SANTA CRUZ BIOTECHNOLOGY, INC.

MPO heavy chain (L-20): sc-16129

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.

CHROMOSOMAL LOCATION

Genetic locus: Mpo (mouse) mapping to 11 C.

SOURCE

MPO heavy chain (L-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MPO of mouse origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-16129 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

MPO heavy chain (L-20) is recommended for detection of MPO heavy chain of mouse and rat 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 (L-20) is also recommended for detection of MPO heavy chain in additional species, including equine, canine and porcine.

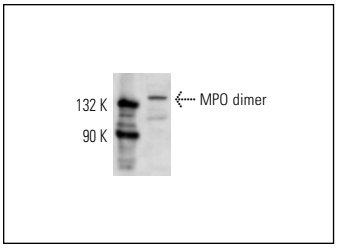
Suitable for use as control antibody for MPO siRNA (m): sc-43942, MPO shRNA Plasmid (m): sc-43942-SH and MPO shRNA (m) Lentiviral Particles: sc-43942-V.

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

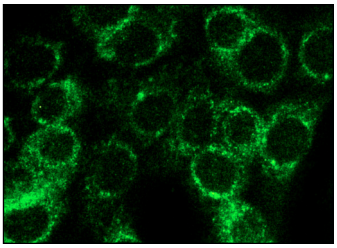
Molecular Weight of MPO dimer: 140 kDa.

Positive Controls: WEHI-231 whole cell lysate: sc-2213, NIH/3T3 whole cell lysate: sc-2210 or MCP-5 whole cell lysate.

DATA



MPO heavy chain (L-20): sc-16129. Western blot analysis of MPO dimer expression in MCP-5 whole cell lysate.



MPO heavy chain (L-20): sc-16129. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Lomas-Neira, J.L., et al. 2004. CXCR2 inhibition suppresses hemorrhage-induced priming for acute lung injury in mice. J. Leukoc. Biol. 76: 58-64.
2. Perl, M., et al. 2005. Silencing of Fas, but not caspase-8, in lung epithelial cells ameliorates pulmonary apoptosis, inflammation, and neutrophil influx after hemorrhagic shock and sepsis. Am. J. Pathol. 167: 1545-1559.
3. Kuligowski, M.P., et al. 2009. Antimyeloperoxidase antibodies rapidly induce α-4-integrin-dependent glomerular neutrophil adhesion. Blood 113: 6485-6494.
4. Glenthoj, A., et al. 2011. Serglycin participates in retention of α-defensin in granules during myelopoiesis. Blood 118: 4440-4448.

STORAGE

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

RESEARCH USE

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