoxin (Trx-tag) mAb

| Code No. | Clone | Subclass | Quantity | Concentration |
|---|---|---|---|---|
| M013-3 | 2C9 | Mouse IgG1κ | 100 µL | 1 mg/mL |

**BACKGROUND:** The thioredoxin (Trx) fusion *E.coli.* expression system is available to offer soluble expression of normally insoluble or difficult to express proteins. LaVallie *et al* reported that a number of mammalian cytokines and growth factors, when expressed as C-terminal trxA fusion proteins, stayed remarkably soluble in the *E.coli.* cytoplasm under certain conditions.

**SOURCE:** This antibody was purified from hybridoma (clone 2C9) supernatant using protein A agarose. This hybridoma was established by fusion of mouse myeloma cell P3U1 with Balb/c mouse splenocyte immunized with *E. coli.* thioredoxin (trxA) (109 aa.).

**FORMULATION:** 100 µg IgG in 100 µL volume of PBS containing 50% glycerol, pH 7.2. No preservative is contained.

**STORAGE:** This antibody solution is stable for one year from the date of purchase when stored at -20°C.

**REACTIVITY:** This antibody reacts with *E. coli.* Trx and Trx-tag fusion protein on Western blotting.

**APPLICATIONS:**

Western blotting; 1 µg/mL for chemiluminescence detection system
Immunoprecipitation; Not tested
Immunohistochemistry; Not tested
Immunocytochemistry; Not tested
Flow cytometry; Not tested

Detailed procedure is provided in the following **PROTOCOL**.

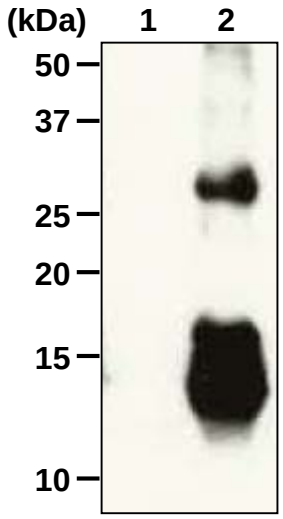
**INTENDED USE:**

For Research Use Only. Not for use in diagnostic procedures.

**REFERENCES:**

1) Araki, N., *et al.*, *Reproduction* **152**, 313-321 (2016)
2) Schulze, P. C., *et al.*, *J. Biol. Chem.* **279**, 30369-30374 (2004)
3) LaVallie, E. R., *et al.*, *Biotechnology* **11**, 187-193 (1993)

Clone 2C9 is used in reference number 1) and 2).




***Western blot analysis of Thioredoxin expression in E. coli. Cell lysate (1) and Thioredoxin expressed E.coli cell lysate (2) using M013-3.***

**PROTOCOL:**

**SDS-PAGE & Western Blotting**

1) Mix the sample with equal volume of Laemmli's sample buffer.
2) Boil the samples for 2 minutes and centrifuge. Load 10 µL of the sample per lane in a 1 mm thick SDS-polyacrylamide gel for electrophoresis.
3) Blot the protein to a polyvinylidene difluoride (PVDF) membrane at 1 mA/cm$^2$ for 1 hour in a semi-dry transfer system (Transfer Buffer: 25 mM Tris, 190 mM glycine, 20% MeOH). See the manufacture's manual for precise transfer procedure.
4) To reduce nonspecific binding, soak the membrane in 10% skimmed milk (in PBS, pH 7.2) for 1 hour at room temperature, or overnight at 4°C.
5) Incubate the membrane with primary antibody diluted with PBS, pH 7.2 containing 1% skimmed milk as suggest in the **APPLICATIONS** for 1 hour at room temperature. (The concentration of antibody to be used will depend on condition.)
6) Wash the membrane with PBS-T [0.05% Tween-20 in PBS] (5 minutes x 3 times).
7) Incubate the membrane with 1:10,000 of Anti-IgG (Mouse) pAb-HRP (MBL; code no. 330) diluted with 1% skimmed milk (in PBS, pH 7.2) for 1 hour at room temperature.
8) Wash the membrane with PBS-T (5 minutes x 6 times).
9) Wipe excess buffer on the membrane, then incubate it

with appropriate chemiluminescence reagent for 1 minute. Remove extra reagent from the membrane by dabbing with paper towel, and seal it in plastic wrap.

10) Expose to an X-ray film in a dark room for 5 minutes. Develop the film as usual. The condition for exposure and development may vary.

## RELATED PRODUCTS:

Antibodies

| | |
|---|---|
| M048-3 | Anti-GFP mAb (1E4) |
| D153-3 | Anti-GFP mAb (RQ2) |
| D153-6 | Anti-GFP mAb-Biotin (RQ2) |
| D153-8 | Anti-GFP mAb-Agarose (RQ2) |
| 598 | Anti-GFP pAb (polyclonal) |
| 598-7 | Anti-GFP pAb-HRP-DirecT (polyclonal) |
| PM073 | Anti-Renilla GFP pAb (polyclonal) |
| M208-3 | Anti-RFP mAb Cocktail (1G9, 3G5) |
| M155-3 | Anti-RFP mAb (8D6) |
| M165-3 | Anti-RFP mAb (3G5) |
| M165-8 | Anti-RFP mAb-Agarose (3G5) |
| M204-3 | Anti-RFP mAb (1G9) |
| M204-7 | Anti-RFP mAb-HRP-DirecT (1G9) |
| PM005 | Anti-RFP pAb (polyclonal) |
| PM005-7 | Anti-RFP pAb-HRP-DirecT (polyclonal) |
| M180-3 | Anti-HA-tag mAb (TANA2) (200 µL) |
| M180-6 | Anti-HA-tag mAb-Biotin (TANA2) |
| M180-7 | Anti-HA-tag mAb-HRP-DirecT (TANA2) |
| 561 | Anti-HA-tag pAb (polyclonal) (0.1 mL) |
| 561-7 | Anti-HA-tag pAb-HRP-DirecT (polyclonal) |
| 561-8 | Anti-HA-tag pAb-Agarose (polyclonal) |
| M132-3 | Anti-HA-tag mAb (5D8) |
| M185-3L | Anti-DDDDK-tag mAb (FLA-1) (1 mL) |
| M185-7 | Anti-DDDDK-tag mAb-HRP-DirecT (FLA-1) |
| PM020 | Anti-DDDDK-tag pAb (polyclonal) |
| PM020-7 | Anti-DDDDK-tag pAb-HRP-DirecT (polyclonal) |
| PM020-8 | Anti-DDDDK-tag pAb-Agarose (polyclonal) |
| M192-3 | Anti-Myc-tag mAb (My3) (200 µL) |
| M192-6 | Anti-Myc-tag mAb-Biotin (My3) |
| M047-3 | Anti-Myc-tag mAb (PL14) |
| M047-7 | Anti-Myc-tag mAb-HRP-DirecT (PL14) |
| M047-8 | Anti-Myc-tag mAb-Agarose (PL14) |
| 562 | Anti-Myc-tag pAb (polyclonal) (0.1 mL) |
| D291-3 | Anti-His-tag mAb (OGHis) (200 µL) |
| D291-6 | Anti-His-tag mAb-Biotin (OGHis) |
| D291-7 | Anti-His-tag mAb-HRP-DirecT (OGHis) |
| D291-8 | Anti-His-tag mAb-Agarose (OGHis) |
| D291-A48 | Anti-His-tag mAb-Alexa Fluor® 488 (OGHis) |
| D291-A59 | Anti-His-tag mAb-Alexa Fluor® 594 (OGHis) |
| D291-A64 | Anti-His-tag mAb-Alexa Fluor® 647 (OGHis) |
| M089-3 | Anti-His-tag mAb (6C4) |
| M136-3 | Anti-His-tag mAb (2D8) |
| PM032 | Anti-His-tag pAb (polyclonal) |
| PM032-8 | Anti-His-tag pAb-Agarose (polyclonal) |
| M167-3 | Anti-V5-tag mAb (1H6) |
| M215-3 | Anti-V5-tag mAb (OZA3) |
| PM003 | Anti-V5-tag pAb (polyclonal) |
| PM003-7 | Anti-V5-tag pAb-HRP-DirecT (polyclonal) |
| PM003-8 | Anti-V5-tag pAb-Agarose (polyclonal) |
| PM021 | Anti-S-tag pAb (polyclonal) |
| PM070 | Anti-E-tag pAb (polyclonal) |
| PM022 | Anti-T7-tag pAb (polyclonal) |
| 563 | Anti-VSV-G-tag pAb (polyclonal) |
| M071-3 | Anti-GST-tag mAb (3B2) |
| M209-3 | Anti-GST-tag mAb (GT5) |
| PM022 | Anti-GST-tag pAb (polyclonal) |
| M095-3 | Anti-Luciferase mAb (2D4) |
| PM016 | Anti-Luciferase pAb (polyclonal) |
| PM047 | Anti-Renilla Luciferase pAb (polyclonal) |
| M094-3 | Anti-β-galactosidase mAb (5A3) |
| PM049 | Anti-β-galactosidase pAb (polyclonal) |
| M091-3 | Anti-MBP (Maltose Binding Protein) mAb (1G12) |
| PM015 | Anti-CBD (Chitin Binding Domain) pAb (polyclonal) |
| PM071 | Anti-Calmodulin Binding Protein-tag pAb (polyclonal) |
| M211-3 | Anti-Strep-tag II mAb (4F1) |

*Smart-IP* series

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|---|---|
| 3190 | Magnetic Rack |
| D153-11 | Anti-GFP mAb-Magnetic Beads (RQ2) |
| M165-11 | Anti-RFP mAb-Magnetic Beads (3G5) |
| M180-11 | Anti-HA-tag mAb-Magnetic Beads (TANA2) |
| M132-11 | Anti-HA-tag mAb-Magnetic Beads (5D8) |
| M185-11 | Anti-DDDDK-tag mAb-Magnetic Beads (FLA-1) |
| M047-11 | Anti-Myc-tag mAb-Magnetic Beads (PL14) |
| D291-11 | Anti-His-tag mAb-Magnetic Beads (OGHis) |
| M167-11 | Anti-V5-tag mAb-Magnetic Beads (1H6) |
| M198-9 | Anti-E-tag mAb-Magnetic beads (21D11) |
| M075-11 | Mouse IgG1 (isotype control)-Magnetic Beads |
| M076-11 | Mouse IgG2a (isotype control)-Magnetic Beads |
| M077-11 | Mouse IgG2b (isotype control)-Magnetic Beads |
| M081-11 | Rat IgG2a (isotype control)-Magnetic Beads |
| M180-10 | Anti-HA-tag mAb-Magnetic Agarose (TANA2) |
| M132-10 | Anti-HA-tag mAb-Magnetic Agarose (5D8) |
| M185-10 | Anti-DDDDK-tag mAb-Magnetic Agarose (FLA-1) |
| M047-10 | Anti-Myc-tag mAb-Magnetic Agarose (PL14) |
| D291-10 | Anti-His-tag mAb-Magnetic Agarose (OGHis) |
| D153-10 | Anti-GFP mAb-Magnetic Agarose (RQ2) |
| M165-10 | Anti-RFP mAb-Magnetic Agarose (3G5) |
| M167-10 | Anti-V5-tag mAb-Magnetic Agarose (1H6) |
| M198-10 | Anti-E-tag mAb-Magnetic Agarose (21D11) |

Protein Purification Kits

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|---|---|
| 3320 | HA-tagged Protein PURIFICATION KIT |
| 3321 | HA-tagged Protein PURIFICATION GEL (1 mL) |
| 3325 | DDDDK-tagged Protein PURIFICATION KIT |
| 3326 | DDDDK-tagged Protein PURIFICATION GEL (1 mL gel, 5 mg peptide) |
| 3325-205 | DDDDK-tag peptide (1 mg x 5) |
| 3305 | c-Myc-tagged Protein MILD PURIFICATION KIT |
| 3306 | c-Myc-tagged Protein MILD PURIFICATION GEL (1 mL gel, 1 mg peptide) |
| 3310 | His-tagged Protein PURIFICATION KIT |
| 3311 | His-tagged Protein PURIFICATION GEL (1 mL gel, 5 mg peptide) |
| 3317 | V5-tagged Protein PURIFICATION KIT Ver.2 |
| 3318 | V5-tagged Protein PURIFICATION GEL Ver.2 |
| 3315-205 | V5-tag peptide |

Other related antibodies and kits are also available.
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