

DNA Isolation from Buccal Swab

DNA extraction from buccal swabs using *forensicGEM*[™]

This method is recommended for DNA extraction directly from buccal swabs or swabs of saliva. Incubations can be performed either in a thermal cycler or using an automated robotic workstation fitted with Peltier temperature-controlled heating blocks.

Extraction Method

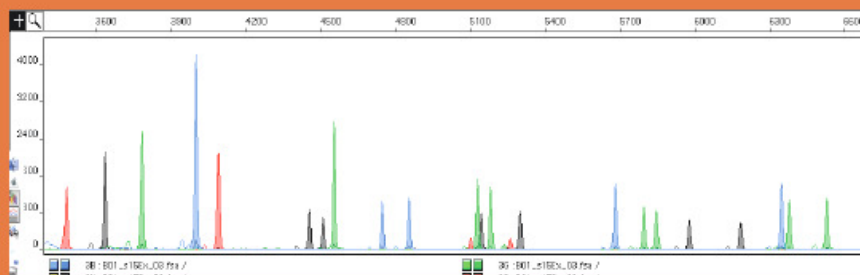
1. Add sufficient *forensicGEM*[™] buffer 3 to cover the swab (or portion of swab) and add 1 μ l of *forensicGEM*[™] [NOTE1].
2. Incubate at 75 °C for 15 minutes (shaking increases yield).
3. Incubate at 95°C for 15 minutes [NOTE2].
4. Quantify the supernatant using Quantiblot or Quantifier if required.

NOTE1: 10 x Buffer is supplied. *forensicGEM*[™] and buffer can also be added as a master mix.

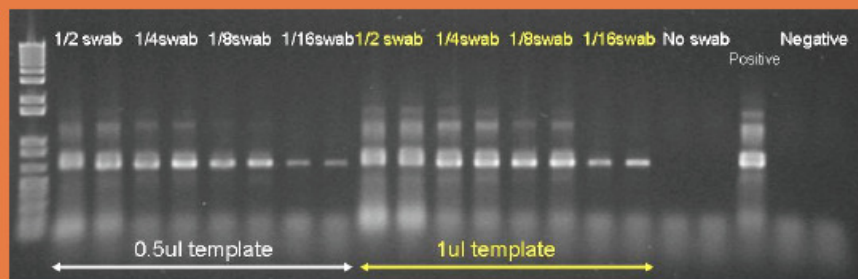
For high throughput sample automation, a whole swab can be used with buffer volume optimisation. Successful extraction has been accomplished using a whole swab, 1 μ l of *forensicGEM*[™] and 800 μ l of buffer. Alternative brands of swab and smaller portions of the swab may require less or more buffer.

NOTE2: 5 min. is sufficient if ramping to temperature is rapid. For slow ramping, longer 95° incubations can be used.

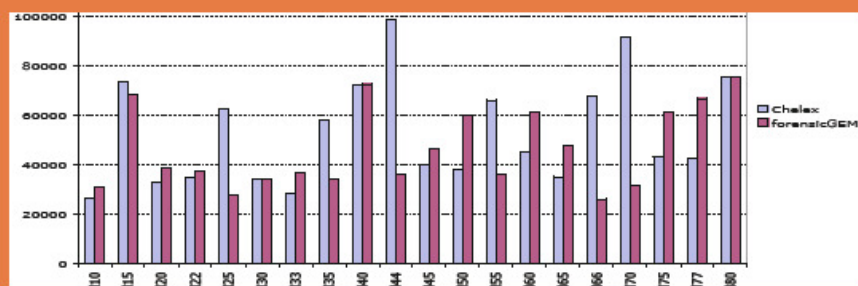
BUCCAL SWABS



AmpFlSTR[®] Identifiler profile from a human buccal swab



1% agarose gel showing PCR products amplified from a partial fragment of the human GAPDH gene (650 bp). Either 0.5 μ l or 1.0 μ l of DNA extract was used as template from extractions of different amounts of a buccal swab.

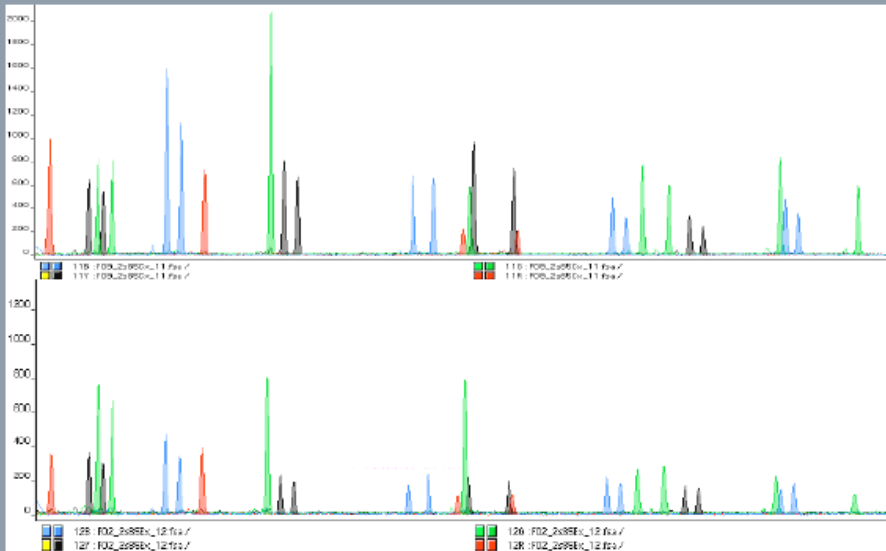


AmpFlSTR[®] Identifiler[™] Total Peak heights for different replicates. The results were compared with those obtained using Chelex[®]

TRACE SALIVA

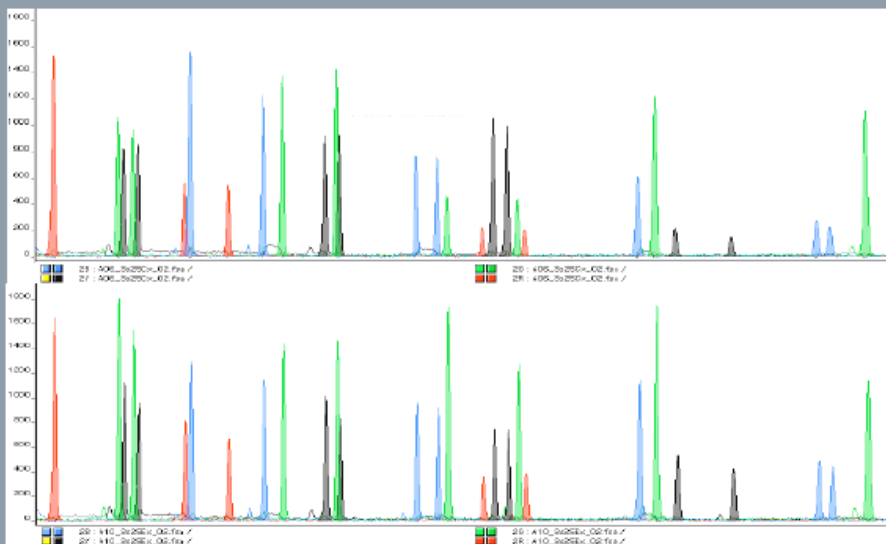
Drinking Straw

Top panel CHELEX; bottom panel *forensicGEM*[™].



Coke Can

Top panel CHELEX; bottom panel *forensicGEM*[™].



Buccal swabs - many variations for extraction using *forensicGEM*[™]

Buccal swabs come in all shapes and sizes, but this method will be effective regardless of the size of the swab. There are many ways to treat the swab before extraction. Large buccal swabs have been routinely processed using as much as 800 µl, while others use substantially less. While the standard procedure is to cover the swab with buffer, some laboratories choose to cover only half of the swab. The same process also applies to small cotton swabs as used for trace saliva samples etc. While some laboratories choose to remove the swab after repetitive squeezing on the side of the tube below the buffer surface, others leave it in place. Most of the high throughput laboratories who have adapted this method for automation choose to apply the latter conditions.