



High-performance PCR template DNA from buccal cell samples using MagAttract[®] technology and the BioRobot[®] M48 workstation

This study shows that the BioRobot[®] M48, in combination with MagAttract[®] technology, efficiently purifies DNA from buccal cells using a quick and easy pretreatment method. Purified DNA performs well in PCR analysis, even when isolated from samples stored at room temperature for 21 months.

Materials and methods

Buccal cells were collected on cotton-tipped collection swabs and cytology specimen brushes. Some buccal cells were freshly harvested: triplicate samples were taken from 16 different donors using cotton swabs. Other buccal cells were harvested and stored for 21 months at room temperature: duplicate samples were collected from 6 donors using cytology brushes and triplicate samples were collected from 4 donors using cotton swabs. All samples were pretreated by incubation at 56°C with 200 µg QIAGEN[®] Proteinase K for 15 minutes. DNA was purified using the BioRobot M48 workstation in combination with the MagAttract DNA Mini M48 Kit and was eluted in 100 µl water. DNA yield was quantified by absorbance (A_{260}) with correction for background.

Results

Average DNA yield for the 48 fresh cotton swab samples was 2.4 µg. Samples stored at room temperature for 21 months gave yields of up to 0.76 µg DNA from cotton swabs and 2.05 µg DNA from cytology brushes (Figure 1). DNA purified from fresh swab samples and stored cytology brush samples show strong, clean PCR bands (Figure 2), while DNA purified from stored swab samples yield slightly weaker but clearly interpretable PCR bands.



Yields of DNA from Fresh or Stored Buccal Cell Samples

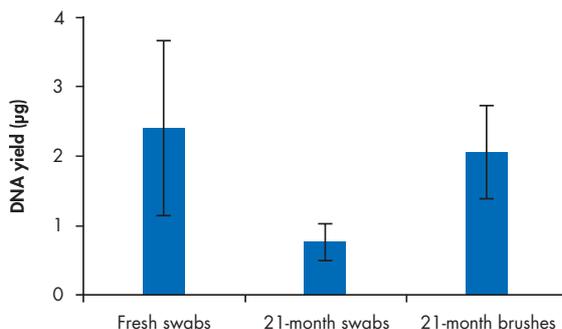


Figure 1. Average yields of genomic DNA purified in triplicate from sixteen fresh cotton swabs, in triplicate from four 21-month-old cotton swabs, and in duplicate from six 21-month-old cytology brushes using the BioRobot M48 and MagAttract technology. Samples were stored at room temperature for 21 months before processing.

Consistent Performance in PCR of a Single-Copy Gene

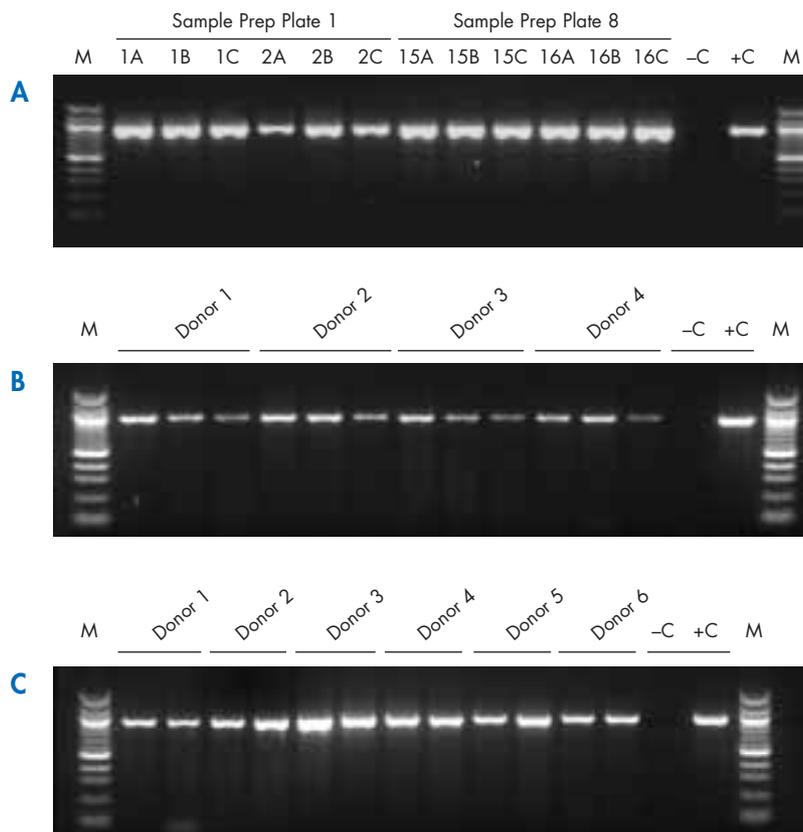


Figure 2. Amplification of the single-copy gene MECL-1 using template DNA purified from buccal cells. A 5 µl aliquot of a 50 µl PCR reaction was loaded on a 1.5% agarose gel. **A:** Fresh cotton swab samples. 5% of the elution volume from the first six and the last six of 48 samples was used in PCR setup. **B:** 21-month-old cotton swabs. 10% of the elution volume was used in PCR setup. **C:** 21-month-old cytology brushes. 10% of the elution volume was used in each PCR. **-C:** negative control; **+C:** positive control; **M:** marker.



Conclusions

- The BioRobot M48 and MagAttract technology efficiently purify high-quality DNA from buccal cell samples
- DNA performs well in sensitive PCR analysis, even when purified from samples stored at room temperature for 21 months

Contact QIAGEN today and discover how automating buccal cell DNA preps can benefit your lab!

Ordering Information

Product	Contents	Cat. No.
BioRobot M48 workstation	Robotic workstation for automation of magnetic-particle purification technology	9000708
MagAttract DNA Mini M48 Kit (192)*	MagAttract Suspension and reagents for purification of genomic DNA from 192 tissue lysates and other samples of 200 µl using the BioRobot M48 workstation	953336

The BioRobot M48 is intended as a microtiter diluting and dispensing device. No claim or representation is intended for its use in identifying any specific organism or for a specific clinical use (diagnostic, prognostic, therapeutic, or blood banking). It is the user's responsibility to validate the performance of the BioRobot M48 for any particular use, since its performance characteristics have not been validated for any specific organism. The BioRobot M48 may be used in clinical diagnostic laboratory systems after the laboratory has validated their complete system as required by CLIA '88 regulations in the U.S. or equivalents in other countries.

* MagAttract Kits are intended as general-purpose devices that may be used in clinical diagnostic laboratory systems after the laboratory has validated their complete system as required by CLIA '88 regulations in the U.S. or equivalents in other countries.

