



Announcement of Population Data

Genetic polymorphisms for 17 Y-chromosomal STR haplotypes in Jammu and Kashmir Saraswat Brahmin population

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ABSTRACT

In this study 17 Y-chromosomal STRs (including DYS19, DYS389I, DYS389II, DYS390, DYS391, DYS392, DYS393, DYS385a/b, DYS437, DYS438, DYS439, DYS448, DYS456, DYS458, DYS635 and Y GATA H4) were analysed using blood samples of 122 unrelated male individuals belonging to Saraswat Brahmin community from Jammu (ID YP000599) and Kashmir (ID YP000600) region of J&K state of India. The allelic frequency distribution and haplotype diversity of 17 Y-chromosomal STR for both the populations were calculated. In the Kashmiri Saraswat group, a total of 109 haplotypes were identified in 122 individuals, of these haplotypes, 101 were found only once. The gene diversity values of STR loci ranged from 0.4813 (DYS391) to 0.8645 (DYS385a/b) for Jammu & Kashmiri Saraswat Brahmins.

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Introduction: Brahmins are included in the uppermost caste of India. They are thought to be part of the Indo-Aryan population group that arrived India in Holocene period era (4000–1500 BC) [1,2]. It is hypothesised that Aryans were part of the Central Asian nomads, who migrated through Iran and Afghanistan and reached India. Their arrival on the Iranian plateau brought the Indo-Iranian branch of the Indo-European language family and eventually, caused the replacement of Dravidian languages in Iran, Pakistan, and most of Northern and Central India [1,3,4]. Saraswat Brahmins (Indo-European language family) is one of the minority communities in India and faced eradication from the Kashmir Valley in late 1989. The population is well educated and has interesting migration history. This ethnic group is spread all over India and differences in their cultural behaviour can be observed according to the geographical locations. Hence, this study was undertaken to get the genetic depict of these populations in the global scenario.

Population: The fresh blood samples of 122 unrelated healthy male individuals belonging to Saraswat Brahmin community were collected randomly from the Jammu and Kashmir state. It has been learnt from their background that at least three generations of these individuals have been living in the above mentioned regions. All the samples were collected with their informed consent.

N: One hundred and twenty-two unrelated male individuals.

DNA extraction: DNA isolation from blood was performed with the Phenol–Chloroform extraction procedure [5].

PCR amplification: PCR for Y-STR loci was performed in fluorescence-based multiplex reaction by using Amp-FLSTR_Y-fler_kit (Applied biosystems, Foster City, CA, USA). Amplifications were performed as per the manufacturer's protocols of the kit. All STR loci were amplified in a PTC-200 (MJ Research Inc.).

Electrophoresis and typing: The PCR products were separated using capillary electrophoresis on an ABI 3130 Genetic Analyzer (Applied biosystems, Foster City, CA, USA). The 17 Y-STR results were analysed using GeneMapper ID v.3.2 (Applied biosystems, Foster City, CA, USA). Allele designations were determined by comparison of the sample fragments with those of allelic ladders provided with kit. The nomenclature of Haplotype follows the guidelines of <http://www.yhrd.org>.

Statistical analysis: Haplotypes and gene diversities were estimated according to Nei [6] and the genotypic frequencies were calculated by counting method. Further, the Haplotype dispersal and mismatch distribution were calculated by the Network software [7] whilst the genetic distances from the other Indian and world populations were calculated by online AMOVA analysis at <http://www.yhrd.org> and DISPAN software [8]. Also, the Neighbour-Joining Tree was constructed by Mega 4.1 software [9].

Results: The haplotypes for 17 STR loci of Jammu and Kashmir had been submitted to Y-STR Haplotype Reference Database (YHRD) and the accession numbers for the population data are <http://www.yhrd.org/YA003549> for Jammu and <http://www.yhrd.org/YA003550> for Kashmir Saraswat Brahmin, respectively. The haplotype distributions for Jammu and Kashmir Saraswat Brahmins are shown in Table 1. Allele frequencies and gene diversity values regarding the 17 STR loci of both the Saraswat Brahmin ethnic groups are publicised in Table 2.

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Table 1

Y-STR haplotypes in 122 unrelated male individuals of Saraswat population living in Jammu & Kashmir (India).

H*	Pop ID	DYS19	DYS389I	DYS389II	DYS390	DYS391	DYS392	DYS393	DYS385	DYS438
H001	JSB	15	12	30	24	11	10	11	11,14	9
H002	JSB	16	13	32	25	11	11	13	11,14	11
H003	JSB	16	13	30	24	11	11	13	11,14	11
H004	JSB	15	15	32	22	10	11	12	14,16	9
H005	JSB	15	14	31	22	10	15	13	12,17	11
H006	JSB	13	14	30	22	10	15	13	12,17	11
H007	JSB	14	13	30	22	10	11	12	18,18	10
H008	JSB	16	14	33	25	10	11	13	11,14	11
H009	JSB	15	13	29	21	10	11	12	15,16	9
H010	JSB	16	12	28	22	10	14	12	9,16	10
H011	JSB	13	14	30	22	10	15	13	12,17	11
H012	JSB	14	14	30	23	10	11	12	16,18	9
H013	JSB	16	13	30	26	11	11	13	11,15	11
H014	JSB	14	14	30	23	10	11	12	13,16	11
H015	JSB	15	14	31	25	10	11	13	11,14	11
H016	JSB	15	13	29	25	11	11	14	10,14	11
H017	JSB	13	14	30	22	10	15	13	12,18	11
H018	JSB	14	14	31	23	10	11	12	15,18	9
H019	JSB	16	13	30	25	11	11	13	11,15	11
H020	JSB	15	14	33	25	10	11	13	11,14	11
H021	JSB	14	14	31	22	10	10	10	16,18	10
H022	JSB	14	13	30	22	11	9	11	13,16	11
H023	JSB	14	13	30	22	11	9	11	13,13	11
H024	JSB	17	12	30	23	11	10	11	11,14	11
H025	JSB	16	12	30	24	11	10	11	11,14	11
H026	JSB	14	13	30	22	11	9	11	13,13	11
H027	JSB	15	13	29	21	12	13	11	9,15	10
H028	JSB	16	12	31	24	11	10	11	11,14	11
H029	JSB	15	12	29	21	12	13	11	9,15	10
H030	JSB	15	12	29	21	12	13	11	11,15	10
H031	JSB	16	12	30	24	11	10	11	12,14	11
H032	JSB	15	13	32	24	10	10	11	11,15	11
H033	JSB	16	12	30	24	11	10	11	11,14	11
H034	JSB	14	13	31	22	11	10	10	15,21	9
H035	JSB	16	12	30	24	10	10	11	12,14	11
H036	JSB	16	12	31	25	11	10	11	11,14	11
H037	JSB	16	13	31	23	10	10	11	11,14	11
H038	JSB	16	12	29	22	10	13	10	9,15	10
H039	JSB	16	12	30	24	11	10	11	12,14	11
H040	JSB	17	12	30	24	10	10	11	12,14	11
H041	JSB	16	12	30	23	9	10	11	11,14	11
H042	JSB	17	11	28	22	10	10	10	16,17	9
H043	JSB	13	11	27	24	10	10	11	13,15	10
H044	JSB	15	12	29	24	11	10	11	11,17	9
H045	JSB	16	13	32	23	10	10	11	12,16	12
H046	JSB	15	12	29	21	10	10	10	14,17	9
H047	JSB	16	12	31	25	10	10	11	11,14	11
H048	JSB	15	13	32	22	10	10	10	15,17	9
H049	JSB	16	12	30	23	10	10	11	11,14	12
H050	JSB	16	12	31	24	10	10	11	11,14	11
H051	JSB	16	12	29	24	10	10	11	11,11	10
H052	JSB	16	13	30	22	10	11	11	10,16	12
H053	KSB	15	13	29	22	10	14	12	9,15	10
H054	KSB	14	14	30	23	10	12	13	13,21	11
H055	KSB	14	11	27	25	10	12	13	12,17	10
H056	KSB	14	13	30	21	10	10	10	11,17	9
H057	KSB	14	12	29	21	10	10	10	10,16	9
H058	KSB	14	14	30	23	10	12	13	13,20	11
H059	KSB	14	14	30	23	10	16	12	14,17	11
H060	KSB	16	13	29	22	11	10	14	15,16	10
H061	KSB	14	14	31	23	10	12	13	13,14	9
H062	KSB	14	11	27	25	10	11	13	12,17	10
H063	KSB	14	14	30	23	10	16	12	14,17	11
H064	KSB	15	14	31	22	11	11	14	13,17	11
H065	KSB	18	13	31	22	10	9	11	20,21	11
H066	KSB	14	14	30	23	10	12	13	13,21	11
H067	KSB	14	13	32	22	10	10	12	11,14	9
H068	KSB	15	14	31	22	11	11	14	13,17	11
H069	KSB	15	14	30	25	10	10	13	17,22	11
H070	KSB	15	14	30	25	10	12	13	11,14	11
H071	KSB	14	13	31	23	10	10	13	13,15	10
H072	KSB	17	13	29	25	10	11	13	12,13	10
H073	KSB	16	13	29	26	11	11	13	11,14	11
H074	KSB	15	13	31	23	10	12	11	11,17	11

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