

## DNA yield with an Oragene® self-collection kit†

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*The Oragene® self-collection kit gives higher DNA yields than other oral collection methods. In this study of 208 donors, the median yield of DNA from Oragene samples is 110 µg. In comparison, buccal swabs may yield as little as 1.9 µg of DNA.*

### Introduction

The number of studies collecting genomic DNA from a large number of individuals is increasing rapidly. Non-invasive methods and techniques that permit self-collection are preferred because they increase compliance rates and reduce costs. The Oragene self-collection kit is non-invasive and intuitive to use. The donor spits 2 mL of saliva into the collection tube and closes the funnel lid to release the Oragene solution which stabilizes the sample at ambient temperature.

The amount of DNA recovered from the oral cavity can vary widely depending on the collection method (Table 1). This technical bulletin reports the amount of DNA obtained from saliva using the Oragene/saliva sample.

Collection method	Median DNA yield (µg)
Cotton swab <sup>1</sup>	1.9
Guthrie cards <sup>2</sup>	2.3
Cytobrush <sup>3</sup>	6.8
Mouthwash <sup>4</sup>	35.1

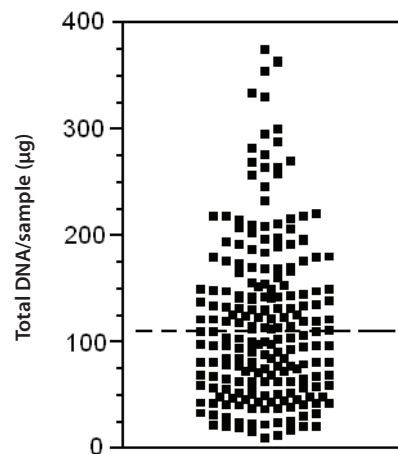
**Table 1:** Comparison of DNA yield obtained by different collection methods.

### Materials and methods

Saliva samples were obtained from 208 donors. Collection and purification of DNA was carried out according to the optimized Oragene purification protocol using prepIT™•L2P<sup>5</sup> (DNA Genotek). DNA yield was determined by the highly specific Fluorescence/DNase method<sup>6</sup>. The F/D method quantitates DNA using SYBR® Green I dye (Molecular Probes, Inc.) and DNase treatment.

### Results

The DNA yield of Oragene/saliva samples from 208 donors is shown in Figure 1. The median amount of DNA was 110 µg. The 25th percentile was 62 µg and the 75th percentile was 158 µg.



**Figure 2:** Scattergram of total DNA yield in 208 Oragene/saliva samples. The dashed line represents the median value of 110 µg.

† Saliva samples were collected with Oragene®•DNA or Oragene®•DISCOVER.

## Conclusions

The Oragene kit is designed for non-invasive DNA self-collection that can be used by untrained study subjects, including children and the elderly. The median DNA yield from Oragene/saliva samples is 110 µg. This is significantly higher than other oral collection methods.

## References

- <sup>1</sup> Cozier, Y., Palmer, J. and Rosenberg, L. (2003). Comparison of methods for collection of DNA samples by mail in the black women's health study. *AEP*. 14, 117-122.
- <sup>2</sup> Harty, L., Garcia-Closas, M., Rothman, N., Reid, Y., Tucker, M. and Hartge, P. (2000). Collection of buccal cell DNA using treated cards. *Cancer Epidemiology, Biomarkers & Prevention*. 9, 501–506.
- <sup>3</sup> Montserrat, G., Egan, K., Abruzzo, J., Newcomb, P., Titus-Ernstoff, L., Franklin, T., et al. (2001). Collection of genomic DNA from adults in epidemiological studies by buccal cytobrush and mouthwash. *Cancer Epidemiology, Biomarkers & Prevention*. 10, 687-696.
- <sup>4</sup> Le Marchand, L., Lum-Jones, A., Saltzman, B., Visaya, V., Nomura, A. and Kolonel, L. (2001). Feasibility of collecting buccal cell DNA by mail in a cohort study. 10, 701-703.
- <sup>5</sup> Laboratory protocol for manual purification of DNA from 0.5 mL of sample. DNA Genotek. PD-PR-006.
- <sup>6</sup> DNA quantification using the Fluorescence/DNase (F/D) assay. Replaced by DNA quantification using SYBR Green I dye and a micro-plate reader. DNA Genotek. PD-PR-075.

Oragene®-DNA is not available for sale in the United States.

Oragene®-DISCOVER is for research use only, not for use in diagnostic procedures.

\*Oragene is a registered trademark and prepIT™ is a trademark of DNA Genotek Inc. All other brands and names contained herein are the property of their respective owners.

All DNA Genotek protocols, white papers and application notes, are available in the support section of our website at [www.dnagenotek.com](http://www.dnagenotek.com).