APA601Hu61 100μg
Active Myeloperoxidase (MPO)
Organism Species: *Homo sapiens* (Human)
Instruction manual

FOR RESEARCH USE ONLY
NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

13th Edition (Revised in Aug, 2023)

[PROPERTIES]

Source: Eukaryotic expression.
Host: 293F cell
Residues: Ala49~Ser745
Tags: N-terminal His-tag
Purity: >95%
Endotoxin Level: <1.0EU per 1μg (determined by the LAL method).
Buffer Formulation: PBS, pH7.4, containing 5% Trehalose .
Original Concentration: 200μg/mL
Applications: Activity Assays.
(May be suitable for use in other assays to be determined by the end user.)
Predicted isoelectric point: 9.0
Predicted Molecular Mass: 80.6kDa
Accurate Molecular Mass: 90kDa as determined by SDS-PAGE reducing conditions.
Phenomenon explanation:
The possible reasons that the actual band size differs from the predicted are as follows:

1. Splice variants: Alternative splicing may create different sized proteins from the same gene.
2. Relative charge: The composition of amino acids may affects the charge of the protein.
3. Post-translational modification: Phosphorylation, glycosylation, methylation etc.
4. Post-translation cleavage: Many proteins are synthesized as pro-proteins, and then cleaved to give the active form.
5. Polymerization of the target protein: Dimerization, multimerization etc.

[USAGE]

Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.

[STORAGE AND STABILITY]

Storage: Avoid repeated freeze/thaw cycles.
Store at 2-8°C for one month.
Aliquot and store at -80°C for 12 months.

Stability Test: The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37°C for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

[SEQUENCE]

AAPAVLGEVDTSLVLSSMEEAKQLVDKAYKERRESIKQRLRSGSASPMELLSYFKQPVAATRTAVRAADYLHVALDLL
ERKLRSLWRRPFNVTDVLTPAQLNVLSKSSGCAYQDVGVTCPEQDKYRTITGMCNNRRSPTLGASNRAFVRWLPAEYE
DGFSLPYGWTPGVKRNGFPVALARAVSNEIVRFPTDQLTPDQERSLMFMQWGQLLDHDLDFTPEPAARASFVTGVNCE
TSCVQQPPCFPLKIPPNDPRIKNQADCIPFFRSCPACPGSNITIRNQINALTSFVDASMVYGSEEPLARNLRNMSNQL
GLLAVNQRFQDNGRALLPFDNLHDDPCLLTNRSARIPCFLAGDTRSSEMPELTSMHTLLLREHNRLATELKSLNPRWD
GERLYQEARKIVGAMVQIITYRDYLPLVLGPTAMRKYLPTYRSYNDSVDPRIANVFTNAFRYGHTLIQPFMFRLDNRY
QPMEPNPRVPLSRVFFASWRVVLEGGIDPILRGLMATPAKLNRQNQIAVDEIRERLFEQVMRIGLDLPALNMQRSRDH
GLPGYNAWRRFCGLPQPETVGQLGTVLRNLKLARKLMEQYGTPNNIDIWMGGVSEPLKRKGRVGPLLACIIGTQFRKL
RDGDRFWWENEGVFSMQQRQALAQISLPRIICDNTGITTVSKNNIFMSNSYPRDFVNCSTLPALNLASWREAS

[ACTIVITY]

Myeloperoxidase (MPO) is a heme-containing peroxidase predominantly synthesized and stored in the azurophilic granules of human neutrophil granulocytes, serving as a core effector molecule of innate immune defense. Encoded by the MPO gene located on chromosome 17, this protein matures via post-translational cleavage from a 80 kDa precursor into functional heterodimers composed of heavy and light subunits. Upon neutrophil activation during pathogen invasion or tissue injury, MPO is released into phagolysosomes and extracellular milieu. It catalyzes the oxidation of chloride ions by hydrogen peroxide to generate hypochlorous acid, a potent microbicidal oxidant that eliminates bacteria, fungi and

viruses. Excessive extracellular MPO triggers oxidative stress, endothelial damage and inflammatory cascades, closely correlating with atherosclerosis, acute coronary syndromes and chronic inflammatory disorders. It also acts as a diagnostic biomarker for neutrophil activation and inflammatory tissue lesions. MPO directly interacts with CTSG to synergistically amplify inflammatory proteolytic and oxidative tissue damage. Briefly, CTSG was diluted serially in PBS with 0.01% BSA (pH 7.4). Duplicate samples of 100 μL were then transferred to MPO-coated microtiter wells and incubated for 1h at 37℃. Wells were washed with PBST and incubated for 1h with anti-CTSG pAb, then aspirated and washed 3 times. After incubation with HRP labelled secondary antibody for 1h at 37℃, wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37℃. Finally, add 50 μL stop solution to the wells and read at 450/630nm immediately. Measured by its binding ability in a functional ELISA. When recombinant human MPO is immobilized at 2 μg/mL(100 μL/well), the concentration of CTSG that produces 50% optimal binding-response is found to be approximately 0.269 μg/mL.

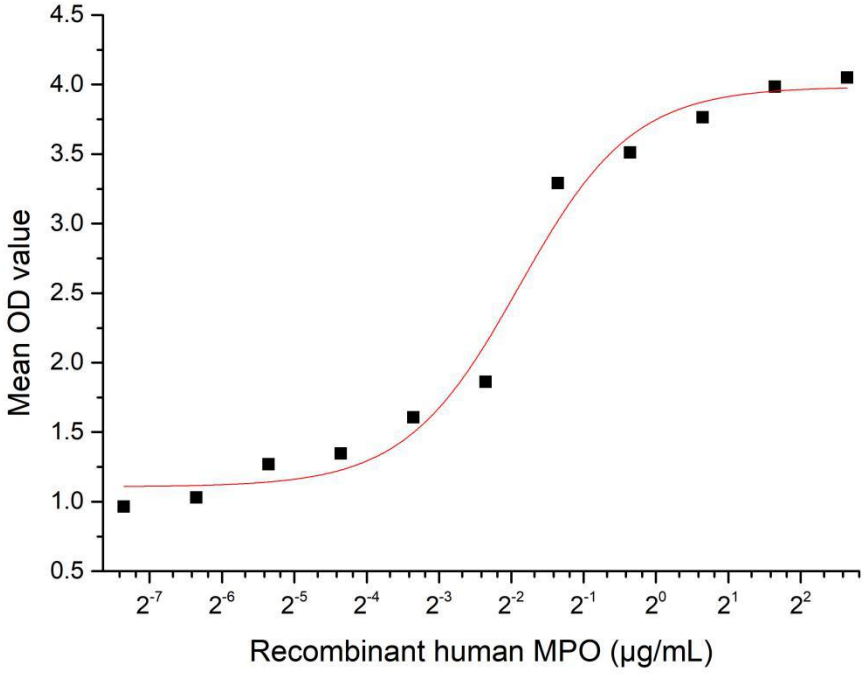

Figure 1. The binding activity of recombinant human MPO and human CTSG

[IDENTIFICATION]

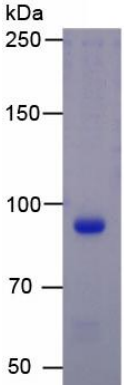

Figure 2. SDS-PAGE

Sample: Active recombinant MPO, Human

[IMPORTANT NOTE]

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.