



## Announcement of Population Data

## Genetic profile of 11 autosomal STR loci among the four major ethnic groups in Sri Lanka

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## ABSTRACT

Allele frequencies and statistical parameters of forensic interest are presented for 11 autosomal microsatellites (CSF1PO, TPOX, TH01, D16S539, D13S317, D7S820, F13A, F13B, FESFPS, vWA and LPL) of four ethnic groups in Sri Lanka. A total of 513 unrelated individuals from Sinhalese, Sri Lankan Tamil, Indian Tamil and Sri Lankan Moor population groups were included. Sri Lanka is an island with a multi-ethnic population whose genetic composition has not been previously studied at the ethnic group level. All the 11 microsatellites were found to be highly polymorphic, with the combined power of exclusion being greater than 0.99999, in all four ethnic groups. Overall data analysis suggests that a single combined genetic database could be used for genetic-based identification purposes for the four ethnic groups.

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## 1. Population

Blood samples were collected from a total of 513 healthy and unrelated Sinhalese (292), Sri Lankan Tamils (107), Indian Tamils (40) and Sri Lankan Muslim (74), subpopulations of Sri Lanka, with their informed written consent. Sinhalese, who claim Indo-Aryan descent, comprise the largest ethno-cultural group in Sri Lanka having a population size of approximately 13.9 million (79.2% of the total population) [1]. They are distinguished primarily by their language, Sinhala, which is a member of the Indo-European linguistic group that includes Hindi and other north Indian tongues as well as most of the languages of Europe [2]. The Sri Lankan Tamils, who are of Dravidian origin and are inhabitants of the Jaffna peninsular of Sri Lanka are immigrants from South India, and have a population size of approximately 1.1 million (6.27%). The Indian Tamils, domiciled in the central hill country areas of Sri Lanka who arrived from South India as transient workers in the 19th and 20th centuries consist of a population of approximately 0.86 million (4.9%) [1]. Because they lived on plantation settlements, separate from other groups, including the Sri Lankan Tamils

both of these groups use the Tamil language as their native tongue. Tamil is one of the Dravidian languages found in Southern parts of India [2]. Sri Lankan Muslims or the Moors with a population size of 1.5 million (8.89%) [1] are said to be descendants from Arab merchants who espoused local women. The language of the Sri Lankan Moors is a type of "Arabic Tamil" that contains a large number of Arabic words [2].

## 1.1. Extraction

DNA was isolated using 20  $\mu$ l of whole blood from each sample following protocols published elsewhere [3]. DNA samples were quantified by using Nanodrop<sup>®</sup> spectrophotometer.

## 1.2. PCR

PCRs were performed in 25  $\mu$ l reaction volumes using 10 ng of genomic DNA for each reaction as per manufacturer's instructions to amplify the 11 STR loci using Promega *Geneprint STR system* [4] in a GeneAmp 2400 (Applied Biosystems) thermal cycler.

## 1.3. Typing

Electrophoresis was carried out on a GibcoBRL S2001 electrophoresis apparatus (Life Technologies) and visualized by silver staining using DNA Silver Staining System according to the manufacturer's recommendations [4].

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