Real-time RT-PCR for the detection and quantitation of Oropouche virus

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Abstract

Oropouche virus (OROV) causes an acute, systemic febrile illness, and in certain regions of South America, this represents the second most common human arboviral infection after dengue virus. A new real-time RT-PCR was developed for OROV and reassortant species. The new OROV rRT-PCR proved linear across 6–7 orders of magnitude with a lower limit of 95% detection of 5.6–10.8 copies/QL. Upon testing dilutions of OROV and Iquitos virus reference genomic RNA, all dilutions with >10 copies/QL were detected in both the OROV rRT-PCR and a comparator molecular assay, but the OROV rRT-PCR detected more samples with $\leq$10 copies/QL (8/14 vs 0/13, respectively, P = 0.002). In a set of 100 acute-phase clinical samples from Paraguay patients with a suspected arboviral illness, no patients tested positive for OROV RNA using either assay. The OROV rRT-PCR provides a sensitive molecular assay for the study of this important yet neglected tropical arboviral infection.