Biomek®-3000 and GenPlex in Forensic Genetics

Stangegaard, Michael; Tomas Mas, Carmen; Hansen, Anders Johannes; Frank-Hansen, Rune; Børsting, Claus; Morling, Niels

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RESULTS

The results obtained with 15 manually processed samples were compared to results obtained with the same samples processed on the Biomek-3000 (Figure 2). Full concordance between manually processed and automated processed samples were obtained in all genetic systems. Subsequently, a total of 286 samples were analyzed in duplicates with the GenPlex reaction using the Biomek-3000. Of the total of 572 samples, 97.6% resulted in a full profile. Full concordance was obtained between the two investigations of each sample. The results were further compared to those obtained from the same samples using a 49-plex PCR in combination with an ISO 17025 accredited SNaPshot® (AB) single base extension assay [3]. Full concordance of the results was obtained in all but one sample resulting in 99.99% concordance.

Figure 2. A representative sample manually processed and processed on the Biomek-3000.

Manual processing

Biomek-3000

Figure 3. Sensitivity: Small amounts of template DNA resulted in false homoygotic allele calls.

Sensitive:

The sensitivity of the GenPlex reaction was evaluated with respect to allele calls. Qiagen purified DNA from two individuals were quantified using the QuantifilerHUM kit (AB) on a real time PCR instrument (AB 7900, AB). Five different DNA concentrations were tested in triplicates. Small amounts of template DNA could result both in a false homozygote or false heterozygote (Figures 3 and 4). Reproducible results were obtained with 250 pg DNA.

Figure 4. Sensitivity: Small amounts of template DNA resulted in false heterozygotic allele calls.