DNA genotek

Case study

Oragene®/saliva collection kits replace blood for field collection in Malaysia

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Overview

Dr. Sasongko and his team at the Universiti Sains Malaysia study the genetic relationships responsible for sports performance in adolescents. DNA samples are obtained from healthy adolescents between the ages of 13 and 15 years old in field locations of Kota Bharu (Kelantan, Malaysia) and surrounding areas.

"Oragene is synonymous with practicality when it comes to DNA sample collection. With a very good DNA yield, we can successfully perform our genotyping applications. The system involves a handy collection kit, long DNA preservation and a simple extraction procedure."

Dr. Teguh Haryo Sasongko, Universiti Sains Malaysia

Main challenges

The team was faced with a variety of challenges from DNA field collection, transport and storage to downstream analysis performance.

Blood not an option

Traditional blood collection is generally discouraged for research applications of healthy individuals and it is not easily obtained from recruited donors.

Field collection/no facilities

The sports performance project collects samples from up to 50 donors in a single day in field locations without any clinical facilities to support sample collection and storage.

DNA transportation

As DNA samples are obtained in the field, sample transport to the processing lab is required prior to extraction. Traditional blood samples require costly cold chain logistics to protect sample integrity during transport while Oragene/saliva samples are stable at ambient temperature for long periods of time.

DNA storage prior to extraction

With limited laboratory resources, DNA extraction often takes weeks or months to complete at the Universiti Sains Malaysia. Therefore, blood samples would have to be stored in a freezer to prevent DNA degradation.

Oragene device prior to collection

Sample ready for transport, storage and processing

ORAgene®·DNA (outside the USA)

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Superior samples
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Why Oragene/saliva collection kits

Non invasive, fast and easy to collect

Oragene/saliva collection kits were readily accepted by healthy volunteers due to the quick and painless procedure. The resulting increase in compliance over blood collection greatly reduced the time required to reach the required number of samples for Dr. Sasongko and his research team.

DNA stability in extreme temperatures for field collection and transport

Oragene/saliva collection kits protect DNA integrity in the extreme conditions often experienced in field collection and transport. Studies demonstrate high molecular weight DNA from Oragene/saliva samples remains stable after storage at 50°C for 6 months[1]. This sample protection offered Dr. Sasongko's group an easy way to collect in the field without the hassles of dry ice and other costly protection materials.

Long-term DNA stability and storage at room temperature

Oragene/saliva collection kits stabilize DNA at ambient temperature for years, removing the need to quickly extract, freeze, or store in another format. This flexibility greatly simplified the logistics surrounding storage prior to DNA extraction and provided added cost savings from reduced freezer usage.

High DNA yield and quality

Dr. Sasongko performs many downstream applications for his genetic studies, including RFLP and Sanger Sequencing. Buccal swabs were evaluated and proven to provide an unreliable DNA yield and quality, often too low to perform accurately on his required applications.

Oragene/saliva DNA samples, in comparison, were of high yield and quality and successfully performed on the downstream analysis necessary for this study group.

Results

Dr. Sasongko chose Oragene/saliva self-collection kits for easy DNA sample recruitment, efficient transportation and storage, and reliable downstream performance. The DNA yield obtained from Oragene/saliva samples is very good with satisfactory quality of optical density. This translates into strong and discreet PCR amplification, enabling accurate results for downstream RFLP and Sanger Sequencing.

1 R.M. Iwasiow, A. Desbois, H.C. Birnboim. Long-term stability of DNA from saliva samples stored in the Oragene self-collection kit. DNA Genotek. PD-WP-005.

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