The Effects of Different DNA Polymerases on the Production of STR Stutter Bands

Jim Streeter
Montana Dept. of Justice, Missoula, Montana

Stutter bands are a PCR artifact that can confuse the interpretation of DNA profiles produced through the process of short tandem repeat (STR) amplification. Also known as DNA polymerase slippage product or shadow bands, they appear as minor bands one repeat sequence below the true allele on the electrophoretic gels/or electropherograms. This study is designed to demonstrate the effect on stutter band production of using different DNA polymerases.

Replicate samples were amplified using *GenePrint*® PowerPlex™ 1.1 primers, Promega GoldST*R or STR 10X buffer and the following DNA polymerases:

DNA Polymerase	Supplier
Ampli*Taq*®	Perkin Elmer
Ampli*Taq* Gold™	Perkin Elmer
Taq	Promega Corporation
DyNAyme™ EXT	Finnzymes
Platinum™ *Taq* High Fidelity	Life Technologies
Platinum™ *Taq*	Life Technologies
Expand™ High Fidelity	Boehringer Mannheim
*Taq*Plus® Precision	Stratagene Corporation
*Pfu*Turbo™	Stratagene Corporation

Samples were separated on a denaturing six percent acrylamide gel, 0.4mm thick. After electrophoresis, the gel was visualized in a Hitachi FMBIO® II fluorescent imager and analyzed using the Hitachi STaR™ Call software. The STaR™ Call software identified the specific alleles for all eight markers and calculated the band volumes/percentage of stutter. The percent of stutter was calculated as the ratio of the stutter band volume compared to the true allele band volume. Previously published data indicates that the ratio of the stutter to the allelic bands is less than 15%.