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Myeloperoxidase (MPO) is a hemoprotein that is abundantly expressed in neutrophils and secreted during their activation. The 150-kDa MPO protein is a cationic homodimer consisting of two covalently bound subunits,each consists of a heavy chain (MW 60kDa) and a light chain (MW 15kDa).

MPO plays an important role in inflammatory response by zapping microorganisms and destroying a variety of target materials through catalyzing chloride ion oxidation to hypochlorous acid in the phagocytic cells. On the other hand, MPO causes oxidative modification of low density lipoprotein (LDL) to a high uptake form that is considered to be a key event in the promotion of atherogenesis. For this reason, MPO is believed to participate in the initiation and progression of cardiovascular diseases. At present, MPO is considered to be one of the most promising cardiovascularmarkers and the rise of MPO levels indicates the increased risk of atherosclerosis and coronary heart disease (CHD).

MPO level can be increased significantly within two hours for chest pain. Hence, MPO is an early warning marker of myocardial infarction and can be earlier to predict the risk of disease than troponin T, CK-MB and CRP. For patients with chest pain,MPO is then important and clinically significant in the diagnosis of ACS.

Anti-MPO monoclonal antibodies

Two latest anti-MPO monoclonal antibodies (Catalog Number: CSB-DA406HmN①,CSB-DA406HmN②) have been developed by CUSAg. This product is sold for in vitro diagnosis. Anti-MPO monoclonal antibodies have been repeatedly tested in several aspects, such as accuracy, repeatability and stability by immunoturbidimetric assay and chemiluminescent immunoassay. What' s more, multiple clinical samples have been respectively tested by self-made anti-MPO antibodies and two domestic high-quality kits, the results show good correlation between them.

PROPERTIES	SPECIFICATION
Target species	Human
Host animal	Mice Balb/c
Cell line used for fusion	Sp2/0
Immunogen	Human myeloperoxidase
Purification method, purity	Protein G affinity chromatography, >90%
Presentation	MAb solution in NaCl with 15 mM NaN_3 (pH 7.2)
Application	CLIA, LETIA, ELISA, GLCA
Catalog Number	CSB-DA406HmN① CSB-DA406HmN②

MPO

MPO

Product contains sodium azide as a preservative. Although the amount of sodium azide is very small, appropriate care must be taken when handling this product.

1 Calibration Curve

◆Latex Enhanced Turbidimetric Immunoassay

The human MPO protein reacts with the anti-human MPO antibody coated onto latex microspheres, resulting in agglutination and increase in turbidity. The changes in absorbance are then measured using a spectrometer to quantitatively measure the MPO concentration in the samples. As shown in Figure 1, there is a significant linear correlation between the MPO concentration and delta absorbance.

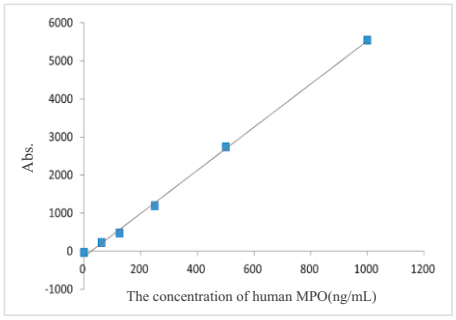

Fig.1 The calibration curve for MPO in immunoturbidimetric assay

◆Chemiluminescent Immunoassay(CLIA)

The best two-site MAB combinations have been selected for the quantitative detection of MPO with double monoclonal antibody sandwich method, CSB-DA406HmN① as capture antibodies and CSB-DA406HmN② labeled with horse reddish peroxidase(HRP) as detection antibodies. The calibration curve between MPO concentration and relative light units is fitting by four-parameter logistic model.(R^2=0.9996)

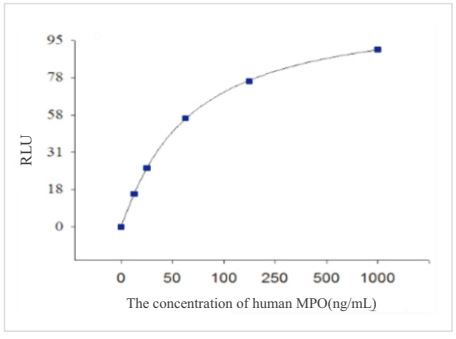

Fig.2 The calibration curve for MPO chemiluminescent immunoassay

2 Clinical comparison

◆Anti-MPO monoclonal antibodies were evaluated by immunoturbidimetric assay in medium-scale clinical trials with random blood samples from donates (n=72).

Fig.3 shows the comparison of MPO concentrations determined via the self-made antibodies and two high-quality kits (A and B). Results reveal good agreement between CUSAg immunoassays and comparison assays.

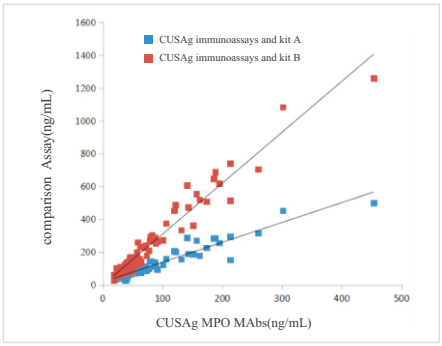

Fig.3 Comparisons of CUSAg MPO immunoassays and high-quality kits

◆Samples from donors containing the healthy and patients with myocardial injury were respectively detected using the CLIA MPO assays, A and B. CLIA MPO assays can distinguish healthy donors from patients. What' s more, the results show good correlation between CLIA MPO assays and comparison kits.

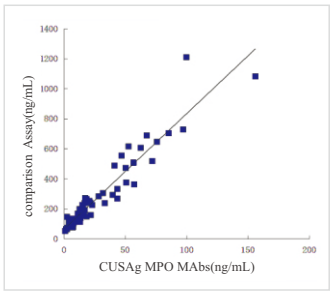

Fig.4 The comparisons between CLIA MPO and A

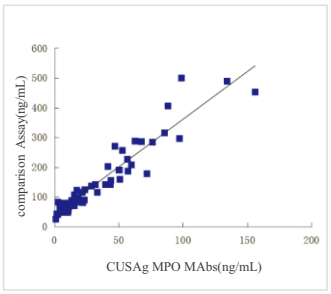

Fig.5 The comparisons between CLIA MPO and B

References

1.Klebanoff SJ (2005) Myeloperoxidase: friend and foe. J Leukos Biol 77,598- 625.

2.Nambi V (2005) The use of myeloperoxidase as a risk marker for atherosclerosis.Curr Atheroscler Rep 7(2), 127-131.

3.EZhang R, et al. (2001) Association between myeloperoxidase levels and risk of coronary artery disease. JAMA 286(17), 2136-2142.

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