B35   Population Data of Ecuador for Fifteen STR Loci (Powerplex™ 16)

Francisco Fernandez-Rosado, MS, and Esther Martinex-Espin, MS, Univeristy of Granada, Department Legal Medicine, Av. Madrid 11, Granada, Spain; Tatiana Rodriguez, MD, Ecuador National Police, Hospital De La Policia Nacional, Laboratorio De Adn, Quito, Equador; Carmen Entrala, PhD, J. Carlos Alvarez, MS, Jose A. Lorente, MD, PhD*, and Miguel Lorente, MD, PhD, University of Granada, Department Legal Medicine, Av. Madrid 11, Granada, Spain; Bruce Budowle, PhD, FBI Academy, FSRTC, Quantico, VA; and Enrique Villanueva, MD, PhD, University of Granada, Department Legal Medicine, Av. Madrid 11, Granada, Spain

The goals of this presentation are to present the results and parameters of forensic interest (HWE, PD, PE) of the Ecuadorian population for the 15 STR loci included in the Powerplex 16 (Promega Corporation, Madison, WI, USA).

The typing of STR loci is facilitated by the ability to amplify several loci simultaneously in a multiplex polymerase chain reaction (PCR). The 16 STR loci D3S1358, TH011, D21S11, D18S51, PentaE, D5S818, 13S317, D7S820, D16S539, CSF1PO, PentaD, vWA, D8S1179, TPOX, FGA, and the locus amelogenin can be amplified simultaneously using the Powerplex 16 kit.

This paper presents allele distribution data in the general population of Ecuador. Blood samples were spotted and preserved on FTA paper (Whatman Bioscience, Newton, MS). Extracted DNA samples (n=150) were amplified at the 16 loci using the Powerplex 16 kit. Samples were analyzed using the ABI Prism 310 Genetic Analyzer (PE Biosystems, Foster City, CA) according to the manufacturer's recommended protocol.

All 15 loci are highly polymorphic in the Ecuadorian sample population with the locus TPOX having the lowest observed heterozygosity, and the locus PentaE displaying the highest heterozygosity. The most discriminating loci were PentaE (PD=0.982) and FGA (PD=0.964). The combined probability of exclusion for the 15 STR loci is 0.99999937. There was no evidence for departures from Hardy-Weinberg expectations (HWE) in this sample population. An inter-class correlation test analysis was performed to detect any correlations between alleles at any of the pair-wise comparisons of the 15 loci. A résumé of the PD and PE are shown in this table:

Locus	PD(Obs)	PD (Exp)	PE
1 D3S1358	0.88053333	0.87806905	0.48881837
2 vWA	0.87048889	0.88978649	0.51403170
3 FGA	0.96382222	0.96962447	0.73911909
4 D8S1179	0.93226667	0.93287722	0.61280461
5 D21S11	0.95600000	0.96066452	0.70285973
6 D18S51	0.96311111	0.96512124	0.71989860
7 D5S818	0.88800000	0.88500218	0.50397428
8 D13S317	0.94382222	0.95140078	0.66869408
9 D7S820	0.90204444	0.90069071	0.53330873
10 THO1	0.87813333	0.88681666	0.50250889
11 PentaE	0.98204444	0.98667742	0.82867494
12 D16S539	0.91893333	0.92314258	0.58330714
13 CSF1PO	0.84835556	0.86821432	0.46531012
14 PentaD	0.93937778	0.94479720	0.64719527
15 TPOX	0.82284444	0.83083170	0.41087974
Total	>0.9999999	>0.9999999	0.99999937

In conclusion, an Ecuador database has been established for the 15 Powerplex loci. The allelic frequencies of these PCR-based loci can be used to estimate the frequency of a multiple locus DNA profile in the Ecuadorian population.

STR, Powerplex   16, Ecuador