

Sero-Genetic Study Among Irlas, A Tribal Population of Andhra Pradesh

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INTRODUCTION

Etimologically the Word Irla means darkness or blackness, which perhaps refers to the dark jungles, the abode of Irlas in the past. The typical Irla is short statured and dark skinned. Most of them speak corrupt form of Tamil besides Telugu. Traditionally they are hunters and food gatherers. At present some of them are engaged by the forest department on daily wages and also they work as farm labourers. They are Hindus by religion. Majority of them are illiterate and economically poor. The present study is undertaken to throw some light on the sero-genetic characters among the Irla tribe and to compare the findings with those available on other tribal populations of Andhra Pradesh.

MATERIAL AND METHODS

A total 200 unrelated individuals of both the sexes from two villages namely Karakambadi and Durga Samudram in Chittoor district, Andhra Pradesh were examined for ABO, Rh($\pm$ D) and colour blindness. The blood samples were collected and analysed for ABO and Rh($\pm$ D) following Race and Sanger (1962), with the antisera obtained from Hoffkine Institute, Bombay. Ishihara's (1970) "Test for colour Blindness" chart with 38 plates was employed to determine the type of colour vision.

RESULTS AND DISCUSSION

The phenotype and gene frequencies for ABO, Rh(+D) and colour blindness among Irlas is shown in the table.

ABO Blood Group System

It is observed from Table that the blood group 'O' occurs with highest frequency (41%) among Irlas. The frequency of group B (35%) is found to be higher than that of A (19%). Thus the Irla population shows the order O>B>A for ABO

Table 1: The percentage and genotype frequency of ABO, Rh($\pm$ D) and colour blindness among Irlas.

Trait	Pheno-types	No	%	Allele frequency
ABO	O	82	41.0	$O=0.6463$
	A	38	19.0	$A=0.1282$
	B	70	35.0	$B=0.2254$
	AB	10	5.0	
Rh	Positive	183	91.5	$D=0.7085$
	Negative	17	8.5	$d=0.2915$
Colour	Normal	200	100.0	$V=1.0000$
Blindness	Colourblind	-	-	$v=0.0000$

system. AB phenotype occurs with 5%. The allele frequencies calculated based on the distribution of ABO phenotypes shows higher A value for O (0.6463) followed by B (0.254) and A (0.1282). The value of D/σ (0.5874) indicates that the population is under genetic equilibrium and the value of $1/N\chi^2$ (0.0016) shows goodness of fit of the sample. With regard to the distribution of phenotype 'O' the present population falls well within the range observed among other tribal populations of Andhra Pradesh. The highest frequency of O (54.6%) in Savara (Nagi Reddy, 1977) to 46.6% in Kuruvikkarans (Pulla Reddy and Mukherjee, 1981) and on the other hand is found to be highest (31.33%) in Savaras and lowest (1.94%) in Kurivikkarans. For both these phenotypes as well as A, B, O allele frequencies the present population do not deviate much from the other tribal populations of Andhra Pradesh. As in the case of Irlas more than two thirds of tribal populations in Andhra Pradesh show higher frequencies for B than A.

Rh(D+) Blood Group System

As shown in the table Rh +ve phenotype occurs with a frequency of 91.5% and that of Rh -ve 8.5%. The frequencies of allele D and d are found to be 0.7085 and 0.2915, respectively. Data available so far on populations of Andhra Pradesh shows the highest frequency for Rh +ve

(97.6%) among Konda Doras (Naidu and Veerraju, 1977), the lowest (88.8%) in Konda Kapu (Veerraju, 1989) with a Rh +ve frequency of 91.5% the Irlas of the present study show closer affinity with majority of the tribes of this region.

Colour Blindness

The 200 individuals who were studied for the above two systems were also studied for the incidence of Red green colour blindness. Quite interestingly all the individuals studied were found to be normal for their colour vision. Like Irlas of present study the Chenchus (Ramesh et al., 1977) and Samanthas (Naidu and Rao, 1980) of Andhra Pradesh also do not show any individual with abnormal colour vision. A critical review of available works on other tribal populations also reveal a very low incidence of colour blindness among tribal populations strengthening the hypothesis of Post (1962) and Pickford (1963) which indicates operation of natural selection against colour blindness gene in primitive populations particularly among hunters and food gatherers.

KEY WORDS Irlas, Sero-genetics. Colour Blindness

ABSTRACT A total of 200 unrelated (M=100; F=100) Irla individuals from Andhra Pradesh were studied for the phenotype and gene distribution of ABO, Rh(±D) blood

groups and colour blindness. The order of occurrence of ABO phenotypes is O>B>A. The corresponding gene frequencies are found to be 0.6463 (O); 0.2254 (B) and 0.1282 (A). Rh(-ve) frequency is found to be relatively high (8.5%). Normal colour vision is observed among all the 200 studied. The results of the present study are compared with other tribes of Andhra Pradesh.

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