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MPO antibody - N-terminal region

Rabbit Polyclonal Antibody
Catalog # AI14593

Product Information

Application	WB
Primary Accession	P05164
Other Accession	NM_000250, NP_000241
Reactivity	Human, Mouse, Rat, Rabbit, Pig, Goat, Dog, Guinea Pig, Horse, Bovine
Predicted	Mouse, Rat, Rabbit, Pig, Guinea Pig, Horse, Bovine
Host	Rabbit
Clonality	Polyclonal
Calculated MW	83869

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
Format	Liquid. Purified antibody supplied in 1x PBS buffer with 0.09% (w/v) sodium azide and 2% sucrose.
Reconstitution & Storage	Add 50 ul of distilled water. Final anti-MPO antibody concentration is 1 mg/ml in PBS buffer with 2% sucrose. For longer periods of storage, store at 20°C. Avoid repeat freeze-thaw cycles.
Precautions	MPO antibody - N-terminal region is for research use only and not for use in diagnostic or therapeutic procedures.

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)

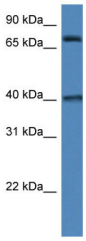
Tissue Location

Specifically expressed in neutrophils and monocytes.

References

Morishita K.,et al.J. Biol. Chem. 262:3844-3851(1987).
Morishita K.,et al.J. Biol. Chem. 262:15208-15213(1987).
Seto P.,et al.J. Clin. Invest. 80:1205-1208(1987).
Johnson K.R.,et al.Nucleic Acids Res. 15:2013-2028(1987).
Hashinaka K.,et al.Biochemistry 27:5906-5914(1988).

Images



WB Suggested Anti-MPO Antibody Titration: 1.0 µg/ml
Positive Control: 293T Whole CellMPO is supported by BioGPS gene expression data to be expressed in HEK293T

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