GUIDE TO INTERPRETATION OF LYME SEROLOGY BY ELISA

1) Stage 2 or 3 Lyme disease is almost always accompanied by IgG specific antibody to *B. burgdorferi*. Therefore, a negative test for this antibody is strong evidence against the diagnosis of chronic Lyme disease.

2) A positive test for IgG specific antibody to *B. burgdorferi* in conjunction with the appropriate clinical picture (suspected Stage 2 or 3) is strong supportive evidence for the diagnosis of Lyme disease.

3) Stage 1 Lyme disease can usually be diagnosed clinically. Serologic confirmation with IgM specific antibodies to *B. burgdorferi* is found in most patients, but false negatives do occur more often in this stage.

    a) The sensitivity of serologic tests during the first several weeks is only 20-30%
    b) 70-80% of patients are seropositive after 2-4 weeks even with antibiotic treatment.
    c) After one month, the majority of patients have IgG responses.
    d) Isolated IgM responses without IgG responses persisting after one month likely represent a false positive serologic test.

4) A negative test in patients with clinical histories highly suspicious of chronic Lyme disease (Seronegative Lyme disease) may warrant Borrelia-specific T cell proliferation studies to confirm the diagnosis.

5) False positive results can occur in the following circumstances:

    a) Sera from patients with other spirochetal diseases (syphilis, tick borne relapsing fever, louse borne relapsing fever, leptospirosis, and yaws) can cross react in the Lyme assay and cause false positive results.
    b) Sera from patients with acute infectious mononucleosis can have cross reactive IgM antibodies to *B. burgdorferi* but less so in the ELISA assay.
    c) Autoimmune sera can be a source of false positive tests (borderline or low positive).

6) An equivocal result may warrant repeat testing in 2-4 weeks.