

DEOXYRIBONUCLEIC ACID (DNA) HLA - DQ $\alpha$  ALLELE FREQUENCY  
DISTRIBUTION IN VARIOUS SECTS OF SOUTH INDIAN POPULATION

M.A. Tahir, Ph.D., J. Caruso, B.S., P. Hamby, M.S., and V.K. Sharma, Ph.D.  
Indianapolis-Marion County Forensic Services Agency  
40 South Alabama Street, Indianapolis, Indiana 46204 USA

Abstract

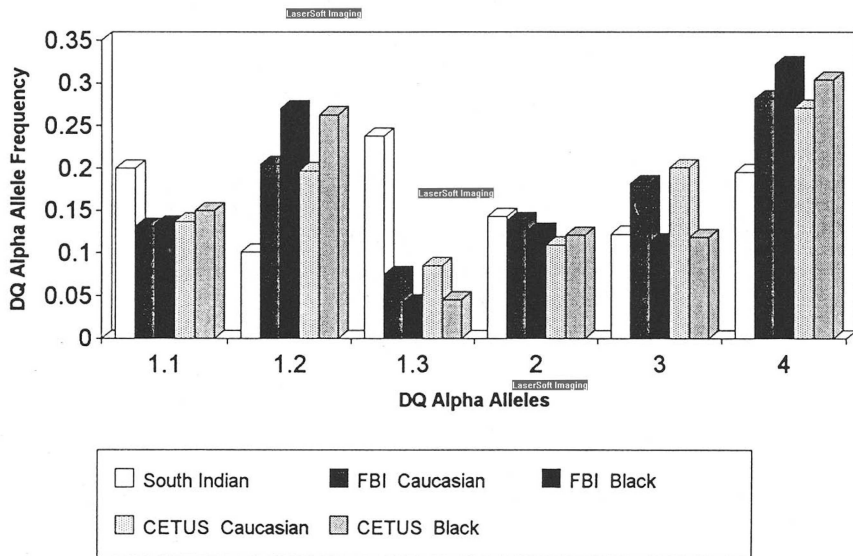
Blood samples from 495 South Indian individuals (420 Hindu, 56 Muslim, and 19 Christian) were collected and subjected to HLA-DQ $\alpha$  typing using the polymerase chain reaction. (Blood was collected in clot tubes and deposited directly on cotton swatches, dried at room temperature and packaged in paper envelopes and stored at -20° C until typing.) DNA typing was performed according to the FBI protocol using Cetus AmpliType kits and a Perkin Elmer Cetus thermocycler. All the 21 genotypes were observed in the Hindu population group, but because of the small sample size, some of the genotypes were not observed in the other two groups. The observed genotype frequencies for the Hindu population did not follow Hardy-Weinberg equilibrium. There was an apparent excess of homozygotes, probably due to consanguinity in this population. The Muslim and Christian population samples were too small for statistical analysis. Unlike other population groups that have been genotyped at the DQ $\alpha$  locus by the FBI and by Cetus Corporation (1991), Hardy-Weinberg equilibrium cannot be used to calculate the expected genotype frequencies in the South Indian Hindu population.

1. Budowle, B., Baeshtel, F.S., Giusti, A.M. and Monson, K.L., "Applying Highly Polymorphic Variable Number of Tandem Repeats Loci Genetic Markers to Identify Testing", *Clinical Biochemistry*, Vol. 23, pp. 287-293 (1990).
2. Budowle, B., Monson, K.L., Anoe, K.S., Baechtel, F.S., Bergman, D.L., Buel, E., Campbell, P.A., Clement, M.E., Corey, H.W., Davis, L.A., Dixon, A., Fish, P., Giusti, A.M., Grant, T.L., Gronert, T.M., Hoover, D.M., Jankowski, L., Kilgore, A.J., Kimoto, W., Landrum, W.H., Leone, H., Longwell, C.R., MacLaren, D.C., Medlin, L.E., Nerveson, S.D., Pierson, M.L., Pollock, J.M., Raquel, R.J., Reznicek, J.M., Rogers, G.S., Smerick, J.E. and Thompson, R.M., "A Preliminary Report on Binned General Population Data on Six VNTR Loci in Caucasians, Blacks, and Hispanics from United States", *Crime Laboratory Digest*, Vol. 18 No. 1, pp. 9-26 (1991).
3. Cetus AmpliType User Guide, Cetus Corporation, Emeryville, California, 1991.

Distribution of DQ $\alpha$  Data from South Indian, FBI, and Cetus Populations

DQ $\alpha$ Allele	South Indian N=495	FBI		CETUS	
		Caucasian N=737	Blacks N=589	Caucasian N=826	Blacks N=448
1.1	0.200	0.131	0.134	0.137	0.150
1.2	0.101	0.205	0.270	0.197	0.263
1.3	0.238	0.075	0.042	0.085	0.045
2	0.143	0.138	0.126	0.109	0.121
3	0.122	0.182	0.113	0.201	0.118
4	0.195	0.282	0.322	0.271	0.304

Distribution of DQ Alpha Alleles in South Indian, FBI, and Cetus Populations



Distribution of DQ $\alpha$  Alleles in Various Sets of South Indian Populations and FBI Populations

DQ $\alpha$ Allele	SOUTH INDIAN			FBI	
	Hindu N=420	Christian N=19	Muslim N=56	Caucasian N=737	Black N=589
1.1	0.210	0.105	0.161	0.131	0.134
1.2	0.102	0.132	0.080	0.205	0.270
1.3	0.233	0.237	0.277	0.075	0.042
2	0.144	0.158	0.134	0.138	0.126
3	0.118	0.211	0.125	0.182	0.113
4	0.193	0.158	0.223	0.282	0.322

## DQ Alpha Alleles in Various South Indian Sects and FBI Populations

