

A comparison of Fulani and Nadar HLA

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Here recent studies of Nadar and Fulani HLA-A and HLA-B were compared to determine if these populations were related. The analysis revealed that the Nadar and Fulani populations share a number of unique alleles including A*101, A*0211, A*03011, A*3303, B*3501, B*3701, and B*51011. The study suggests a former residence of these diverse populations in same geographical area.

Key words: Dravidian, Fulani, human leukocyte antigen, Nadar, polymorphic DNA

Introduction

Aravanan^[1-3] and Sergent^[4] are sure that the Dravidian speakers originated in Africa. These researchers and others use linguistic, anthropological, and archaeological evidences to support this idea.^[1-7] The Dravidian speakers are the dominant linguistic groups in South India. These languages are also spoken in Iran and Russia.^[8]

Upadhyaya and Upadhyaya^[6] claimed that the Fulani and Dravidian languages are related. The Fulani live in West Africa.

Aravanan^[2,3] and Winters^[8] have pointed out that in addition to shared phenotypical features the Fulani and Dravidian tribal groups such as the Kadaro and other tribal groups such as the Irula and Pularya have the sickle cell trait.^[2,3,9]

The human leukocyte antigen (HLA) allele distribution has been studied in India and West Africa. The HLA system provides us with a means to define the relatedness of varying ethnic groups. Polymorphic DNA variants allow us to make inferences about prehistoric interactions among populations. Using HLA we can determine the relatedness of populations.

The HLA system is an excellent tool in anthropology because it can determine the genetic relatedness of different populations. In this paper, we will compare Fulani and Nadar HLA systems to determine if Africans and Indians are related.

Materials and Methods

In this analysis of Nadar and Fulani HLA, we will examine studies of HLA-A and HLA-B loci related to the Nadar and Fulani populations. Each study was analyzed to discover the HLA genotype and allele frequency of each molecular marker among each ethnic group in the study.

Results

The Nadar is an Indian tribal group that lives in South India.^[10,11] Tribal groups like the Nadar are very conservative and many researchers believe that they represent the purest form of Dravidian.^[12,13]

The Fulani live in Africa. They are a nomadic people who are spread from North Africa. They are spread from North Africa and Chad into the Senegal region.^[14]

Shankarkumar *et al.*^[15] have done an extensive analysis of the Nadar HLA. Ellis *et al.*^[15] have studied the Fulani HLA system.

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In Table 1, we list the shared HLA-A and HLA-B alleles shared by the Nadar and Fulani. The Nadar and Fulani share a number of HLA alleles. The congruent HLA alleles include A*101, A*0211, A*3303, and B*370 at low frequency. The HLA with the greatest frequency between both groups was A*03011, B*3501, and B*51011.

Discussion

The presence of shared HLA genome indicates that a genetic relationship may exist between the Nadar and Fulani peoples. This finding supported the linguistic^[2-4,6-8] and archaeological^[4,7,8] evidences.

The present study provides some interesting findings. There are several shared Fulani and Nadar HLAs such as A*0301, B*3501, and B*51011, which are unique to the Nadar, but absent in other Indian populations.^[14] This comparison of HLA systems make it clear that these alleles unique to the Nadar are relatively high among the Fulani.^[15]

Conclusion

The finding of this study suggests that some Fulani and Nadar demonstrate an indistinguishable HLA profile. The shared HLA genomics appear to indicate a former habitat in which both groups thrived. The close relationship between the Dravidian and Fulani languages leads to the inference that these populations were formerly in close contact and the separation of the Nadar and Fulani does not date back to the original exist of AMH from Africa.

If this relationship does not date back to the exit of AMH from Africa when did this separation probably take place? There is one climatic event that had a significant impact on population movements in Africa. This event was the change of the Sahara from a fertile savanna to a harsh desert.

Lal^[16] and Singh^[17] have discovered archaeological evidence that link the South Indian Megalitic and Indian civilizations generally to the C-Group people of Nubia. This suggests that the ancestors of the Nadar and Fulani probably emigrated to West Africa and India after the rise of a hyperarid environment in the Saharan region and

Table 1: Nadar and Fulani HLAs

HLA alleles	Nadars (N = 61)	Allele frequencies (%)	Fulani (N = 92)	Allele frequencies (%)
A*101	11	9.02	2	1.1
A*0211	13	10.66	1	0.6
A*03011	25	20.49	14	7.7
B*3501	18	14.75	13	7.1
B*3701	11	9.02	1	0.5
B*51011	19	15.57	3	1.6

Sahel of Middle Africa.

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