

MPR8/14 ELISA

Ca²⁺-Dependent, Early Marker
in Acute Inflammation

Highly
specific
and sensitive
monoclonal

Early and Sensitive Marker of
Acute Coronary Syndromes

Acute Kidney Allograft Rejection

Juvenile Rheumatoid Arthritis

Inflammatory Bowel Diseases
(Crohn's disease/Ulcerative colitis)

Colorectal Neoplasia

Early detection of acute inflammation

MRP8 (S100A8) and MRP14 (S100A9) belong to the S100 superfamily of calcium binding proteins associated with myeloid cell differentiation. They are highly expressed in resting neutrophils, keratinocytes, infiltrating tissue, macrophages and on epithelial cells in active inflammatory disease. Phagocytes expressing both, MRP8 and MRP14, belong to the early infiltrating cells. The two proteins form Ca²⁺-dependent homo- or hetero-complexes of various compositions. The MRP8/14 heterocomplex is also known as Calprotectin or L1-Protein. Besides antimicrobial and fatty acid transport activity, MRP8/14 is a potent chemoattractant for neutrophils and monocytes.

Clinical Applications of MRP8/14:

MRP8/14 heterodimer (-polymer) and MRP14 homodimer are generally associated with acute inflammatory conditions, whereas elevated levels of MRP8 homodimer are present in chronic inflammations. The diagnostic value and advantage of MRP detection over other disease markers is that they are stored in the cell and released immediately upon activation of the respective cell population. In contrast, other markers may be generated in downstream events or need to be synthesized de novo. Various conditions have shown significant correlation of MRP8/14 levels with disease activity:

Elevated serum and plasma concentrations of MRP8/14 have recently been shown to have an important position in the management of **patients suffering from cardiovascular pathologies**.

The risk stratification and early diagnosis of patients with noncardiac chest pain, stable coronary artery disease (CAD), or ACS (acute coronary syndromes) is of utmost importance.

The occurrence of elevated MRP8/14 in the systemic circulation prior to markers of myocardial necrosis makes it a prime candidate for the detection of unstable plaques and management of ACS. (European Heart Journal. 2007;8:941-948)

In a screening approach among healthy individuals it has also been shown that increasing plasma concentrations of MRP 8/14 can predict the risk of future cardiovascular events. (Circulation. 2006;113:2278-2284.)

Elevated serum (or urine) levels of MRP8/14 are very early, specific and sensitive prediction marker for **acute allograft rejection in kidney transplantation** (Burkhardt K. et al.; J Am Soc Nephrol, 2001).

Serum concentration of MRP8/14 represents a useful marker for monitoring local inflammation in **(juvenile) rheumatoid arthritis** and correlates well with those measured in synovial fluids (Frosch M. et al.; Arthritis Rheum, 2000).

Fecal Calprotectin (MRP8/14), intestinal permeability and ROME criteria provide a safe and non-invasive means of helping **differentiate** between patients with **organic and non-organic intestinal disease**. (Tibble J. et al.; Gastroenterology, 2002)

MRP8/14 level measured in fecal samples can be used to predict relapse in **inflammatory bowel disease (IBD)** and distinguish between healthy controls, patients with no or low disease activity and patients with active disease (Limburg P. et al.; Am J Gastroenterol, 2000).

In **colorectal neoplasia** fecal MRP8/14 values are elevated. In a high risk group like first degree relatives of patients with CRC, there are good reasons to consider fecal MRP8/14 as a first test in selecting patients for endoscopy (Kristinsson J et al.; Dis Colon Rectum, 1998).

High serum concentration of MRP8/14 is a prognostic marker of recurrent infections and of poor survival in **alcoholic liver cirrhosis** (Homann C. et al.; Hepatology, 1995).



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