

Alternative Y-STR Amplification Method for Minimal Male Concentration Samples

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DNA analysis has become a valuable tool in modern day forensic laboratories. However, when analyzing biological sample with traditional PCR amplification methods, samples with a very minimal quantity of DNA often yield limited or no allelic profile. A method that could consistently produce results from these low quantity DNA samples would be a valuable tool to the forensic community.

The Advalytix AG/Alopex GmbH, AmpliGrid™ A60 amplification system is designed to carry out a wide range of biological and biochemical reactions in minimal volumes including PCR-based amplification. The AmpliGrid is a glass slide with a hydrophobic surface, which contains 60 hydrophilic reaction spots that each holds 1 ul drop of PCR solution, which is covered with mineral oil to prevent evaporation and contamination. Preliminary studies have shown it to have potential as a method to obtain more genetic information from samples with minimal quantities of DNA.

Studies have shown that samples amplified with the AmpliGrid™ A60 amplification system have consistently yielded complete allelic profiles down to 50pg of DNA template with the ABI Identifiler kit and only up to 4 drop outs at the 25pg level. Data obtained from our study of the AmpliGrid™ A60 amplification system used for Y-STR amplification show that we were able to consistently obtain a complete Y-STR profile down to 50pg of template DNA using the Promega Powerplex 12 Y-STR kit.