10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Myeloperoxidase Recombinant Rabbit mAb

Catalog # AP99151

Product Information

Application	IHC-P, IHC-F, IF
Primary Accession	P11247
Other Accession	P11247
Reactivity	Rat, Mouse
Host	Rabbit
Clonality	Recombinant
Calculated MW	81182
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from Mouse MPO
Isotype	IgG
Purity	Affinity Purification
Buffer	PBS with 100 □g/ml BSA,0.15% ProClin300 and 50% glycerol.
SIMILARITY	Belongs to the peroxidase family. XPO subfamily.
SUBUNIT	Tetramer of two light chains and two heavy chains.
DISEASE	Defects in MPO are the cause of myeloperoxidase deficiency (MPD) [MIM:254600]. MPD is an autosomal recessive defect that results in disseminated candidiasis.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Part of the host defense system of polymorphonuclear leukocytes. It is responsible for microbicidal activity against a wide range of organisms. In the stimulated PMN, MPO catalyzes the production of hypohalous acids, primarily hypochlorous acid in physiologic situations, and other toxic intermediates that greatly enhance PMN microbicidal activity.

Additional Information

Gene ID	17523
Other Names	mKIAA4033; PERM_HUMAN; MPO; 1.11.2.2; PERM_MOUSE; myeloperoxidase
Dilution	IHC-P=1:200-800,IF=1:200-800,IHC-F=1:200-800
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	Mpo {ECO:0000303|PubMed:2548170, ECO:0000312|MGI:MGI:97137}

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:10085024, PubMed:11593004, PubMed:23306200). 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 (By similarity). 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 (By similarity). 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 (By similarity). 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:11593004). Mediates the formation of hypohalous acids, mainly hypochlorous acid (HOCl) in physiologic situations, that greatly enhance polymorphonuclear leukocyte microbicidal activity (PubMed:11593004, PubMed:23306200). In addition to hypochlorous acid, catalyzes formation of hypobromous acid (HOBr), hypoiodous acid (HOI) and hypothiocyanous acid (HOSCN) (By similarity). Also catalyzes oxidation of nitrite into the highly reactive nitrogen dioxide radical (By similarity). Formation of oxidants are widely believed to be responsible for much of the anti-bactericidal activity of neutrophils (By similarity). 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 (By similarity). Chlorination and nitration of the lipid-free form of APOA1 impairs cholesterol transport (By similarity). Superoxides generated by MPO can also promote dioxygenation of tryptophan residues on proteins (By similarity). Also able to oxidize melatonin into N1-acetyl-N2-formyl-5-methoxykynuramine either in presence of hydrogen peroxide or superoxide (By similarity). Oxidizes urate into 5-hydroxyisourate (By similarity). Functions as a nitric oxide (NO) oxidase during inflammation, by catalytically consuming NO, impairing NO's ability to maintain vascular tone and function (By similarity). 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 (By similarity).

Cellular Location

Lysosome {ECO:0000250|UniProtKB:P05164}. Cytolytic granule {ECO:0000250|UniProtKB:P05164}. Cytoplasmic vesicle, phagosome {ECO:0000250|UniProtKB:P05164}. Secreted {ECO:0000250|UniProtKB:P05164}. Nucleus {ECO:0000250|UniProtKB:P05164} Chromosome {ECO:0000250|UniProtKB:P05164}. Note=Localizes to azurophil granules, a type of primary lysosome found in neutrophils and monocytes that contains antimicrobial proteins (By similarity). A substantial fraction is also constitutively secreted by normal bone marrow granulocyte precursors (By similarity). During formation of neutrophil extracellular traps (NETs), translocates into the nucleus and associates to chromatin, leading to chromatin dislocation and its transformation into NETs (By similarity). Core component of NETs (By similarity). {ECO:0000250|UniProtKB:P05164}

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.