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Poster

Comparison of recombinant protein and cell lysate antigens for detection of anti-chikungunya (CHIK) IgM antibody

Chikungunya (CHIK) virus specific antigen which has high specificity and low cross reactivity with other related diseases is required for laboratory confirmation. The objective of this study is to compare two antigens for detection of anti-CHIK antibody.

In this study, two antigens (viral cell lysate and recombinant protein) were evaluated for detection of anti-CHIK antibody by using IgM ELISA. A novel recombinant protein antigen was designed based on envelope domain, a critical antigenic region of the major structural protein. This protein was expressed in *Escherichia coli* and resultant protein was affinity purified and ~10mg with >95% of purity per liter of culture was obtained. Cell lysate antigen was prepared using a crude culture fluid. Two antigens were evaluated separately using a panel of well characterized serum samples obtained from the Dept. of Virology (WHO Reference Centre for Viral Reference and Research), Institute of Tropical Medicine, Nagasaki University.

A total of 64 serum samples confirmed as positives and 22 confirmed as negatives were used to evaluate the antigens. Specificity and sensitivity of the recombinant protein antigen was 48% and 90% respectively. Specificity and sensitivity of the viral lysate antigen was 17% and 100% respectively.

Viral lysate antigens can cause biohazard risk, high production cost and cross reactivity with other organisms of the same genus/family. Recombinant protein antigen which shows high specificity and sensitivity used in this study is important to overcome problems associated with viral lysate antigen. Testing of a large number of samples is needed to reconfirm this finding.

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