



Genorise® Recombinant Canine Myeloperoxidase Protein DataSheet
Catalog Number: GR122045

Background

Myeloperoxidase (MPO) is a member of the XPO subfamily of peroxidase that 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.^[1] 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.^[2] Hypochlorous acid and tyrosyl radical are cytotoxic, so they are used by the neutrophil to kill bacteria and other pathogens.^[3] 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.^[4] 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.^[5] And Heslop et al. reported that elevated MPO levels more than doubled might increase the risk for cardiovascular mortality over a 13-year period.^[6] It has also been suggested that myeloperoxidase plays a significant role in the development of the atherosclerotic lesion and rendering plaques unstable.^[7] MPO could serve as a sensitive predictor for myocardial infarction in patients presenting with chest pain.^[8] The 2010 Heslop et al. study reported that measuring both MPO and CRP provided added benefit for risk prediction than just measuring CRP alone.^[6]

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.



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Description

Source: *E coli* derived

Component: Thr 251-Asn 566

Accession # A0A8C0N2J5

Predicted Molecular Mass: 35 kDa (monomer)

Specifications

SDS-PAGE: 35 kDa, reducing conditions

Purity: >97%, by SDSPAGE 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 50-500 µg/mL in sterile PBS containing 0.1% BSA.

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.

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NOT FOR USE IN HUMANS AND ANIMALS**