Product name | Myeloperoxidase (MPO) Activity Assay Kit (Colorimetric)
Detection method | Colorimetric
Sample type | Cell culture supernatant, Urine, Serum, Plasma, Other biological fluids, Tissue Homogenate
Assay type | Enzyme activity
Assay time | 1h 00m
Species reactivity | Reacts with: Mammals, Other species
Product overview | Myeloperoxidase (MPO) Activity Assay Kit ab105136 is a rapid, simple, sensitive, and reliable colorimetric assay suitable for use as a high throughput MPO activity assay.

In the MPO assay protocol, myeloperoxidase produces HClO from H$_2$O$_2$ and Cl$^-$. The HClO reacts with taurine to generate the taurine chloramine, which subsequently reacts with the DTNB probe to eliminate color (absorbance at 412 nm). The absorbance is inversely proportional to the amount of MPO enzyme.

This MPO assay kit can be used to detect myeloperoxidase as low as 0.05 mU per well.

MPO assay protocol summary:
- add samples to wells (and assay buffer only to wells for standards)
- add reaction mix to sample wells and incubate for 30 min to 2 hrs
- add stop mix and incubate for 10 min
- add TNB reagent/standard to all wells and incubate for 5-10 min
- analyze with a microplate reader

Notes | Myeloperoxidase (MPO) is a peroxidase enzyme (EC 1.11.1.7) most abundantly expressed in neutrophil granulocytes. It is a lysosomal protein stored in the azurophilic granules of the neutrophil. Myeloperoxidase contains a heme pigment which causes its green color in secretions rich in neutrophils, such as pus and some forms of mucus. Myeloperoxidase catalyzes the production of hypochlorous acid (HClO) from hydrogen peroxide (H$_2$O$_2$) and chloride anion (Cl$^-$, or the equivalent from a non-chlorine halide). Myeloperoxidase also oxidizes tyrosine to a tyrosyl radical using hydrogen peroxide as an oxidizing agent.

Platform | Microplate reader
Storage instructions

Store at -20°C. Please refer to protocols.

Components

<table>
<thead>
<tr>
<th>Identifier</th>
<th>100 tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>1 x 50μl</td>
</tr>
<tr>
<td>WM</td>
<td>1 x 25ml</td>
</tr>
<tr>
<td>Purple</td>
<td>1 vial</td>
</tr>
<tr>
<td>Blue</td>
<td>1 x 50μl</td>
</tr>
<tr>
<td>Green</td>
<td>1 x 20μl</td>
</tr>
<tr>
<td>Clear</td>
<td>1 x 50μl</td>
</tr>
</tbody>
</table>

Function

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.

Involvement in disease

Defects in MPO are the cause of myeloperoxidase deficiency (MPD) [MIM:254600]. MPD is an autosomal recessive defect that results in disseminated candidiasis.

Sequence similarities

Belongs to the peroxidase family. XPO subfamily.

Cellular localization

Lysosome.

Images

MPO activity in indicated cells was measured using the commercially available MPO Activity Assay Kit (n = 3).

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Functional Studies - Myeloperoxidase (MPO)
Activity Assay Kit (Colorimetric) (ab105136)

a. Measurement of MPO activity using WBC lysate (3 μg) and MPO Positive Control (5 and 10 μL). b. MPO specific activity in WBC lysate.

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