

Product Data Sheet

Cat# MPO11-M

Mouse Monoclonal Anti-Human Myeloperoxidase (MPO) IgG

Size: 100 ul

Myeloperoxidase (MPO) is a peroxidase enzyme that in humans is encoded by the MPO gene on chromosome. MPO is most abundantly expressed in neutrophil granulocytes (a subtype of white blood cells), and produces hypochlorous acids to carry out their antimicrobial activity. It is a lysosomal protein stored in azurophilic granules of the neutrophil and released into the extracellular space during degranulation. MPO has a heme pigment, which causes its green color in secretions rich in neutrophils, such as pus and some forms of mucus.

The 150-kDa MPO protein is a cationic homodimer consisting of two 15-kDa light chains and two variable-weight glycosylated heavy chains bound to a prosthetic heme group. The light chains are glycosylated and contain the modified iron protoporphyrin IX active site. Together, the light and heavy chains form two identical 73-kDa monomers connected by a cystine bridge at Cys153. The protein forms a deep crevice which holds the heme group at the bottom, as well as a hydrophobic pocket at the entrance to the distal heme cavity which carries out its catalytic activity.

Three isoforms have been identified, differing only in the size of the heavy chains. MPO contains a calcium binding site with seven ligands, forming a pentagonal pyramid conformation. One of the ligands is the carbonyl group of Asp 96. Calcium-binding is important for structure of the active site because of Asp 96's close proximity to the catalytic His95 side chain.

Function

MPO is a member of the XPO subfamily of peroxidases and produces hypochlorous acid (HOCl) from hydrogen peroxide (H₂O₂) and chloride anion (Cl⁻) (or the equivalent from a non-chlorine halide) during the neutrophil's respiratory burst. It requires heme as a cofactor. Furthermore, it oxidizes tyrosine to tyrosyl radical using hydrogen peroxide as an oxidizing agent. Hypochlorous acid and tyrosyl radical are cytotoxic, so they are used by the neutrophil to kill bacteria and other pathogens.[11] However, this hypochlorous acid may also cause oxidative damage in host tissue. Moreover, MPO oxidation of apoA-I reduces HDL-mediated inhibition of apoptosis and inflammation. In addition, MPO mediates protein nitrosylation and the formation of 3-chlorotyrosine and dityrosine crosslinks.

Sources of antigen and antibodies

Antigen	Recombinant purified human Myeloperoxidase/MPO
Ab Host/type	Mouse, monoclonal IgG2b, Aff pure IgG (cat # MPO11-M)
2-ab	Goat Anti-mouse IgG-HRP conjugate Cat # 40320 (AP, biotin, FITC conjugates also available)
-ve control IgG	Cat # 20008-1, Mouse (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as -ve control

The antibody is purified by protein A from hybridoma culture supernatant and supplied in PBS, pH 7.4, and 0.1% azide in either **lyophilized** or **liquid** form. Reconstitute powder in water in to prepare stock solution. Store at 4oC for short term or store frozen in aliquots. Stability is ~6-12 months. Do not freeze and thaw.

Mouse IgG2B Isotype Control

20102-103	Mouse IgG2b isotype control, purified
20102-103-B	Mouse IgG2b-Biotin conjugate (isotype control)
20102-103-F	Mouse IgG2b-FITC conjugate (isotype control)
20102-103-FP	Mouse IgG2b-FITC-PE conjugate (isotype control)
20102-103-HP	Mouse IgG2b-HRP conjugate (isotype control)
20102-103-PC5	Mouse IgG2b-PE-Cy5 conjugate (isotype control)
20102-103-PE	Mouse IgG2b-PE conjugate (isotype control)

Recommended Working Dilution for ELISA

Working dilution for the specific application should be determined by the investigator to obtain the best conditions. Working solution should be prepared immediately before use and diluted solution should be discarded.

Related Material available for ADI

Catalog#	Prod Description
MPO12-M (MPO) IgG	Mouse Monoclonal Anti-Mouse Myeloperoxidase
MPO15-N-1	Human Myeloperoxidase (MPO) Purified Protein
MPO16-N-5	Human neutrophil Myeloperoxidase (MPO) Purified Protein (>50 U/ml)
MPO17-R-50	Recombinant Mouse Myeloperoxidase (MPO) Purified Protein

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