

Case study



High quality microbial DNA collected with OMNigene®•ORAL enables detection of HHV-8 in saliva

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Study overview

Saliva is a diagnostic specimen for Human Herpes Virus 8 (HHV-8), however traditional methods involve collection of saliva as a whole mouth fluid (WMF), freezing immediately after collection and extraction of DNA via spin columns. These methods can be useful in developed countries but difficult to use in developing nations where cold storage and lab infrastructure is scarce. Researchers at Griffith University in Queensland, Australia first studied the detection of cultured HHV-8 in spiked saliva samples under laboratory conditions. The study then expanded to include an assessment of DNA Genotek's OMNigene®•ORAL[†] product line as an alternative to the previous standard for use in field collections for quantification of HHV-8 oral shedding in HIV-positive patients and for determining HHV-8 subtypes.

Main challenges

Primary challenges for this study included collecting DNA samples in Kenya with resource poor infrastructures and ambient temperatures that can be as high as 30°C or more. The researchers were also challenged with collecting samples at a great distance from the processing laboratory which was in Australia. A product that offered easy collection, reliable stabilization and transport without causing any degradation of samples would be beneficial in environments such as this.

Collection methods considered

Other collection methods included in this study were frozen saliva, collected by dribbling WMF into a chilled collection cup or via mouthwash, both of which require immediate chilling of the sample to 4°C and then at -80°C for long-term storage.

"The DNA Genotek system has been a great asset in the detection and genotyping of human herpes viruses in our field studies on DNA viruses in India and Kenya. The DNA Genotek collection kits have allowed us to detect and genotype HHV-8 from Kenyan HIV-positive patients 14 months post collection with the samples stored at room temperature, which in Kenya can exceed 30°C."

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[†] Samples for the study were collected with DNA Genotek prototype kit P-021 as part of the development of the OMNigene-ORAL product line for the collection and stabilization of microbial nucleic acids. The first commercially available kit for this product line is the OMNigene-ORAL OM-501 format.



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Why OMNigene•ORAL

The Griffith University researchers included OMNigene•ORAL in the study as it is designed to collect and stabilize microbial DNA from saliva at ambient temperature; making it a good choice for field research, especially where cold storage of samples is difficult.

Results[‡]

Samples were collected from 10 HIV-positive patients in Kenya at ambient temperature using the OMNigene•ORAL kit. The specimens were processed 14 months later in Australia. The researchers were able to determine that OMNigene•ORAL retained a high quality DNA that is ideal for viral sub typing, even after storage for 14 months at room temperature. The high quality microbial DNA collected using the OMNigene•ORAL kit enabled the HHV-8 subtypes to be determined to full length ORFK1 (1.2 Kb). The researchers were also able to detect the HHV-8 virus using the OMNigene•ORAL kit from samples stored at room temperature and this produced consistent results. The kits produced high quality DNA with yields as high or higher than frozen WMF. Overall, OMNigene•ORAL is a great asset for doing field studies on DNA viruses in developing countries.

[‡] The results were presented for the first time at the Australian Society for Microbiology meeting, July 2011.

Some DNA Genetek products may not be available in all geographic regions.

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