

## Multiplexed analyses of serum antibodies to *Bacillus anthracis* toxins from cases with cutaneous anthrax in the former Soviet Republic of Kazakhstan

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*Bacillus anthracis* (Ba) exotoxins, lethal factor (LF) and protective antigen (PA) are immunogenic, and exposure may be evaluated by measurement of specific antibodies by multiplexed fluorescence covalent microbead immunoassay (FCMIA). Using sera from individuals with "confirmed" cutaneous cases of (N=7) of anthrax from the former Soviet Republic of Kazakhstan (Kaz) and 8 donor controls we found  $47.9 \pm 37.4$  and  $19.0 \pm 16.3$ ,  $1.00 \pm 0.98$  and  $0.14 \pm 0.12$   $\mu\text{g/ml}$  anti-LF IgG and anti-PA IgG, respectively (Kaz and control; mean  $\pm$  Standard Deviation [SD]; both  $P < 0.001$ ). For anti-LF IgM and anti-PA IgM, we found  $1107 \pm 999$  and  $265 \pm 174$ ,  $33.5 \pm 29.7$  and  $9.6 \pm 6.0$  (Kaz and control; standard sera equivalent dilution  $\pm$  SD;  $P < 0.001$ ), respectively. These data indicate that cutaneous anthrax infection can induce significant levels of anti-LF and anti-PA IgG and IgM which can be measured by multiplexed FCMIA.

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