

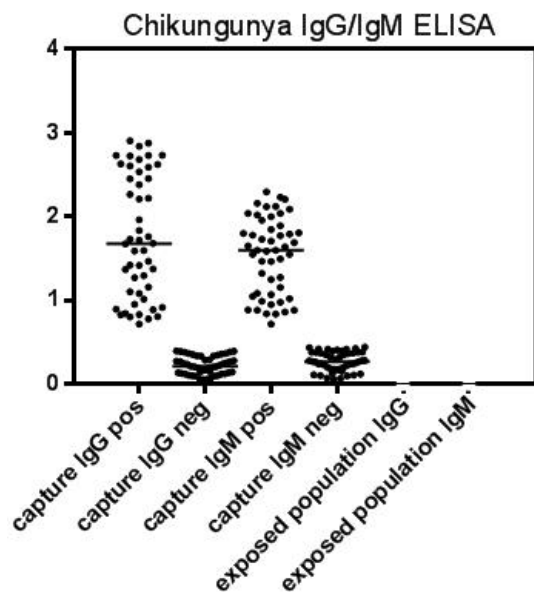
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Chikungunya (also named breakbone fever) is a highly emerging disease in many tropical settings with great socioeconomic impact. Causative agent for this disease is a single-stranded, enveloped RNA-Virus that belongs to the genera Alphavirus of the togavirus family (Togaviridae). The entire virion measures 60-65 nm. Relating to the geographic occurrence the virus is divided into five variations: the West-African, the East- and South-African, the one of the Indian Ocean and the Asiatic. Chikungunya-Viruses are transmitted to humans by bloodsucking mosquitoes (*Aedes aegypti*, *Aedes albopictus*). In general the viruses are not transmitted from human to human but transmissions from infected pregnant women to unborn children have been proved. The symptoms of Chikungunya include fever which can reach 39°C (102,2°F) a petechial or maculopapular rash usually involving the limbs and trunk, and arthralgia or arthritis affecting multiple joints which can be debilitating. The symptoms can also include headache, conjunctival injection and slight photophobia. The fever typically lasts for two days and abruptly comes down. However other symptoms, namely joint pain, intense headache, insomnia and an extreme degree of prostration last for a variable period, usually for about five to seven days. But patients have complained joint pain for much longer time period depending on age of the patient. It has been observed that the severity of the disease as well as its duration is less in younger patients and pregnant women. Heavy damages to somebody's health or death are rare. Alphaviruses rarely appear in Europe but can be noticed as import or travel associated infection

The aim of this work was to develop an serological assay to detect IgG and IgM antibodies against Chikungunya and to evaluate in endemic outbreak settings.

An IgG-capture and IgM-capture ELISA was developed. Both take advantage of native antigens produced with a proprietary technique which was exclusively developed for this serological antibody detection assay. In house measurements as well as external evaluations in many endemic regions of the world conducted by well know tropical institutes revealed excellent clinical sensitivity and specificity as well as high positive and negative predictive values (all above 95%). Data from the current outbreak in the Caribbean will be discussed.



Therefore the newly developed ELISA seems to be a superior tool to diagnose past and acute Chikungunya infection in common and outbreak settings all over the world. It will assist diagnosis of travel returners with unknown fever as well as military in endemic operation area.

To further improve Chikungunya diagnostic a Lineblot is currently under development as tool for conformation of ELISA results as well as for small labs with limited lab equipment.