DNA genotek

Case study

Oragene®/saliva collection kit facilitates remote field collections for research project in India

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"Oragene fulfilled all of our requirements for DNA sampling. It was a completely hassle free approach and we generated high quality and pure DNA for association studies and hence successfully accomplished our research project."

Dr. Toolika Singh, Researcher, Infectious Disease Research Laboratory, Banaras Hindu University

Study overview

Visceral Leishmaniasis (VL) is a severe disease caused by the parasite *Leishmania donovani* and is the second largest parasitic killer in the world (after malaria). VL infects an estimated 500,000 individuals each year worldwide and according to the World Health Organization (WHO), is also emerging as an HIV/VL co-infection problem.

Dr. Sundar's research team studies host genetic factors responsible for VL through candidate gene studies and through a genome wide association study covering adult cases and controls from a high endemic area of VL in India (Muzaffarpur district of Bihar).

Main challenges

The main challenge for these studies is obtaining high quality samples from individuals in remote villages of Muzaffarpur and maintaining sample stability and quality while transporting it back to the processing lab 300 km away at Banaras Hindu University, Varanasi. Muzaffarpur's yearly high temperatures average between +22°C to +38°C (+72°F - +100°F) and thus pose a threat to the DNA integrity of the collected samples.

Collection methods considered

Non-invasive sample collection in the endemic villages of Muzaffarpur was the method of choice due to the ease-of-use for donors and easy sample handling and transport. Saliva and buccal swab samples were evaluated.

Oragene device prior to collection

Sample ready for transport, storage and processing

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Why Oragene®/saliva collection kit?

Dr. Sundar and his team choose the Oragene self-collection kit as it fulfilled their requirements for easy handling and transport and for ensuring high quality DNA samples for use on a genome wide association array. Oragene/saliva samples are stable at ambient temperature for years (+15°C - +50°C) without demonstrating any sign of DNA degradation and are easily transported through standard mail. These benefits offer the study team plenty of time and flexibility required to transport samples from the field to the lab.

Furthermore, unlike buccal swabs that quickly become contaminated with up to 90% bacteria, the Oragene chemistry kills bacteria and prevents further contamination while stabilizing high molecular weight human DNA for even the most stringent downstream application.

Results

Genomic DNA was extracted from the Oragene/saliva collection kits and SNPs were genotyped using Sequenom iPLEX platform. All samples met minimum quality control checks for call rates (>99.5%) across all individuals. Results of the genome wide association study has pointed out HLA class II as a major genetic risk factor in Indian Visceral Leishmaniasis.

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