

Anti-Myeloperoxidase MPO Rabbit Monoclonal Antibody

Catalog # ABO14213

Product Information

Application	WB, IHC, IF, ICC
Primary Accession	P05164
Host	Rabbit
Isotype	Rabbit IgG
Reactivity	Human
Clonality	Monoclonal
Format	Liquid
Description	Anti-Myeloperoxidase MPO Rabbit Monoclonal Antibody . Tested in WB, IHC, ICC/IF applications. This antibody reacts with Human.

Additional Information

Gene ID	4353
Other Names	Myeloperoxidase, MPO, 1.11.2.2, Myeloperoxidase, 89 kDa myeloperoxidase, 84 kDa myeloperoxidase, Myeloperoxidase light chain, Myeloperoxidase heavy chain, MPO (HGNC:7218)
Calculated MW	83869
Application Details	WB 1:500-1:2000 IHC 1:50-1:200 ICC/IF 1:50-1:200
Subcellular Localization	Lysosome.
Source	Eukaryota
Contents	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
Clone Names	Clone: AOCF-13
Immunogen	A synthesized peptide derived from human Myeloperoxidase
Purification	Affinity-chromatography
Storage	Store at -20°C for one year. For short term storage and frequent use, store at 4°C for up to one month. Avoid repeated freeze-thaw cycles.

Protein Information

Name	MPO {ECO:0000303 PubMed:21880720, ECO:0000312 HGNC:HGNC:7218}
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Function

Peroxidase that plays a central role in the host defense system of polymorphonuclear leukocytes by mediating both (1) formation of neutrophil extracellular trap (NETs) and (2) microbicidal activity (PubMed:[16125131](#), PubMed:[17438335](#), PubMed:[20974672](#), PubMed:[20974816](#), PubMed:[22131345](#), PubMed:[25066128](#), PubMed:[28574339](#), PubMed:[40963017](#), PubMed:[4978299](#), PubMed:[6295491](#)). Promotes NET formation by mediating chromatin disassembly: translocates to the nucleus and specifically binds to nucleosomes, both as monomer and homodimer, leading to nucleosome unstacking and initial chromatin decondensation (PubMed:[40963017](#)). Homodimers clash with one end of the nucleosomal DNA, leading to DNA unwrapping, initiating complete disassembly of nucleosomes and chromatin transformation into NETs in an ATP-independent manner (PubMed:[40963017](#)). NETs, which are mainly composed of DNA fibers and globular proteins, are then extruded into the extracellular space by neutrophils to trap pathogens and release antimicrobial proteins to destroy them (PubMed:[40963017](#)). Participates to the microbicidal activity against a wide range of organisms by acting as a peroxidase that catalyzes the formation of oxidants in presence of hydrogen peroxide (PubMed:[16125131](#), PubMed:[17074761](#), PubMed:[17438335](#), PubMed:[21880720](#), PubMed:[22131345](#), PubMed:[22352991](#), PubMed:[22902565](#), PubMed:[24194519](#), PubMed:[33273015](#), PubMed:[9359420](#), PubMed:[9922160](#)). Mediates the formation of hypohalous acids, mainly hypochlorous acid (HOCl) in physiologic situations, that greatly enhance polymorphonuclear leukocyte microbicidal activity (PubMed:[16125131](#), PubMed:[17074761](#), PubMed:[17438335](#), PubMed:[19608745](#), PubMed:[21880720](#), PubMed:[22902565](#), PubMed:[24194519](#), PubMed:[9359420](#), PubMed:[9922160](#)). In addition to hypochlorous acid, catalyzes formation of hypobromous acid (HOBr), hypoiodous acid (HOI) and hypothiocyanous acid (HOSCN) (PubMed:[1318692](#), PubMed:[16125131](#), PubMed:[17438335](#), PubMed:[19608745](#), PubMed:[6295491](#), PubMed:[9359420](#)). Also catalyzes oxidation of nitrite into the highly reactive nitrogen dioxide radical (PubMed:[10777476](#), PubMed:[8385644](#), PubMed:[9450756](#)). Formation of oxidants are widely believed to be responsible for much of the anti-bactericidal activity of neutrophils (PubMed:[8385644](#), PubMed:[9450756](#)). Oxidants, such as hypochlorous acid or nitrogen dioxide radical, can also oxidize amino acid residues on proteins and generate chlorination and nitration post-translational modifications, respectively (PubMed:[15314690](#), PubMed:[15326314](#), PubMed:[15498770](#), PubMed:[15574409](#), PubMed:[16091367](#), PubMed:[7622459](#)). Chlorination and nitration of the lipid-free form of APOA1 impairs cholesterol transport (PubMed:[15326314](#), PubMed:[15498770](#), PubMed:[15574409](#)). Superoxides generated by MPO can also promote dioxygenation of tryptophan residues on proteins (PubMed:[16091367](#), PubMed:[40081572](#)). Also able to oxidize melatonin into N1-acetyl-N2-formyl-5-methoxykynuramine either in presence of hydrogen peroxide or superoxide (PubMed:[15636586](#), PubMed:[16148002](#)). Oxidizes urate into 5-hydroxyisourate (PubMed:[21266577](#)). Functions as a nitric oxide (NO) oxidase during inflammation, by catalytically consuming NO, impairing NO's ability to maintain vascular tone and function (PubMed:[12089442](#)). May also mediate the proteolytic cleavage of alpha-1-microglobulin to form t-alpha-1- microglobulin, which potently inhibits oxidation of low-density lipoprotein particles and limits vascular damage (PubMed:[25698971](#)).

Cellular Location

Lysosome. Cytolytic granule. Cytoplasmic vesicle, phagosome. Secreted. Nucleus. Chromosome Note=Localizes to azurophil granules, a type of primary lysosome found in neutrophils and monocytes that contains antimicrobial proteins (PubMed:[25066128](#), PubMed:[2981589](#), PubMed:[6095812](#), PubMed:[6192815](#)). A substantial fraction is also constitutively secreted by normal bone marrow granulocyte precursors (PubMed:[6095812](#)). During formation of neutrophil extracellular traps (NETs), translocates into the nucleus and associates to chromatin, leading to

chromatin dislocation and its transformation into NETs (PubMed:25066128, PubMed:40963017). Core component of NETs (PubMed:22131345, PubMed:32434865, PubMed:40963017)

Tissue Location

Specifically expressed in neutrophils and monocytes.

Images

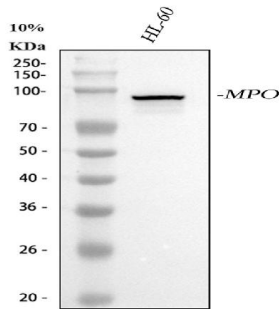


Figure 1. Western blot analysis of MPO using anti-MPO antibody (M00372).

Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions.

Lane 1: human HL-60 whole cell lysates.

After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-MPO antigen affinity purified monoclonal antibody (Catalog # M00372) at 1:500 overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:500 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for MPO at approximately 84 kDa. The expected band size for MPO is at 84 kDa.

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