

Distribution of FGA Allele Frequencies in Italy

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It's known that any new genetic marker must be validated by population studies before it could be accepted for routine analysis in paternity cases and criminal investigation.

At the aim to create our own database of allelic frequencies to practical application we studied the distribution of Hum-FGA alleles in two populations of Italy.

The STR locus FGA (Human alpha fibrogen locus) is located on chromosome 4 (4q28); it is a tetranucleotide repeat from 176 to 224 bp with alleles that may differ in size by increments of just 2 bp.

DNA was extracted from whole-blood of about 120 unrelated, healthy donors living in North Italy (Brescia) and Central Italy (Florence) using commercial kits.

PCR was carried out using the amplification conditions proposed by Barber et al. with some modifications. The alleles were identified by two separation protocols (vertical non denaturing PAGE and 6% denaturing PAGE) followed by silver staining and were typed by side to side comparison with a commercially available ladder consisting of a mix of sequence

products. A total of 28 genotypes corresponding to 12 alleles were observed. The resulting allele frequencies are shown in the following table:

Allele	Frequency	Allele	Frequency	Allele	Frequency
17	0.0083	21	0.2000	23.2	0.0250
18	0.0250	22	0.1333	24	0.1667
19	0.0500	22.2	0.0167	25	0.0033
20	0.1667	23	0.1667	27	0.0083

No deviation from Hardy-Weinberg equilibrium was identified by chi-square test; no significant differences from other Italian and European populations were found.