MANNAN-BINDING LECTIN (MBL):
BEYOND PRIMARY IMMUNODEFICIENCY AND RECURRENT INFECTIONS

Expand YOUR research into other disease areas

Diabetes
Oncology
Autoimmune disease
Renal disease
Viral infections
Cardiovascular complications
Lung disease
Transplantation
MBL: Beyond Primary Immunodeficiency

**Diabetes Complications**

Association between mannose-binding lectin, high-sensitivity C-reactive protein and the progression of diabetic nephropathy in type 1 diabetes.

**Aim:** To investigate the associations of the complement activator mannose-binding lectin (MBL) and the inflammatory marker high-sensitivity C-reactive protein (hsCRP) with the development of nephropathy in a large prospective study of patients with type 1 diabetes.

“This study demonstrates that concentrations of both MBL and hsCRP are associated with the progression of renal disease in type 1 diabetes.”

**Renal Disease**

High levels of mannose-binding lectin are associated with lower pulse wave velocity in uraemic patients.

“High levels of MBL are associated with lower pulse wave velocity and the use of antihypertensive drugs in a cohort of patients with end stage renal disease awaiting kidney transplantation suggesting a beneficial role of high levels of MBL on arterial stiffness in uraemia.”

**Rheumatoid Arthritis**

Mannose binding lectin and susceptibility to rheumatoid arthritis in Brazilian patients and their relatives.

**Aim:** To associate the functional role of circulating MBL serum levels and MBL2 variants in clinically classified patients with rheumatoid arthritis and their relatives in a Brazilian cohort.

“In conclusion, our results suggest a significant association of functional MBL2 polymorphism and MBL serum levels with RA susceptibility in the Brazilian population. MBL levels may be considered when choosing the therapeutic strategy for RA patients.”

**Pulmonary Fibrosis**

The Deficiency of Serum Mannose Binding Lectin in Early Onset Idiopathic Pulmonary Fibrosis and Familial Cases.

**Aim:** To examine the serum MBL in healthy controls, frequently exacerbating Chronic Obstructive Pulmonary Disease, Pulmonary Tuberculosis and Sarcoidosis along with Interstitial Pneumonitis/Idiopathic Pulmonary Fibrosis patients, including those with and without an affected family member.

“The data suggests that MBL deficiency is common in early onset disease IPF/IPF and cases with an affected relative. The other groups do not show such a defect and their levels are consistent with published data. The action of MBL is central to much of the described histology changes and this observation needs expanding to further cases to gain a fuller understanding of its likely role in the disease process.”

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**References**


Chemotherapy

Association between deficiency of mannose-binding lectin and severe infections after chemotherapy.

**Aim:** The aim of the study was to measure MBL in patients with leukaemia who were scheduled to undergo chemotherapy (ie, a population especially susceptible to infection) and related the results to severity of infection after chemotherapy.

“We showed a significant association between low concentrations of MBL and serious infections related to chemotherapy (p<0.0001). These results suggest that increasing concentrations of MBL in patients having chemotherapy could reduce susceptibility to infection.”

“In our study severity of infection indicated what was a clinically relevant concentration of MBL.”

![Graph A](image)

**Graph A:** MBL concentrations in plasma from patients with haematological diseases.

(A) All patients before start of chemotherapy (n=54). Patients were grouped into those who developed clinically significant infections during or after chemotherapy (CSI) and those who did not (non-CSI).

(B) Patients with multiple myeloma only (n=18). Adapted from Peterslund NA et al., Lancet (2001).

**Graph B:** Binding of MBL to HBsAg (Hong Kong Chinese hepatitis B virus surface antigen). Wells of microtiter plates coated with HBsAg were incubated with MBL for 2 hours. Incubation with increasing amounts of MBL resulted in increasing levels of detected MBL bound to HBsAg. In contrast, MBL binding did not increase when wells were coated with BSA. Adapted from Chong WP et al., Hepatology (2005).

**Hepatitis B**

Mannose-binding lectin in chronic hepatitis B virus infection.

**Aim:** To investigate the roles of MBL and its gene (mbl2) polymorphisms, -221A/Y and codon 54A/Â in hepatitis B virus (HBV) infection.

“The mbl2 polymorphisms that result in low serum MBL levels associate with the occurrence of cirrhosis and hepatocellular carcinoma in progressed carriers. Moreover, MBL is able to bind to HBsAg, resulting in complement activation. These findings should provide new approaches to elucidating the mechanisms of clearance of HBV and HBV containing immune complexes as well as understanding disease progression.”

**HIV**

The lectin pathway of complement: advantage or disadvantage in HIV pathogenesis?

**Aim:** The pattern recognition molecules of the lectin complement pathway are important components of the innate immune system with known functions in host-virus interactions. This paper summarizes current knowledge of how these intriguing molecules, including MBL may influence HIV-pathogenesis.

“It has been demonstrated that MBL is capable of binding and neutralizing HIV and may affect host susceptibility to HIV infection and disease progression. In addition, MBL may cause variations in the host immune response against HIV.”

**Dengue**

Complement-mediated neutralization of dengue virus requires mannose-binding lectin.

**Aim:** To investigate the antiviral activity of MBL in infection by dengue virus.

“Here, we show that mannose-binding lectin (MBL), a pattern recognition molecule that initiates the lectin pathway of complement activation, neutralized infection of all four DENV serotypes through complement activation-dependent and-independent pathways. Moreover, we observed a direct correlation with the concentration of MBL in human serum and neutralization of DENV infection.”

**References**

# Mannan-Binding Lectin

Helpful knowledge throughout our lives

**Kit**

<table>
<thead>
<tr>
<th>Cat. No.</th>
<th>Product description</th>
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<tbody>
<tr>
<td>KIT 029</td>
<td>MBL Oligomer ELISA Kit</td>
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**Sera**

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<th>Cat. No.</th>
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<tr>
<td>SER 101</td>
<td>MBL standard serum (human) 1000 (AU)</td>
<td>1 mL</td>
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<tr>
<td>SER 103</td>
<td>MBL oligomer deficient serum, B/C genotype (human)</td>
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**Matched Pair**

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<td>BW 028 (HYB 131-01 &amp; HYB 131-01B)</td>
<td>Human MBL Matched Antibody Pair</td>
<td>200 µL capture antibody and 50 µL detection antibody, 1 mg/mL</td>
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**Antibodies**

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<td>HYB 131-10</td>
<td>Anti-MBL (human)</td>
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<td>HYB 131-11</td>
<td>Anti-MBL (human)</td>
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<td>HYB 131-14</td>
<td>Anti-MBL (human, horse, pig)</td>
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<td>HYB 131-18</td>
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<td>HYB 182-01</td>
<td>Anti-MBL (chicken)</td>
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<td>HYB 131-01B</td>
<td>Anti-MBL (human), biotinylated</td>
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