

New Assisted Saliva Collection Method Improves Upon DNA Sample Yields

Introduction

The aim of this investigation is to demonstrate the improved yields obtained from New GFXA-01 assisted saliva collection kits in comparison to the Current GFXA-02 kits. Foam swab assisted saliva kits are an ideal way to obtain DNA from patients who have difficulty spitting on command, such as children or the elderly. This latest kit improves upon the existing yields of the Current kit while maintaining the optimal purities and DNA quality typically seen in GeneFix™ Saliva Collection products.

Methods & Materials

Six saliva samples were taken by six different adult donors using the Current assisted kits. The following day at the same time six samples were taken by the same set of donors using the New assisted kits. Samples were collected at the same time on each day in order to maintain consistency with results. The collected samples were then purified simultaneously using the GeneFix™ Saliva-Prep 2 DNA Isolation Kit. Purified samples were suspended in 200µl TE buffer.

Following purification, both sets of samples were analysed for yield and purity using the Nanodrop-1000 and Qubit dsDNA BR assay. From these data, average A260/280, A260/230 ratios and yields were determined for each sample. From comparing the Current and New kits it is possible to determine which assisted collector provides the better DNA yield.

Results

Table 1: Nanodrop-1000 data of DNA Concentration, yield and purity of the Current & New Assisted kits. Data shows that purity ratios are consistent between kits.

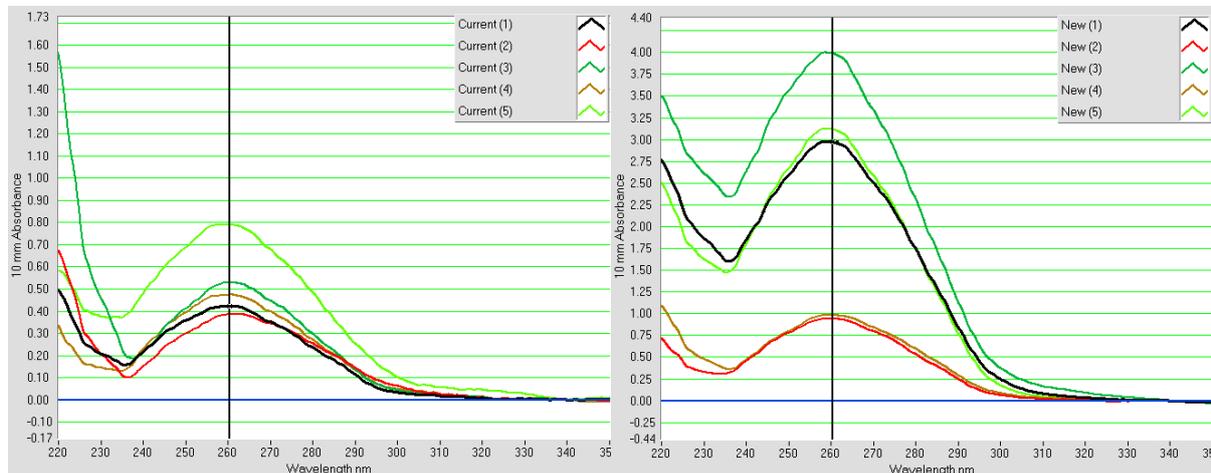
Sample ID	A260/280	A260/230	Sample Concentration (µg/ml)	Nanodrop DNA Yield (µg)
Current (1)	1.78	2.04	21.16	4.23
Current (2)	1.51	1.85	19.24	3.85
Current (3)	1.77	1.15	26.43	5.29
Current (4)	1.74	3.27	23.64	4.73
Current (5)	1.63	2.11	39.49	7.90
Mean	1.69	2.08	25.99	5.20
New (1)	1.70	1.59	148.77	29.75
New (2)	1.77	2.87	47.15	9.43
New (3)	1.72	1.53	199.78	39.96
New (4)	1.64	2.05	49.08	9.82
New (5)	1.79	1.79	156.05	31.21
Mean	1.72	1.97	120.17	24.03

Table 2: Thermo Qubit dsDNA BR assay of collected Current & New assisted kit samples, displaying sample concentration and calculated total yield. Yields are substantially higher when using the New kits.

Sample ID	Sample Concentration (µg/ml)	Total Qubit dsDNA Yield (µg)
Current (1)	14.3	2.9
Current (2)	8.4	1.7
Current (3)	21.6	4.3
Current (4)	15.0	3.0
Current (5)	26.2	5.2
Mean	17.1	3.42

Sample ID	Sample Concentration (µg/ml)	Total Qubit dsDNA Yield (µg)
New (1)	105.0	21.0
New (2)	37.0	7.4
New (3)	173.0	34.6
New (4)	41.3	8.3
New (5)	153.0	30.6
Mean	101.9	20.38

Figures 1 & 2: Graphical representation of Nanodrop-1000 data on the Current & New kits obtained in Table 1.



In this investigation, Qubit DNA yields of the New assisted kit ranged from 7.4µg-34.6µg with an average of 20.38µg per sample. Yields of the Current kit ranged from 1.7µg-5.2µg with an average of 3.42µg per sample. Mean A260/280 ratios for New samples were >1.7, and mean A260/230 ratios were >1.9, indicating high DNA quality. Mean A260/280 and A260/230 ratios for Current kit samples were also within this range. However, yields for New kit samples collected were on average over five times higher than those of the Current kit samples collected.

The results from both the Nanodrop & Qubit assay analysis demonstrate that much higher yields of DNA can be obtained from the New GFXA-01 collector compared to the Current GFXA-02, while maintaining the same levels of purity and quality. From the findings of this investigation we have decided to adopt the GFXA-01 as our main GeneFix™ Assisted DNA Saliva collection kit.

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