



## Genorise® Recombinant Human Myeloperoxidase

Catalog Number: GR119202

### Background

Myeloperoxidase (MPO) is a member of the XPO subfamily of peroxidase that in humans is encoded by the *MPO* gene on chromosome 17. MPO is most abundantly expressed in neutrophil granulocytes and is a lysosomal protein stored in azurophilic granules of the neutrophil and released into the extracellular space during degranulation.<sup>[1]</sup> It produces hypochlorous acids to carry out their antimicrobial activity. It requires heme as a cofactor. Furthermore, it oxidizes tyrosine to tyrosyl radical using hydrogen peroxide as an oxidizing agent.<sup>[2]</sup> Hypochlorous acid and tyrosyl radical are cytotoxic, so they are used by the neutrophil to kill bacteria and other pathogens.<sup>[3]</sup> 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.<sup>[4]</sup> In addition, MPO mediates protein nitrosylation and the formation of 3-chlorotyrosine and dityrosine crosslinks. Recent studies have reported an association between elevated myeloperoxidase levels and the severity of coronary artery disease.<sup>[5]</sup> And Heslop et al. reported that elevated MPO levels more than doubled might increase the risk for cardiovascular mortality over a 13-year period.<sup>[6]</sup> It has also been suggested that myeloperoxidase plays a significant role in the development of the atherosclerotic lesion and rendering plaques unstable.<sup>[7]</sup> MPO could serve as a sensitive predictor for myocardial infarction in patients presenting with chest pain.<sup>[8]</sup> The 2010 Heslop et al. study reported that measuring both MPO and CRP provided added benefit for risk prediction than just measuring CRP alone.<sup>[6]</sup>

### References

1. Kinkade JM, et al. (1983). *Biochem Biophys Res Communications*. 114 (1): 296–303.
2. Heinecke JW, et al. (1993). *The Journal of Clinical Investigation*. 91 (6): 2866–72.
3. Hampton MB, et al. (1998). *Blood*. 92 (9): 3007–17.
4. Shao B, et al. (2010). *Chemical Research in Toxicology*. 23 (3): 447–54.
5. Zhang R, et al. (2001). *JAMA*. 286 (17): 2136–42.
6. Heslop CL, et al. (2010). *J American College of Cardiology*. 55 (11): 1102–9.
7. Nicholls SJ, et al. (2005). *Arteriosclerosis, Thrombosis and Vascular Bio*. 25: 1102–11.
8. Brennan ML, et al. (2003). *The New England Journal of Medicine*. 349 (17): 1595–604.



## Genorise® Recombinant Human Myeloperoxidase

Catalog Number: GR1119202

### Description

**Size:** 10 µg

**Source:** *E coli* derived

**Component:** Met 251-Asp 566

**Accession #** P05164

**Predicted Molecular Mass:** 35 kDa (monomer)

### Specifications

**SDS-PAGE:** 35 kDa, reducing conditions

**Purity:** >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

**Formulation:** Lyophilized from a 0.2 µm filtered PBS with BSA as a carrier protein.

### Preparation and Storage

**Reconstitution:** Reconstitute at 100 µg/mL in sterile PBS.

**Shipping:** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage:** Use a manual defrost freezer and avoid repeated freeze thaw cycles.

- 6 months from date of receipt, -20 to -70°C as supplied.
- 3 months, -20 to -70°C under sterile conditions after reconstitution.

### DECLARATION

THIS REAGENT IS FOR IN VITRO LABORATORY TESTING AND RESEARCH USE ONLY. DO NOT USE IT FOR CLINICAL DIAGNOSTICS. DO NOT USE OR INJECT IT IN HUMANS AND ANIMALS.

**FOR LABORATORY RESEARCH USE ONLY  
NOT FOR USE IN MICE AND ANIMALS**