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Origin and Spread of Dravidian Speakers

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ABSTRACT Some Researchers argue that there should be more cooperation between anthropologist and population geneticists due to the confounding variables that can influence patterns of interaction between populations and population structure generally, which are usually unknown by molecular biologists who know only the molecular evidence. They argue that the absence of cooperation between these groups may be the cause of disparity between the dates for Indian haplogroups among different population geneticists and interpretations of Indian populations. For example, many researchers claim that the Indian M haplogroup originated in situ among Dravidian speakers, because haplogroup M1 is only found in East Africa. Using molecular evidence we find that M1 is not isolated in East Africa. The molecular evidence indicates that M1 is spread across Sub-Saharan Africa, Arabia/Yemen and is even found in India; while the Indian haplogroup M3 is found on the Horn of Africa, Arabia/Yemen, and Iran along a migration path to South India, which is congruent with anthropological, linguistic and archaeological evidence that suggest a recent African origin for the Dravidian speakers in Nubia.

INTRODUCTION

Tripathy et al. (2008) has discussed the wide diversity and unique populations of India as defined by the molecular evidence. These authors recognize that although the mtDNA and Y chromosome evidence of diversity is undisputed, a major drawback of this Indian knowledge base is the absence of anthropological knowledge supporting the conclusions reached by genetics in relation to the study of evolutionary history and population relationships (Tripathy et al. 2008).

Some of the problems the researchers noted in relation to using molecular evidence solely to describe population relations was the different coalescence ages assigned the same haplotypes and haplogroups by different researchers which "are vastly different among different studies" , studies that demonstrate large confidence intervals that make the conclusion equivocal; conclusions based on small samples; and population affinities not supported by historical, archaeological and linguistic evidences (Tripathy et al.. 2008). To remedy this situation Tripathy et al. (2008) believes their should be more "anthropological insights into Indian population structure" when discussing population studies. In this paper we will compare the molecular and anthropological evidences to determine if congruency exists between the two.

Geneticists maintain that the Dravidian speakers originated in India (Rajkumar et al. 2005; Thangaraj et al. 2006). They support this view by showing how the Indian mtDNA belonging to the M haplomacrogroup must have developed in situ in India, and the only location of M1 haplogroup among Africans is in East Africa (Thangaraj et al. 2006). Using the same molecular evidence these researchers make it clear that although Dravidians are phenotypically Africans, they are probably more related to Eurasians than Africans. Although this is the view of the molecular anthropologists, the anthropological and linguistic data tells a different story (Winters 2007).

The most frequent haploids in India belong to L3M and L3N lineages. An estimated 60% of Indian DNA consists of haplogroup (hg) M.

The Dravidian speakers do not carry any ancient M lineages associated with the first exit of anatomically modern humans (AMH) from Africa. Indians bearing these genes live on the Andaman and Nicobar Islands. The most frequent M clade found in India is hg M2 which has transitions at nps 477G-1780-8502-16329. The defining HVS-I mutations of haplogroups M3, M4 and M5 include 16126, 16311, and 16129 (Metspalu et al. 2004).

These HVS-I mutations for M3, M4 and M5 are common to hg M1. Sun et al. (2005) believe that the presence of these M1 transitions in Indian M haplogroups is the result of parallel mutation. This view is disputed by the fact that the distribution of M1 mutations in the Indian M haplogroups is incongruent with the normal distribution of parallel mutations (Winters 2008).

The anthropological and archaeological evidence makes it clear that the M1 haplogroup is spread throughout Africa (Gonzalez et al. 2007) (Fig. 1). The researchers who hold this view claim that hg M1 must be the result of back flow and the M macro-haplogroup developed in situ in India because hg M1 is only found in East Africa. This view is not supported by the molecular evidence of hgs M* and M1 among sub-Saharan populations across the continent (Gonzalez et al. 2007).

The HVSI transitions defining M1 are 16129-16223-16249-16278-16311-16362; 16129-16223-16234-16249-16211-16362. Haplogroup M1 has four transitions in the coding region (6446, 6680, 12403 and 14110) and five transition motifs in the noncoding region (195, 16129.16189,16249 and 16311) (Sun et al. 2005). The RFLP of M1 is diagnosed by Mn1I site loss at 12402.

The molecular evidence makes it clear that haplogroup M1 is not confined solely to Ethiopia. This haplogroup along with HGs N and M, are also found in Tanzania, Uganda, Egypt and the Senegambian region (Gonzalez et al. 2006; Gonder et al. 2006; Winters 2007).

In addition to M1, M* and N1 in Senegambia we also find among the Senegambians haplotype AF24, which is delineated by a DdeI site at 10394 and AluI site of np 10397. This haplotype is a branch of the African subhaplogroup L3a. This makes it clear that the M1, M and N haplogroups are found not only in Northeast Africa, but across Africa from East to West (Winters 2007)

The M1 haplogroup is also found in India. Gonzalez et al. (2006) reported the presence of M1 in India. Kivisild et al. (1999) noted that 26 of the subjects in his study belonged to the M1

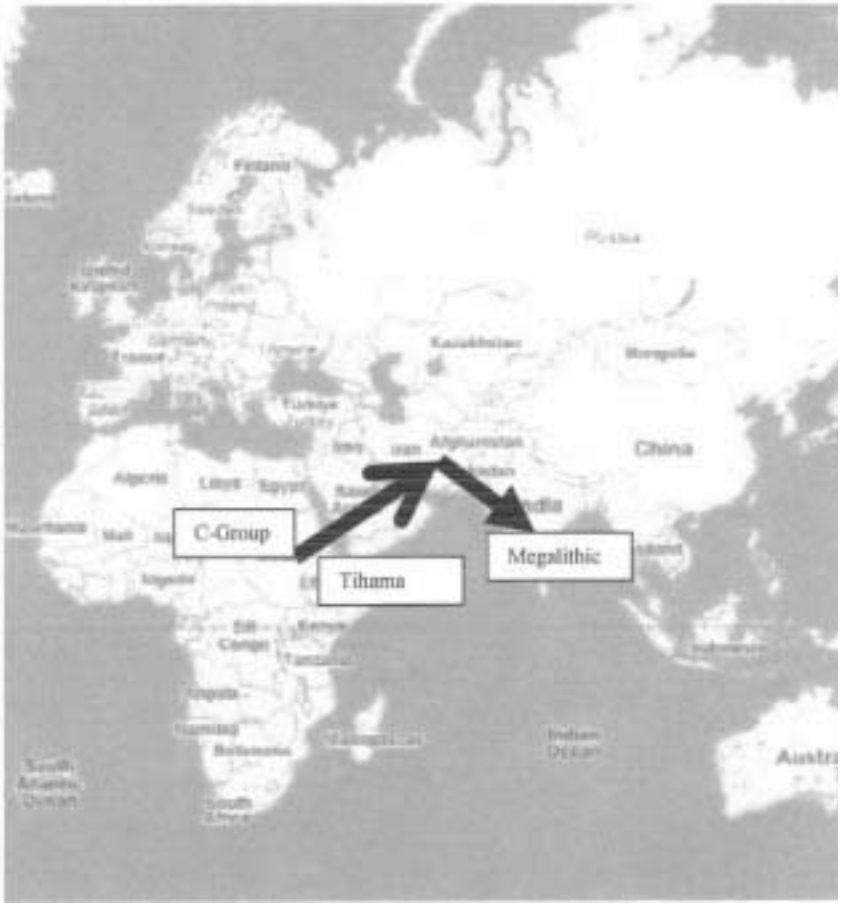

Fig. 1.

haplogroup. These researchers reported that the Indian subcluster M1 was found mainly in Kerala and Karnataka among high caste individuals.

Chaubey et al. (2007) argues that the Indian hg M1 in Kivisild et al. (1999) was changed into hg M3 to avoid parallel nomenclatures. This seems unlikely because Kivisild et al. (1999) already had a nomenclature hg M3, in addition to hg M1. Moreover, a cursory examination of the Indian hg M1 of Kivisild et al. (1999) indicates that this subcluster had transitions at 16311, 16129 and 16189, the same as Ethiopian hg M1.

Chaubey et al (2007) also claims that the work of Rosenberg et al. (2006) supports the absence of African genes among Indians. This is untrue. Rosenberg et al.. (2006) argue that there is a low level of genetic divergence across geographically and linguistically diverse Indian populations based on their analysis solely of Indo-Aryan and Dravidian speakers from India. Winters (2007b) argues that Rosenberg et al. (2006) use of Indo-Aryan and Dravidian speakers as representative samples of diverse Indian populations was not an accurate example of the linguistic and geographical diversity of Indian populations because TMRCA of the Indo-Aryan and Dravidian speakers in India was probably a Proto-Dravidian speaker . A shared MRCA for Dravidian and Indo-Aryan speakers , is supported by the Dravidian substratum in Indo-Aryan languages which indicates that the speakers of these languages lived in intimate contact in North India for 1000s of years (Krishmurti 2001; Winters 2007b).

There are other genetic markers which point to a relationship between South Indians and Africans. Cordaux et al. (2003) during a study of 370bp of the HVS-I control region found that although Indians were closely related to the east Eurasian gene pool, it was noted in Figure 5,that clusters I,II, VII,IX, X, XI,XII,and XIV are found in Africa and India.

B.B. Lal (1963) proved conclusively that the Dravidians were genetically related to the C group of Nubia, given the fact that both groups used 1) a common black-and-red ware (BRW), 2) a common burial complex incorporating megaliths and circular rock enclosures and 3) a common type of rock cut sepulchre. The BRW industry diffused from Nubia, across West Asia into Rajastan, and thence to East Central and South India. (Rao 1972)

This explanation has some merit given the anthropological (Lahavory 1963; Sistri 1966), and osteological (Lahovary 1963; Sastri 1966; Sjoberg 1971) evidence of an African origin of the Dravidian speakers (Aravanan 1980; Sergent 1992; Winters 2007).

Lal's (1963) research suggests that the Dravidian speaking people may have belonged to the C-Group. The C-Group people spread culture from Nubia into Arabia, Iran and India as evidenced by the presence of BRW. Although the Egyptians preferred the cultivation of wheat, many ancient C-Group people were agro-pastoral people who cultivated Millet/Sorghum and raised cattle. It was the Dravidians who probably took this cultigen to India (Winters 2008b).

The C-Group people used a common black and red ware that has been found from the Sudan, across Southwest Asia and the Indian Subcontinent all the way to China (Singh 1982). The earliest use of this BRW was during the Amratian period (c.4000 3500 BC). The users of the BRW were usually called Kushites.

Controversy surrounds the origin of the Dravidian languages. Krishnamurti (2001) outlines the alleged relationship of Dravidian languages to Elamite, Sumerian and Japanese. Although the relationship of Dravidian languages to these languages is disputed, there is abundant evidence that Dravidian languages are genetically related to the Niger-Congo group (Aravanan 1979, 1980 ; Homburger 1948, 1957; Upadhyaya and Upadhyaya, 1976, 1979; Winters 1985, 1988, 1989).

The Proto-Dravidian speakers probably migrated across Arabia to reach India. The first civilization in Arabia was the Tihama culture. The Tihama civilization probably originated in Nubia (Fattovish 2008). It is characterized by the cheesecake or pillbox burial monuments which extend from Dhofar in Nubia, the Gara mountains to Adulis on the Gulf of Zula, to Hadramaut, Qataban, Ausan, Asir, the Main area and Tihama in Arabia. At Tihama and other sites in Arabia we find pottery related to the C-Group people of Nubia (Keall 2000; 2008; Fattovish 2008; Giumlia-Mair 2002).

East African hg M1 and Indian haplogroups are also found in Arabia and Yemen (Metspalu et al. 2004). On the Horn of Africa we find the Indian hg M3a and M3. In Yemen we have the Indian haplogroups M6, M6a, M3 and M4a. On the Horn of Africa and Yemen, no archaic M haplogroups have been found (Abu Amero et al. 2008).

Twelve of the nineteen M lineages found in Arabia belong to M1 (Abu-Amero et al. 2008).

Six of the Arabia hg M lineages come from India. These lineages are; M30 (195A-514dCA-12007-15431); M33 with the diagnostic 2361 transition, M33a (462, 5423,8562,13731, 15908, 16169, 16172); M36 (239, 7271, 15110); M36a; M4b (511, 12007, 16311); M4b2; and the new Indian clade M48 (1598-5460-10750-16192).

Researchers have long speculated on the possibility of Dravidian speakers migrating through Iran to India. This view is supported by the presence of Indian haplogroups in Iran (Gonzalez et al. 2007), and the close relationship between the Dravidian and Elamite languages (McAlpin 1974, 1981).

Eleven of Iran's M haplogroups are found in India. In Iran hg M is found predominately in the Sussa region. Around 5% of Iranians carry the M haplogroup. The most frequent Indian haplogoup in Iran is M3 (Metspula et al. 2004).

Even though most molecular anthropologists believe the Dravidians originated in situ in India. The spread of common archaeological assemblages associated with the C-Group, genetically related languages and genes from Africa across Arabia and Iran into India support a recent expansion of Dravidian speaking people from Africa to India.

The archaeological and molecular evidence provides footprints of a recent hg M ancestral migration from Nubia to India. The existence of the L3a-M motif in the Senegambia characterized by the DdeI site np 10394 and AluI site np 10397 in haplotype AF24; the presence of the nucleotides characteristic of the Indian macrohaplogroup M in Africa and Arabia; and the reality that M1 does not descend from an Asian M macrohaplogroup **(**Sun et al. 2005) make a 'back migration' of M1 to Africa highly unlikely.

The geographical distribution of the archaeological signature of the C-Group people from Nubia to India matches the location of populations carrying hg M. The presence of Indian M sequences in Africa, Arabia, Iran and Yemen (Gonzalez et al.. 2006) in conjunction with the linguistic (Aravanan 1976, 1979; Upadhyaya and Upadhyaya 1976, 1979), archaeological (Lal 1963; Lahovary 1963; Rao 1972) and anthropological (Nayar 1977; Sergent 1995; Sastri 1966) evidences suggest that the Dravidian speakers formerly lived in Nubia and migrated to India over 5000 years ago and the Indian M macrohaplogroups do not have an in situ origin. A recent origin for the Dravidian speakers would explain the absence of genetic material dating to the first out of Africa exit by AMH 60kya among Dravidian speaking Indians, and the numerous M1 transitions found in the Indian M haplogroups (Winters 2008).

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