International Congress Series 1261 (2004) 305–306

www.ics-elsevier.com

Population genetic study of y-chromosome haplotypes in the population of El Salvador (San Salvador, Central America)

P. Vásquez, B. Martínez-Jarreta[a,*], B. Budowle[b], E. Abecia[a], I. De Blas I[a]

[a] *Department of Legal Medicine, Faculdad de Medicina, University of Zaragoza, C/Domingo Miral, sn, 50009 Zaragoza, Spain*
[b] *Laboratory Division, FBI, Washington, DC, USA*

Abstract. Y-chromosomal microsatellites (STRs) are proven to be useful in forensic practice but large and diverse population databases are required in order to facilitate the statistical evaluation of donor-stain matches. Here we present frequencies of a nine-STR loci set (DYS19, DYS388, DYS390, DYS392, DYS393, GATA A71, GATA A10, DYS 439 and GATA H4) in the population of El Salvador (San Salvador, Central America). Blood samples were taken from 120 healthy unrelated male individuals born and living in El Salvador (San Salvador, Central America). DNA was isolated from the samples using standard phenol–chloroform extraction method. Each locus was amplified individually, except for GATA A71, GATA A10, DYS 439 and GATA H4 (PCR-multiplex system). Detection of the amplified products was carried out using the Automatic Laser Fluorescent (ALF) DNA sequencer (Amersham Pharmacia, Uppsala, Sweden). The recommendations of the International Society for Forensic Genetics were followed for typing and interpretation. A total of 119 different haplotypes identified by the nine loci markers were observed. The overall haplotype diversity was 0.9998.

Keywords: Microsatellites; Short tandem repeat; Y-chromosome; Population study; El Salvador

1. Introduction

Y-chromosomal microsatellites (STRs) are proven to be useful in forensic practice but large and diverse population databases are required in order to facilitate the statistical evaluation of donor-stain matches. Here we present frequencies of a nine-STR loci set (DYS19, DYS388, DYS390, DYS392, DYS393, GATA A71, GATA A10, DYS 439 and GATA H4) in the population of El Salvador (San Salvador, Central America). There is a lack of information on the El Salvador population from a genetic point of view and

* Corresponding author. Tel.: +34-976762110; fax: +34-976762070.
E-mail address: mjarreta@unizar.es (B. Martínez-Jarreta).

0531-5131/
doi:10.1016/S0531-5131(03)01847-8

therefore no previous publications on the distribution of Y-chromosome STRs are available. The nine-loci set includes new Y-specific STRs that have been recently described (GATA A71, GATA A10, DYS 439 and GATA H4) and characterised for forensic purposes [1].

2. Material and methods

Blood samples were taken from 120 healthy unrelated male individuals born and living in El Salvador (San Salvador, Central America). Genomic DNA extraction: standard phenol–chloroform method and quantification by fluorescence detection with DyNA-Quant 200 (APB). Each locus was amplified individually, except for GATA A71, GATA A10, DYS 439 and GATA H4 (PCR-multiplex system) [1]. Detection of the amplified products was carried out using the Automatic Laser Fluorescent (ALF) DNA sequencer (Amersham Pharmacia). The recommendations of the International Society for Forensic Genetics (ISFG) were followed for typing and interpretation [2].

3. Results and discussion

A total of 119 different Y-chromosome haplotypes were observed in the 120 males from San Salvador (haplotype: 13-12-24-13-13-11-15-12-28 was observed twice). The complete haplotype data are available to any interested researcher upon request. The combined haplotype diversity calculated for this set of Y polymorphisms was 0.9998 and the probability of match: 0.0083. The obtained population data allowed to establish the core of a reference database to be used in forensic casework.

References

[1] L. Gusmao, C. Alves, A. Amorin, Molecular characterisation of four human Y-specific microsatellites for population and forensic studies, Ann. Hum. Genet. 165 (2001) 285–291.

[2] P. Gill, et al., DNA Commission of the International Society for Forensic Genetics: recommendations on forensic analysis using Y-chromosome STRs, Int. J. Leg. Med. 114 (6) (2001) 305–309.