## 21. MULTIPLEXED MEASUREMENT OF SPECIFIC IGGS TO FIVE CDC SELECT BIOTERRORISM AGENTS IN SERUM

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The Centers for Disease Control and Prevention has classified several agents which may be used in a bioterrorism attack as "select agents". They are classified as such based on ease of dissemination, mortality/morbidity rate, and potential for social disruption. A subset of these agents include Bacillus anthracis (Ba), Yersinia pestis (Yp), Francisella tularensis (Ft) , Ricin toxin (RT) and Staphylococcal enterotoxin B (SEB). Exposure/infection with these agents has been shown to cause the production of specific serum IgG antibodies. Comparison of pre- and post-incident IgG antibody levels has been shown to be a useful method to biologically monitor decontamination and clean-up workers for potential exposure to bioterrorism agents (Occ Environ Med 61: 703-708, 2004). We describe a fluorescent covalent microsphere immunoassay (FCMIA) to measure specific IgG antibodies to Ba (protective antigen [PA] and lethal factor [LF]), Yp (F1 and V antigens), Ft, RT and SEB simultaneously in human Ba vaccinee sera which has been fortified with animal select agent specific IgG antibodies. Intra- and interassay coefficients of variation were <15% (N=3). There were no significant differences (P>0.70) in dilution curves when the assays were performed individually vs. multiplexed. When the observed vs. expected dilution curves were compared, highly linear relationships were observed (mean r2=0.995 + 0.006 [SD]). Finally, the curves yielded linear responses for most analytes upon serum dilution from 1 x102 to 1 x105. These data indicate that multiplexed FCMIA is a method to measure specific IgGs in serum to CDC select agents and may be of value in screening either decontamination workers or the general population for exposures/infections to these agents.

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