

Abstract for study 848-0351:

Development and validation of multiplex real-time PCR for simultaneous identification of Bluetongue, Epizootic Hemorrhagic Disease and Bovine Ephemeral Fever Viruses

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The aim of this study was to develop and validate a real-time multiplex assay for the simultaneous detection of **Bovine Ephemeral Fever virus (BEFV)**, **Bluetongue virus (BTV)**, and **Epizootic Hemorrhagic Disease virus (EHDV)**, and to enhance the diagnostic and genetic characterization capabilities for BEFV in Israel. During the course of the study, several novel RT-qPCR assays were developed, new methods for the isolation of BEFV were established, and full-genome sequencing was performed on viruses identified in Israel. In addition, a previously undescribed member of the genus *Ephemerovirus* was identified and characterized for the first time and was designated **Hefer Valley virus (HVV)**. Furthermore, during the 2023 BEF outbreak, several BEFV isolates were recovered for the first time in Israel, their complete genomes were sequenced, and the outbreak was shown to have been caused by a novel viral strain closely related to strains previously described on the island of Mayotte. The study resulted in the development of highly sensitive molecular diagnostic assays, the publication of three scientific articles in international peer-reviewed journals, and a substantial improvement in Israel's capacity for the diagnosis, molecular characterization, and epidemiological surveillance of BEFV and other *Ephemerovirus* infections.