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Myeloperoxidase Rabbit mAb

Catalog # AP75765

Product Information

Application	WB, IHC-P, FC
Primary Accession	P05164
Reactivity	Rat, Human, Mouse
Host	Rabbit
Clonality	Monoclonal Antibody
Isotype	IgG
Conjugate	Unconjugated
Purification	Affinity Purified
Calculated MW	83869

Additional Information

Gene ID	4353
Other Names	MPO
Dilution	WB~~1:2000-1:20000 IHC-P~~N/A FC~~1:200-1:500
Format	1xPBS(pH 7.4), 150mM NaCl, 50% Glycerol, 0.02% Sodium azide and 0.05% BSA
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

Protein Information

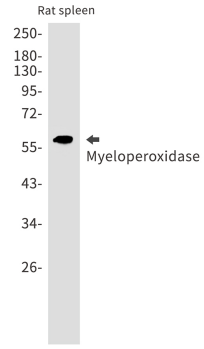
Name	MPO {ECO:0000303|PubMed:21880720, ECO:0000312|HGNC:HGNC:7218}
Function	Peroxidase that plays a central role in the host defense system of polymorphonuclear leukocytes by mediating both (1) formation of neutrophil extracellular trap (NETs) and (2) microbicidal activity (PubMed:16125131, PubMed:17438335, 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.

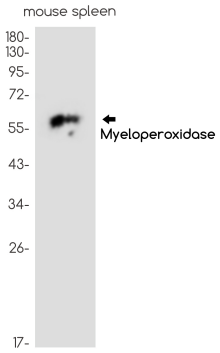
Background

Myeloperoxidase (MPO) is a peroxidase enzyme that is part of the host defense system of polymorphonuclear leukocytes. Heightened MPO levels have been associated with tissue damage and a number of pathological conditions.

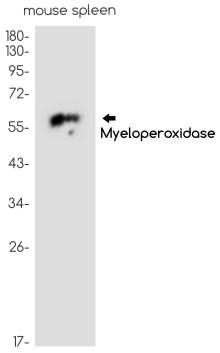
Images

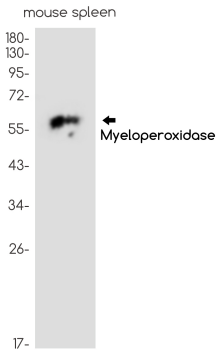


Western blot analysis of Myeloperoxidase in rat spleen lysates using Myeloperoxidase antibody.



Western blot analysis of Myeloperoxidase in mouse spleen lysates using Myeloperoxidase antibody.





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