

Robust performance of DNAgard[®] Saliva in a study with 25 saliva donors

Senait Ghirmai, Ph.D

Introduction

DNAgard[®] Saliva allows for the efficient collection, preservation, shipping and storage of saliva samples for DNA purification and analysis. DNA in saliva samples is preserved for up to 2 years at room temperature with high quality DNA recovery. Additionally, DNA isolation can be performed with a wide range of DNA purification kits. In this study, we evaluated the performance of DNAgard Saliva with a group of 25 donors. Our results demonstrate that DNAgard Saliva provides robust performance in preserving saliva DNA with high quality. Thus, this product provides an ideal tool for using saliva DNA as a resource for various downstream applications.

Materials and Methods

Saliva sample processing and DNA extraction: Saliva was collected from 25 healthy adult donors. 2 mL of saliva from each donor was mixed with the DNAgard Saliva reagent (1.5 mL) according to the manufacturer's protocol. The saliva samples were stored at room temperature for a week and heated at 50°C overnight prior to DNA extraction. Triplicate 200 µL aliquots of each DNAgard Saliva sample were used for DNA purification employing the QIAamp[®] Blood DNA Extraction Mini Kit (Cat No. 51106, QIAGEN; Protocol: DNA Purification from Blood or Body Fluids - Spin Protocol).

DNA analysis: DNA from each DNAgard Saliva sample was visualized by gel electrophoresis. DNA quantity and purity was determined by UV spectroscopy.

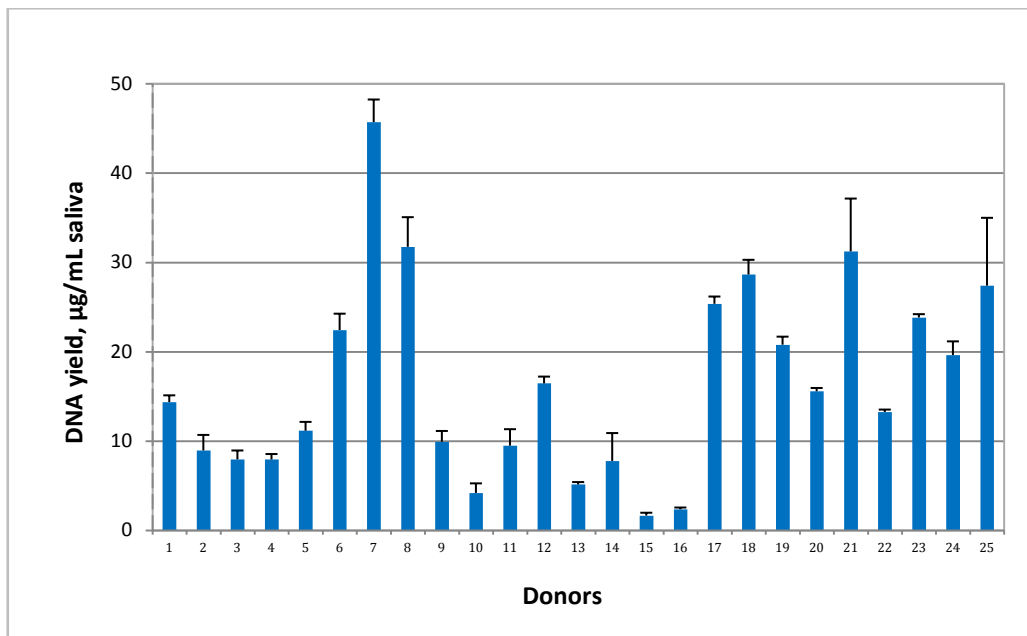


Figure 1. Yield of saliva DNA from 25 healthy adult donors stabilized in DNAgard Saliva. The stabilized saliva samples were stored at room temperature for a week and heated at 50°C overnight prior to DNA extraction. Saliva DNA was extracted using QIAamp[®] Blood DNA Extraction Mini Kit. DNA was quantified by A₂₆₀ UV absorbance after background subtraction. All samples were extracted and analyzed in triplicate.

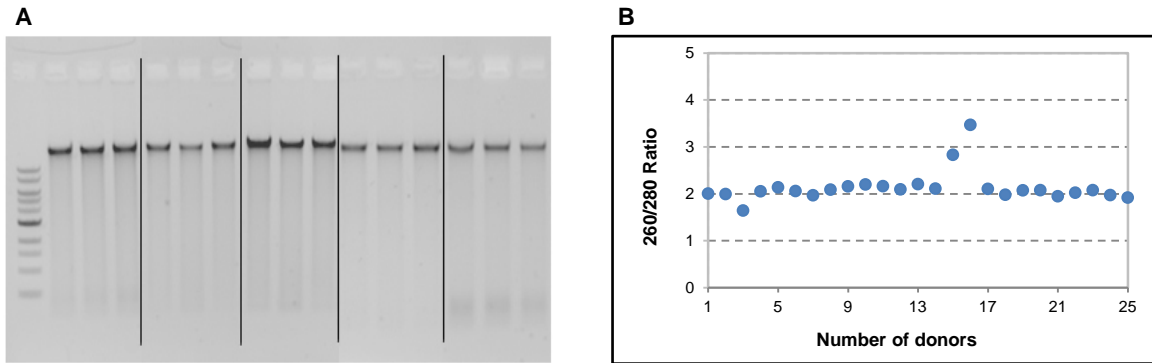


Figure 2. Gel images and quantity of saliva DNA samples stabilized with DNAgard Saliva. The samples stabilized with DNAgard Saliva from 25 healthy adult donors were stored at room temperature for a week and heated at 50°C overnight prior to DNA extraction. Saliva DNA was extracted using the QIAamp[®] Blood DNA Extraction Mini Kit. All samples were extracted and analyzed in triplicate. **(A)** Image of saliva DNA samples from 5 donors run on a 0.8% agarose gel and stained with ethidium bromide. **(B)** DNA purities of saliva samples from 25 donors determined by A_{260}/A_{280} nm absorbance.

Results and Summary

Many genetic and epidemiologic studies require saliva as a DNA resource. We have developed DNAgard Saliva, a saliva collection device with an ambient temperature stabilizer, to streamline the entire process for collection, shipping and storage of human saliva at ambient temperature. In order to evaluate the performance of DNAgard Saliva, we examined DNA quantities and qualities from saliva samples stabilized with DNAgard Saliva from 25 healthy adult donors. Our results show a robust performance of DNAgard Saliva. We observed a wide range of saliva DNA quantities even within 25 volunteers (Figure 1). The range of saliva DNA quantity is between 1.7 to 45.7 $\mu\text{g}/\text{mL}$ saliva, which suggests the great sensitivity and capacity for DNA preservation of this device. In addition, the DNA quality from the preserved saliva samples meets the requirement for various downstream applications (Figure 2). Interestingly, two samples with very high A_{260}/A_{280} ratios correlate with low DNA quantities (Figure 1 and 2B), indicating that extremely low levels of protein exist in the samples containing low levels of DNA. In summary, DNAgard Saliva shows excellent and robust performance in preserving DNA from human saliva samples. It provides an efficient way for collection, transport, and storage of saliva specimens at room temperature, as well as at elevated temperatures. DNAgard Saliva will certainly meet the need for various scales of research studies that require human saliva DNA.

Note: For Research Use Only. Not for use in diagnostic procedures.

Please read all instructions for the [DNAgard Saliva](#) prior to using this protocol.

DNAgard[®] is the registered trademark of Biomātrica.

[Order DNAgard Saliva](#)