

HFE AND HPA IN SRI LANKAN INDIAN TAMILS AND SINHALESE

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Introduction

As part of a 'thyroid' study monitoring the clinical effects of commercial salt iodination in Sri Lanka, samples were made available to us to HLA, HPA and HFE type. Due to racial variation in HLA polymorphism it is important to study the diversity of HLA genotypes in different ethnic groups. This will help identify new and rare alleles and haplotypes.

Sri Lankan Indian Tamils and Sinhalese

These are distinct ethnic groups that have different languages, religious beliefs and caste systems. Indian Tamils migrated from Southern India to Sri Lanka during the middle of the 19th century whereas the Sinhalese originated from Northern India and have formed the majority of the Sri Lankan population for many centuries.

We have previously reported on the frequencies of HLA genes and haplotypes in these two populations (*Eur J Immunogenet* (2002) 29, 370; (2000) 27, 306). Here we detail our findings on the distribution of the genetic haemochromatosis associated HFE genes and the human platelet antigens (HPA).

Methods

We typed 185 Tamil tea-pluckers and 110 Sinhalese who were all normal random females that formed part of the thyroid study. HFE-1 (lacking both H63D and C282Y mutations), -2 (possessing the H63D mutation) and -3 (C282Y mutation) and HPA-1 to 6 were determined by our standard PCR-SSP-based methods (*Genetic Testing* (2000) 4, 111; *Eur J Immunogenet* (1999) 26, 393).

Results

The HFE and HPA alleles showed a good fit to Hardy-Weinberg equilibrium and the proportion of homozygotes was as expected (all p-values > 0.1), in both populations.

The HFE and HPA gene frequencies (determined by direct counting) are shown in Tables 1 and 2, respectively for both populations.

Table 1. HFE gene frequencies in the Sinhalese and Tamil populations.

HFE	Gene frequency	
	Sinhalese	Tamils
HFE-1	0.9364	0.8730
HFE-2 (H63D)	0.0636	0.1270
HFE-3 (C282Y)	0.0	0.0

Note that the HFE-3 mutation was not present in either the populations studied.

Table 2. HPA-1-6 gene frequencies for the Sinhalese and Tamil populations.

HPA	Gene frequency	
	Sinhalese	Tamils
1a	0.8955	0.8595
1b	0.1045	0.1405
2a	0.9409	0.9649
2b	0.0591	0.0351
3a	0.6909	0.6757
3b	0.3091	0.3243
4a	0.9955	1
4b	0.0045	0
5a	0.9273	0.9514
5b	0.0727	0.0486
6a	1	1
6b	0	0

There were no significant HPA frequency differences between the two populations (p uncorrected < 0.05).

A single example of HPA-4b was found in a Sinhalese subject.

Comments

- ❑ These results support the general finding that the C282Y mutation is essentially specific to Europeans and are comparable with other HFE studies of Asian populations.
- ❑ The distribution of HPA types in the Tamils and the Sinhalese are comparable to many other populations. HPA-4b present in the Sinhalese is also found in other Asian populations, e.g. Japanese, Korean and Indonesian.
- ❑ Overall this study supports work already published on both HFE and HPA frequencies in Asian populations.