ALLELE FREQUENCIES FOR 3 NEW AUTOSOMAL STR LOCI (D1S1656, D6S1043 AND D12S391) USING POWERPLEX® 21 SYSTEM FROM THE DOMINCAN REPUBLIC POPULATION

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Objective: To present allele frequencies for 3 New Autosomal STR loci (D1S1656, D6S1043 and D12S391) from the Dominican population.

Methods: The PowerPlex® 21 System allows for STR analysis of human forensic samples, common database samples and relationship testing samples. For this research, samples were obtained from unrelated individuals from the general population of the Dominican Republic during 2012-2013. DNA was collected from buccal swabs and blood from finger sticks, both transferred to FTA® cards as indicated by Promega Corporation. Direct amplification was used to generate all the profiles. The 3 new autosomal loci (D1S1656, D6S1043 and D12S391) included in the PowerPlex® 21 Systems were amplified using a GeneAmp® PCR System 9700 (Applied Biosystems). The detection method used was capillary electrophoresis with a 3130 Genetic Analyzer (Applied Biosystem). The resultant data was analyzed using the GeneMapper® *ID-X* v1.2 software.

Summary of Results: We determined Matching Probability, as well as the Power of Discrimination, and the Polymorphic Information Content as part of Forensic Statistics. For Relationship Testing Statistics the Power of Exclusion was determined, as well as the Typical Paternity or any other Relationship Index, the Homozygosity, the Heterozygosity and the Minimum Allele Frequency.

Conclusions: This investigation is an upgrade of our Autosomal STR Database for statistical calculations in DNAVIEW software. We determined how useful the Powers of Discrimination of these markers are. This allele frequency Database is suitable and useful for Complex Relationship Testing and Forensic Casework analysis as well. The advantage of using these 3 new STR´s is basically their elevated polymorphism. This will enable our laboratory to have a Dominican Population Database which is true to its genetic background.