Development of a Real-Time Reverse Transcription Polymerase Chain Reaction for O'nyong-nyong Virus and Evaluation with Clinical and Mosquito Specimens from Kenya

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O'nyong-nyong virus (ONNV), an alphavirus closely related to chikungunya virus (CHIKV), has been the documented cause of two large outbreaks in east Africa; however, little is known about the contribution of ONNV to cases of acute febrile illness during interepidemic periods. An ONNV real-time reverse transcription polymerase chain reaction (rRT-PCR) was developed and evaluated using clinical and mosquito pool samples. The ONNV rRT-PCR linear range extended from 8.0 to 2.0 log10 copies/µL, and the lower limit of 95% detection was 22.4 copies/µL. No cases of ONNV infection were identified in serum from 385 Kenyan children who presented with an acute febrile illness. Additionally, ONNV was not detected in 120 mosquito pools collected in coastal and western Kenya. The ONNV rRT-PCR demonstrated good analytical sensitivity when performed in monoplex or as a component of an ONNV–CHIKV duplex assay. This assay should provide a useful diagnostic for the detection of ONNV in surveillance studies.