

FOR THE RECORD

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Twelve-Locus Y-STR Haplotypes in the Flemish Population

POPULATION: One hundred and thirteen unrelated Flemish men from Belgium.

KEYWORDS: forensic science, population genetics, short tandem repeat, Y chromosome, haplotype, DYS19, DYS385, DYS389 I, DYS389 II, DYS390, DYS391, DYS392, DYS393, DYS437, DYS438, DYS439, Flemish, Belgium

The Flemish are the Dutch-speaking inhabitants of the northern part of Belgium and make up 60% of the population. We performed a population genetic study on 12 Y chromosome STRs, including the loci defined as the European minimal haplotype (1) (DYS19, DYS385 a/b, DYS389 I, DYS389 II, DYS390, DYS391, DYS392, and DYS393), plus two loci (DYS438 and DYS439)

added to this panel by the SWGDAM (2), and the locus DYS437.

Buccal swabs were collected from 113 unrelated Flemish males, representing the alleged fathers from paternity cases. DNA was extracted using the Qiaamp DNA kit (Qiagen, Venlo, the Netherlands) (3). DNA was amplified using the Power Plex[®]Y kit

TABLE 1—Haplotypes of 12 Y-STR loci in a sample of 113 Flemish men.

Haplotype	n	DYS19	DYS385	DYS389I	DYS389II	DYS390	DYS391	DYS392	DYS393	DYS437	DYS438	DYS439
H1	1	12	11, 14	13	29	23	10	13	13	15	12	13
H2	1	13	12, 15	13	29	22	9	11	13	14	10	12
H3	1	13	13, 14	14	30	24	9	11	13	14	10	10
H4	1	13	13, 17	13	30	24	10	11	13	14	10	12
H5	1	13	16, 17	13	31	24	10	11	13	14	10	13
H6	1	13	16, 18	13	30	24	10	11	13	14	10	13
H7	1	14	11	13	29	25	10	13	13	15	12	13
H8	1	14	11, 12	13	29	23	11	13	13	15	12	12
H9	1	14	11, 13	13	28	24	11	13	13	15	12	12
H10	1	14	11, 13	13	29	23	11	13	13	15	12	12
H11	1	14	11, 13	13	29	24	11	13	13	15	12	10
H12	1	14	11, 13	13	29	24	11	13	13	15	12	12
H13	1	14	11, 14	12	28	23	10	11	13	16	10	12
H14	1	14	11, 14	13	28	23	10	13	13	15	12	11
H15	1	14	11, 14	13	28	24	11	13	13	15	12	14
H16	1	14	11, 14	13	29	23	11	13	13	14	12	12
H17	1	14	11, 14	13	29	23	11	13	13	15	12	12
H18	1	14	11, 14	13	29	23	11	13	14	15	12	12
H19	1	14	11, 14	13	29	24	10	13	13	15	13	13
H20	1	14	11, 14	13	29	24	11	13	12	14	12	11
H21	1	14	11, 14	13	29	24	11	13	13	14	12	11
H22	1	14	11, 14	13	29	24	11	13	13	14	12	13
H23	1	14	11, 14	13	29	24	11	13	13	15	12	11
H24	2	14	11, 14	13	29	24	11	13	13	15	12	12
H25	1	14	11, 14	13	29	24	11	13	13	15	12	13
H26	1	14	11, 14	13	29	24	11	13	13	15	13	13
H27	1	14	11, 14	13	29	24	11	13	15	15	12	11
H28	2	14	11, 14	13	29	25	11	13	13	15	12	11
H29	1	14	11, 14	13	29	25	11	13	13	15	12	12
H30	1	14	11, 14	13	30	23	11	13	13	15	12	11

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TABLE 1—Continued.

Haplotype	<i>n</i>	DYS19	DYS385	DYS389I	DYS389II	DYS390	DYS391	DYS392	DYS393	DYS437	DYS438	DYS439
H31	1	14	11, 14	13	31	24	10	13	13	15	12	11
H32	1	14	11, 14	14	30	23	10	13	13	15	12	12
H33	1	14	11, 14	14	30	23	11	13	13	15	12	12
H34	1	14	11, 14	14	30	24	11	13	13	15	12	12
H35	1	14	11, 14	14	30	25	11	13	14	14	12	13
H36	1	14	11, 14	14	31	23	11	14	13	15	12	13
H37	1	14	11, 15	13	28	23	10	13	13	15	12	11
H38	1	14	11, 15	13	28	24	11	13	13	14	12	12
H39	1	14	11, 15	13	29	23	11	13	13	14	12	12
H40	1	14	11, 15	13	29	23	11	13	14	14	12	12
H41	1	14	11, 15	13	29	23	11	14	13	15	12	12
H42	1	14	11, 15	13	29	24	11	13	13	15	12	11
H43	2	14	11, 15	13	29	24	11	13	13	15	12	12
H44	1	14	11, 15	13	29	24	11	13	13	16	12	11
H45	1	14	11, 15	13	30	24	11	13	13	15	12	12
H46	1	14	11, 15	13	30	25	10	13	13	14	12	12
H47	1	14	11, 15	13	31	23	11	13	13	16	12	12
H48	1	14	11, 15	14	30	24	10	14	13	15	12	13
H49	1	14	11, 16	13	29	23	11	13	14	15	12	12
H50	1	14	12, 13	14	31	24	10	13	13	15	12	12
H51	1	14	12, 14	12	28	24	10	13	13	15	12	11
H52	1	14	12, 14	13	28	23	11	13	13	15	12	11
H53	1	14	12, 14	13	29	24	11	13	13	15	12	12
H54	1	14	12, 14	13	29	25	11	13	13	14	12	11
H55	1	14	12, 15	13	29	25	10	13	13	15	11	12
H56	1	14	13	12	28	22	10	11	14	16	10	12
H57	3	14	13, 14	12	28	22	10	11	13	16	10	11
H58	1	14	13, 14	12	28	22	10	11	13	16	10	12
H59	1	14	13, 14	12	28	22	11	11	13	16	10	11
H60	1	14	13, 14	12	28	22	11	11	13	16	10	12
H61	1	14	13, 14	12	28	22	11	11	14	16	10	11
H62	1	14	13, 14	12	28	23	10	11	13	16	10	11
H63	1	14	13, 14	12	28	23	10	11	14	16	10	12
H64	1	14	13, 14	12	29	22	10	11	13	16	10	12
H65	1	14	13, 16	13	29	23	10	11	12	14	9	12
H66	1	14	14	12	28	22	10	11	13	16	10	12
H67	1	14	14	12	28	23	10	11	13	16	10	11
H68	1	14	14, 15	12	28	22	10	11	14	16	10	12
H69	1	14	14, 15	13	30	24	11	14	13	15	12	12
H70	1	14	14, 15	13	31	25	11	13	13	15	12	12
H71	1	14	14, 16	13	30	24	10	11	12	15	8	12
H72	1	14	15	14	32	23	10	12	14	14	10	11
H73	1	14	16	11	27	23	10	13	13	16	10	11
H74	1	14	9, 14	13	29	23	11	13	13	15	12	11
H75	1	15	11, 13	13	29	23	10	13	14	15	12	12
H76	2	15	11, 14	13	29	23	11	13	13	15	12	11
H77	1	15	11, 14	13	29	24	11	13	12	14	12	14
H78	1	15	11, 14	13	29	24	12	13	13	15	12	12
H79	1	15	11, 14	14	30	24	11	13	14	15	12	11
H80	1	15	11, 14	14	31	27	11	13	13	15	12	12
H81	1	15	12, 16	13	29	24	9	11	12	14	9	12
H82	3	15	13, 14	12	28	22	10	11	13	15	10	11
H83	1	15	13, 14	12	28	22	10	11	13	16	10	11
H84	1	15	13, 14	12	28	22	10	11	14	16	10	11
H85	1	15	13, 16	13	29	24	9	11	12	14	9	11
H86	1	15	13, 18	12	29	24	10	11	14	16	10	11
H87	1	15	14	12	28	22	11	11	13	16	10	11
H88	1	15	14	12	29	22	10	11	14	16	10	12
H89	1	15	14, 16	12	28	24	10	11	12	15	9	12
H90	1	15	15, 16	13	30	23	10	12	15	14	10	11
H91	1	15	15, 16	13	31	23	10	12	13	14	10	12
H92	1	15	15, 17	12	28	23	11	12	14	15	10	11
H93	1	15	16	13	31	23	10	12	13	14	10	12
H94	1	15	16, 18	12	27	24	10	11	12	14	9	11
H95	1	15	17	14	31	22	10	12	14	14	10	11
H96	1	16	11, 14	13	29	23	10	13	13	15	12	11
H97	1	16	11, 15	12	28	21	11	11	14	16	10	11
H98	1	16	11, 16	14	30	23	11	13	13	15	12	12
H99	1	16	12, 13	12	28	22	10	11	13	16	10	11
H100	1	16	14	12	29	23	10	12	15	15	10	10
H101	1	16	14, 17	12	28	22	10	10	14	16	10	12
H102	1	16	14, 17	13	30	24	9	11	12	14	9	12
H103	1	16	14.2, 16	14	30	23	10	12	13	15	10	11

TABLE 1—Continued.

Haplotype	<i>n</i>	DYS19	DYS385	DYS389I	DYS389II	DYS390	DYS391	DYS392	DYS393	DYS437	DYS438	DYS439
H104	1	16	15	13	29	23	11	12	13	14	10	11
H105	1	17	12	13	28	23	10	11	13	15	10	12

Haplotype diversity: 0.9984; discrimination capacity: 0.9292.

(Promega, Madison, WI), following the manufacturer's instructions. PCR products were subsequently analyzed by capillary electrophoresis on an ABI 3100 Genetic Analyzer (Applied Biosystems, Foster City, CA) (4). Alleles were named according to the recommendations of the DNA Commission of the International Society for Forensic Genetics (5). Haplotype diversity was estimated applying Nei's formula (6); the discrimination capacity was determined as the proportion of different haplotypes (7).

Table 1 shows the 105 different 12-locus Y-STR haplotypes observed in the sample of 113 Flemish men. Of these, 99 haplotypes occurred once, four haplotypes were counted twice, and two haplotypes were observed in three males. This results in a haplotype diversity of 0.9984 and in a discrimination capacity of 0.9292.

The complete dataset is available upon request to the corresponding author Gerhard Mertens via e-mail at gerhard.mertens@uza.be

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