

Evaluation of GenomiPhi Whole Genome DNA Amplification with the PowerPlex 16 System

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Representational amplification of human genomic DNA with high fidelity from a small number of cells or precious sample can be extremely useful in genetic analysis, DNA archiving and human identification. GenomiPhi DNA Amplification is a simple method that has been developed for isothermal whole genome amplification. The method employs Phi29 DNA polymerase, a highly processive enzyme with excellent strand displacement activity and fidelity, in combination with random-sequence hexamer primers to amplify nanogram amounts of DNA to microgram quantities. One nanogram of starting material can serve as a template to produce 5-7 ug of DNA that is representative of the original sample and shows no amplification bias. Amplified DNA can be generated from diluted purified genomic DNA or prepared cell lysates of buccal swabs, whole blood, and cell-blotted paper. The average size of amplified product is larger than 10 kilobases and can be used in various applications including STR and SNP genotyping, sequencing, PCR, and library construction. Using Promega's PowerPlex 16 System on the MegaBACE 1000 DNA analysis platform we achieve identical STR profiles from purified genomic DNA and GenomiPhi DNA generated from 1, 10, 25 and 50 ng of starting material.