Tick-Borne Diseases Antibodies Panel Method Description

Ehrlichia chaffeensis:

The patient's serum is diluted and is placed in microscopic slide wells that have been coated with E. chaffeenis-infected cells. After incubation, the slides are washed and a fluorescein-isothiocyanate conjugate is added to each well. The slides are then read using a fluorescence microscope and significant fluorescent staining of intracellular organisms constitutes a positive reaction. (Dumler JS, Asanovich KM, Bakken JS, et al: Serologic cross-reactions among Ehrlichia equi, Ehrlichia phagcoytophilia, and human granulocytic ehrlichia. J Clin Microbiol 1995;33:1098-1103; Pancholi P, Kolbert CP, Mitchell PD, et al: Ixodes dammini as a potential vector of human granulocytic ehrlichiosis. J Infect Dis 1995;172:1007-1012; Dawson JE, Fishbein DB, Eng TR, et al: Diagnosis of human ehrlichiosis with the indirect fluorescent antibody test: kinetics and specificity. J Infect Dis 1990;162:91-95)

Anaplasma phagocytophilum:

The patient's serum is diluted and is placed in microscopic slide wells that have been coated with A. phagocytophilum-infected cells. After incubation, the slides are washed and a fluorescein-isothiocyanate conjugate is added to each well. The slides are then read using a fluorescence microscope and significant fluorescent staining of intracellular organisms constitutes a positive reaction. (Dumler JS, Asanovich KM, Bakken JS, et al: Serologic cross-reactions among Ehrlichia equi, Ehrlichia phagcoytophilia, and human granulocytic ehrlichia. J Clin Microbiol 1995;33:1098-1103; Pancholi P, Kolbert CP, Mitchell PD, et al: Ixodes dammini as a potential vector of human granulocytic ehrlichiosis. J Infect Dis 1995;172:1007-1012; Dawson JE, Fishbein DB, Eng TR, et al: Diagnosis of human ehrlichiosis with the indirect fluorescent antibody test: kinetics and specificity. J Infect Dis 1990;162:91-95)

Babesia microti:

The patient's serum is diluted and is placed in microscopic slide wells that have been coated with B. microti-infected RBCs from Syrian hamsters. After incubation, the slides are washed and a fluorescein-isothiocyanate conjugate is added to each well. The slides are then read using a fluorescence microscope and significant fluorescent staining of intraerythrocytic organisms constitutes a positive reaction. (Krause PJ, Telford SR III, Ryan R, et al: Diagnosis of babesiosis: Evaluation of a serologic test for the detection of Babesia microti antibody. J Infect Dis 1994;169:923-926)

Lyme Disease:

The first-tier Lyme disease screening enzyme-linked immunosorbent assay (ELISA) used is the Zeus ELISA Borrelia VlsE1/pepC10 IgG/IgM test system (Branchburg, NJ) The Zeus ELISA Borrelia VlsE1/pepC10 IgG/IgM test system is designed to detect IgG- and IgM-class antibodies (not differentiated by the assay in the final result) in human sera to VlsE1 and pepC10 antigens. Diluted test sera are incubated in antigen-coated microwells. Any antigen-specific antibody in the sample will bind to the immobilized antigen. The plate is washed to remove unbound antibody and other serum components. Peroxidase-conjugated goat-antihuman IgG and IgM are added to the wells and the plate is incubated. The conjugate will react with IgG and IgM antibodies immobilized on the plate. The wells are washed to remove unreacted conjugate. The microwells containing immobilized peroxidase conjugate are incubated with peroxidase substrate solution. Hydrolysis of the substrate by peroxidase produces a color change. After a period of time the reaction is stopped, and the color intensity of the solution is

measured photometrically. The color intensity of the solution depends upon the antibody concentration in the original test sample. (Package insert: Borrelia VlsE1/pepC10 IgG/IgM Test System, Zeus Scientific, Inc., Branchburg, NJ. Rev. Date 12/18/2017; Package insert: Immunetics C6 B burgdorferi (Lyme) ELISA Kit, Immunetics, Inc, Boston, MA 02210-2377, 2013)