



Case study

DNA collected with Oragene®/saliva collection kits facilitates multiple research projects in Japan

Dr. Akira Hata, Professor and Chairman

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Study overview

Dr. Akira Hata is a Professor and the Chairman of the Department of Public Health at Chiba University. Dr. Hata is a well-known genetic epidemiologist who has published 20 papers on the genetics of disease in leading journals, most featuring the Oragene®/saliva sample collection kits. Dr. Hata and his associates at the Department of Public Health at Chiba University use genomics to identify the molecular mechanism of allergic disorders, including bronchial asthma, allergic rhinitis and eczema and its application to a clinical setting. Kawasaki disease (KD) is another subject of research. Dr. Hata has adopted human genetic research methods targeting the entire genome in hopes of locating the susceptibility genes for the target disease on the chromosomes, and then uses that information to identify the genetic background of disease and disease susceptibility.

Dr. Hata is currently involved in multiple projects in which he aims to identify the genetic causes of a variety of diseases. For each research project, he must collect hundreds of DNA samples with each project taking up to 5 years to complete.

Main challenges

The main challenge for these studies is the high quality and high concentration of DNA required for genome-wide analysis including exome sequencing or genome-wide epigenetic analysis (methylation patterns). Both methods require high quality and a high concentration of DNA.

In addition, there is a wide range of ages among the target group of participants. The participants (cases and controls) range from young children (less than 2 years old) to adults (depending on the disease or condition being researched). The participants are often not located close to the university so DNA collection by mail and in outpatient clinics is often required.



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“We chose Oragene because the saliva collection kit offers a non-invasive method to collect DNA. The ambient temperature storage is ideal for us as we had multiple outpatient clinics for DNA collection as well as mail-based collection in Japan. Our use of Oragene has helped us identify the ITPKC gene as one of the responsible genes for Kawasaki disease and we are now trying to evaluate its validity for personalized medicine of KD in a cohort study.”

*Dr. Akira Hata
Department of Public Health,
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of Medicine*

Collection methods considered

While blood is often used for studies such as these, Dr. Hata wanted access to a DNA collection method that would facilitate a mail-based study for the participants who are distant from the university or an outpatient clinic. The inclusion of young children in some of the studies warranted the use of non-invasive DNA collection. Oragene was the primary method considered due to its easy-to-use collection method, high quality DNA and stability at ambient temperatures for years.

Why Oragene/saliva collection kits

Dr. Hata and his team of researchers believed that a non-invasive, high quality collection method that was based on saliva would be a viable alternative for their study participants. The Oragene/saliva collection kits provide a completely non-invasive and easy-to-use option for collecting DNA while meeting the requirements for both quality and concentration. Oragene/saliva samples can be stored at ambient temperature for years, offering the study team the flexibility they need with regard to storage and extraction. Finally, the Oragene/saliva collection kits are available in formats suitable for collection from adults as well as young children.

Results

The Oragene/saliva collection kits are providing the required results for Dr. Hata and his team. Their average yield with the Oragene kits is 91 µg.

Dr. Hata is achieving good compliance rates for his studies by using the Oragene/saliva collection kits and the participants are happy to have a non-invasive option for providing a DNA sample. Dr. Hata collaborates with the National Genetics Institute of Japan for his downstream analysis. Samples collected with Oragene have performed well on all downstream analysis platforms including small-scale sequencing and exome sequencing using the Illumina HiSeq platform.

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