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**TEST PATIENT**

GUa d'Y'HYghBUa Y  
 Sex : :  
 DUH' Collected : 00-00-0000  
 111 H9GH'ROAD TEST SUBURB  
**@AB =8: 00000000** UR#:0000000

**TEST PHYSICIAN**

DR JOHN DOE  
 111 CLINIC STF 99H  
 7@B=7'GI 6I F 6'J =7'' \$\$\$

**INTEGRATIVE MEDICINE**

BLOOD - PLASMA

	Result	Range	Units	
<b>Complement C3a</b>	<b>580.00</b>	20.00 - 940.00	ng/mL	
<b>Complement C4a</b>	<b>5520.00 *H</b>	20.00 - 2830.0	ng/mL	
<b>TGF Beta-1</b>	<b>416.0</b>	20.0 - 2380.0	pg/mL	
<b>Matrix Metalloproteinase 9</b>	<b>135.00 *H</b>	9.50 - 80.20	ng/mL	
<b>Vascular Endothelial Growth Factor</b>	<b>53.00</b>	31.00 - 86.00	pg/mL	

(\*) Result outside normal reference range

(H) Result is above upper limit of reference rang



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## Biotoxins Comment

### BIOTOXIN COMMENT:

Biotoxins are acquired into the body from toxin producing organisms via foods, water, air, or insect bites.

In the general population, biotoxins are removed from the body via the bloodstream, through the liver or alternatively broken down by the body's immune system and excreted out of the body. However, in patients who are genetically predisposed, biotoxins can remain within the body for lengthy periods of time, as they fail to mount an effective immune response to biotoxins. At this point, the innate immune system is observed to show signs of continuous but ineffective activation.

Chronic Inflammatory Response Syndrome (CIRS) is an illness caused by the poor clearance of biotoxins produced by certain moulds, algae and dinoflagellates. The neuroimmune, vascular and endocrine dynamics of CIRS may play roles in other forms of chronic illness including CFS, fibromyalgia, Lyme Disease, and MS.

### ELEVATED MMP-9 LEVEL:

Matrix metalloproteinase 9 (MMP-9) is an innate immune system activity marker. MMP9 is a gelatinous enzyme that in humans, is encoded by the MMP9 gene. Proteins of the MMP9 family are involved in the breakdown of extracellular matrix in normal physiological processes, such as embryonic development, reproduction, and tissue remodeling, as well as in disease processes.

It has been implicated in pathogenesis COPD by destruction of lung elastin, in rheumatoid arthritis, atherosclerosis, cardiomyopathy, and abdominal aortic aneurysm. MMP-9 delivers inflammatory elements of blood into subintimal spaces, where further delivery into solid organs (brain, lung, muscle, peripheral nerve and joint) is initiated.

Elevated cytokines levels generate flu-like symptoms (Headache, muscle aches, fatigue, unstable body temperature, difficulty concentrating).

Elevated cytokines also lead to elevated MMP-9 levels which increase the delivery of inflammatory elements from the bloodstream to the brain, lungs, joints, thus increasing clot formation and arterial blockage.

### ELEVATED C4a LEVEL:

C4a has become the inflammatory marker of greatest significance looking at innate immune responses in those with exposure to Water Damaged Buildings (WDB).

The complement system is a group of proteins that move freely through the bloodstream. The proteins work with the immune system and play a role in the development of inflammation.

Each complement activates inflammatory responses, with spillover of effect from the innate immune response to acquired immune response and hematologic parameters. These short-lived products are re-manufactured rapidly, such that an initial rise of plasma levels is seen within 12 hours of exposure to biotoxins, and sustained elevation is seen until definitive therapy is initiated.

C4a levels rise rapidly and represent an excessive response to moulds/biotoxin presence.

Elevated C4a levels are also seen in Lupus and Lyme Disease.

