SANTA CRUZ BIOTECHNOLOGY, INC.

MPO heavy chain (H-300): sc-33596

BACKGROUND

The heme protein myeloperoxidase (MPO) is a major component of azurophilic granules of neutrophils and polymorphonuclear leukocytes. Optimal oxygen-dependent microbiocidal activity depends on MPO as the critical enzyme for the generation of hypochlorous acid and other toxic oxygen products. The MPO precursor is synthesized during the promyelocytic stage of myeloid differentiation and is subsequently processed and transported intracellularly to the lysosomes. The precursor undergoes cotranslational N-linked glycosylation to produce a glycoprotein. Glucosidases in the endoplasmic reticulum (ER) or early *cis* Golgi convert the pro-MPO to a form which is sorted into a prelysosomal compartment, which undergoes final proteolytic maturation to native MPO, a pair of heavy-light protomers. In normal neutrophils, MPO is expressed as a dimer. Calreticulin, a calcium-binding protein residing in the ER, interacts specifically with fully glycosylated apopro-MPO. iMPO mRNA is abundant in human promyelocytic HL-60 and mouse myeloid leukemia NFS-60 cells. MPO is expressed at high levels in circulating neutrophils and monocytes but is not detectable in microglia, brain-specific macrophages or normal brain tissue.

REFERENCES

1. Johnson, K.R., et al. 1987. Characterization of cDNA clones for human myeloperoxidase: predicted amino acid sequence and evidence for multiple mRNA species. Nucleic Acids Res. 15: 2013-2028.
2. Morishita, K., et al. 1987. Molecular cloning and characterization of cDNA for human myeloperoxidase. J. Biol. Chem. 262: 3844-3851.
3. Nauseef, W.M. 1987. Postranslational processing of a human myeloid lysosomal protein, myeloperoxidase. Blood 70: 1143-1150.
4. Nauseef, W.M., et al. 1988. Biosynthesis and processing of myeloperoxidase—a marker for myeloid cell differentiation. Eur. J. Haematol. 40: 97-110.
5. Homma, T., et al. 1989. Preparation and characterization of monoclonal antibodies against human myeloperoxidase. Arch. Biochem. Biophys. 273: 189-196.
6. Zuurbier, K.W., et al. 1992. Human hemi-myeloperoxidase. Initial chlorinating activity at neutral pH, compound II and III formation, and stability towards hypochlorous acid and high temperature. Eur. J. Biochem. 205: 737-742.
7. Nauseef, W.M., et al. 1995. Calreticulin functions as a molecular chaperone in the biosynthesis of myeloperoxidase. J. Biol. Chem. 270: 4741-4747.

SOURCE

MPO heavy chain (H-300) is a rabbit polyclonal antibody raised against amino acids 446-745 mapping at the C-terminus of MPO of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

MPO heavy chain (H-300) is recommended for detection of MPO, MPO heavy chain, eosinophil peroxidase, and, to a lesser extent, lactoperoxidase and thyroid peroxidase of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

MPO heavy chain (H-300) is also recommended for detection of MPO, MPO heavy chain, eosinophil peroxidase, and, to a lesser extent, lactoperoxidase and thyroid peroxidase in additional species, including canine.

Molecular Weight of MPO heavy-light protomer: 72 kDa.

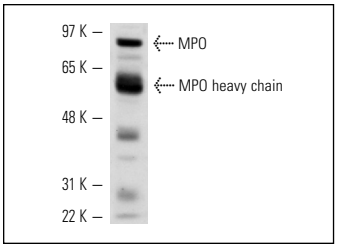
Molecular Weight of MPO dimer: 140 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, NIH/3T3 whole cell lysate: sc-2210 or 3T3-L1 cell lysate: sc-2243.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



MPO heavy chain (H-300): sc-33596. Western blot analysis of MPO and MPO heavy chain expression in HL-60 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Ma, W.X., et al. 2011. Time-dependent expression and distribution of monoacylglycerol lipase during the skin-incised wound healing in mice. Int. J. Legal Med. 125: 549-558.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.