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FOR THE RECORD

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Genetic Data of 11 Y-Chromosome STRs in Males from a North of Portugal Population

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POPULATION: 160 unrelated, autochthonous healthy males from the North of Portugal, involved in paternity testing.

KEYWORDS: forensic science, DNA typing, Y-chromosome, North of Portugal, population genetics, short tandem repeats, haplotype, DYS391, DYS389 I, DYS439, DYS389 II, DYS438, DYS437, DYS19, DYS392, DYS393, DYS390, DYS385

DNA was extracted from blood stains using the Chelex® method (1). The co-amplification of DYS391, DYS389 I, DYS439, DYS389 II, DYS438, DYS437, DYS19, DYS392, DYS393, DYS390, DYS385 Y-chromosome STRs was performed using a commercial Kit, the PowerPlex® Y System (Promega Corporation), according to the protocol suggested by the manufacturer as well as cycling conditions (Technical Manual) and carried out using a thermocycler GeneAmp® PCR System 9700 (Applied Biosystems). About 5–50 ng of genomic DNA was used in a final 25 μL reaction volume.

The amplified products were detected and separated by capillary electrophoresis using an ABI PRISM® 3100 Genetic Analyzer (Applied Biosystems). Fragment sizes were determined automatically using the Genescan® Analysis Software v. 3.7 and by comparison with allelic ladders. Allele nomenclature was proposed by (3).

Allele frequencies for the eleven Y-chromosome STRs were estimated by the direct counting method (Table 1), haplotype (Table 2) and gene diversities (Table 1) were calculated according to Nei (4) using the Arlequin software package (5). A total of 143 different haplotypes were observed, 128 of them being unique. The two most common haplotype, were 11, 14, 12, 30, 12, 15, 14, 13, 13, 24, 11–14 and 11, 13, 12, 29, 12, 15, 14, 12, 13, 24, 11-11 (for DYS391, DYS389I, DYS439, DYS389II, DYS438, DYS437, DYS19, DYS392, DYS393, DYS390, DYS385, respectively). The haplotype diversity for all Y-chromosome STRs studied was 0.9985 ± 0.0009. The generated data show that the haplotype constructed using the eleven Y-chromosome studied with the PowerPlex Y System is highly polymorphic and discriminative in the North of Portugal population.

The complete dataset is available upon request at biologia@dpinml.mj.pt.

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TABLE 1—*Allele frequencies and gene diversity value at the eleven Y-chromosome STRs in a North of Portugal population sample (n = 160).*

Allele	DYS391	DYS389 I	DYS439	DYS389 II	DYS438	DYS437	DYS19	DYS392	DYS393	DYS390	Genotype	DYS385
8								0.006			10–11	0.006
9	0.081		0.013		0.087			. . .			10–14	0.006
10	0.475	0.038	0.075		0.312			0.006			10–15	0.006
11	0.425	0.006	0.325		0.069			0.363			11–11	0.038
12	0.019	0.150	0.463		0.494			0.062	0.188		11–12	0.019
13		0.675	0.125		0.038	0.013	0.162	0.550	0.669		11–13	0.038
14		0.119				0.312	0.556	0.013	0.125		11–14	0.325
15		0.013				0.562	0.225		0.019		11–15	0.056
16						0.106	0.050				11–16	0.006
17						0.006	0.006				12–12	0.013
18											12–13	0.006
19											12–14	0.056
20											12–15	0.013
21										0.025	12–19	0.006
22										0.069	13–14	0.094
23										0.181	13–15	0.031
24										0.613	13–16	0.025
25				0.006						0.112	13–17	0.019
26				0.031							13–18	0.025
27				0.019							13–19	0.006
28				0.112							14–14	0.019
29				0.444							14–15	0.019
30				0.281							14–16	0.006
31				0.100							14–17	0.006
32				0.006							14–18	0.013
											15–15	0.013
											15–16	0.019
											15–17	0.013
											16–16	0.006
											16–17	0.013
											16–18	0.013
											16–19	0.006
											16–20	0.006
											17–17	0.006
											17–18	0.031
											18–18	0.006
											18–19	0.013
h^a												

h^a: Gene diversity value. 0.621112 ± 0.325385.

TABLE 2—*Distribution of the Y-chromosome STRs haplotypes in the North of Portugal population (n = 160).*

Ha	DYS391	DYS389 I	DYS439	DYS389 II	DYS438	DYS437	DYS19	DYS392	DYS393	DYS390	DYS385	n[b]
1	10	13	11	29	12	15	14	13	13	24	11–14	2
2	10	13	10	30	10	14	13	8	13	24	18–19	1
3	11	13	12	29	12	15	15	13	14	23	12–14	1
4	9	13	10	29	10	14	13	11	13	23	13–14	1
5	11	13	11	29	12	15	13	13	12	24	13–14	1
6	10	13	11	30	10	14	14	11	12	23	13–18	2
7	10	13	11	31	10	14	15	11	12	24	14–18	1
8	10	12	12	28	10	15	15	11	14	22	15–16	1
9	11	13	11	28	10	15	17	11	13	23	11–12	1
10	11	13	12	29	12	14	14	13	13	24	11–14	1
11	11	13	11	29	10	15	14	13	14	24	13–14	1
12	11	13	11	29	12	15	15	13	13	24	11–13	1
13	10	13	11	31	10	14	13	11	13	24	16–17	1
14	11	14	12	31	12	14	14	13	13	24	10–11	1
15	11	13	12	29	12	13	14	13	13	24	11–14	1
16	11	13	12	30	12	15	14	13	13	24	12–14	2
17	10	12	11	28	9	16	15	11	13	24	13–17	1
18	11	14	13	30	12	15	13	13	13	24	11–14	1
19	9	13	10	29	10	14	13	12	13	23	13–14	1
20	10	12	12	28	10	16	14	11	12	24	13–14	1
21	11	14	12	30	12	15	14	13	13	24	11–14	3
22	10	13	12	30	12	15	15	13	13	24	11–14	1
23	10	14	12	30	12	15	14	13	13	24	10–15	2
24	10	13	13	29	12	15	14	13	13	23	11–14	1
25	10	13	11	29	12	15	14	13	14	25	11–14	1
26	10	14	10	30	10	14	13	11	13	24	13–14	1
27	11	13	12	29	12	13	14	13	12	24	11–15	1
28	11	13	12	30	12	15	14	13	13	24	11–14	1
29	10	13	12	30	12	14	15	13	13	24	11–15	1
30	10	13	13	30	12	15	14	14	13	24	12–15	1
31	11	13	12	29	12	15	14	13	13	24	11–15	2
32	10	13	11	29	12	15	14	13	14	25	10–14	1
33	9	14	10	30	10	14	13	11	13	23	13–14	2
34	10	14	9	30	10	14	13	11	13	24	13–14	1
35	11	13	12	29	12	15	14	12	13	24	11–11	2
36	11	13	12	29	10	15	14	13	13	23	11–14	1
37	11	13	12	28	12	15	14	13	13	24	11–14	1
38	11	10	12	26	12	15	14	13	13	24	11–14	1
39	11	10	13	26	12	15	14	13	13	22	11–14	1
40	10	10	12	25	10	14	16	11	13	23	12–12	1
41	11	10	12	26	13	15	14	13	13	24	11–13	1
42	10	10	11	26	9	15	14	11	12	25	13–14	1
43	11	10	12	27	12	14	15	13	13	24	11–13	1
44	9	11	10	27	10	14	13	11	13	24	13–14	1
45	11	14	12	31	12	15	14	13	12	24	11–14	1
46	11	12	12	28	12	15	16	13	13	24	11–15	1
47	11	14	12	30	12	15	14	13	13	24	11–13	1
48	10	12	12	29	10	14	13	11	13	24	16–18	1
49	10	13	12	30	10	14	13	11	13	24	17–18	1
50	11	13	12	29	13	15	14	13	13	24	11–14	1
51	9	13	11	32	9	15	14	11	12	23	13–17	1
52	11	13	13	29	12	15	13	13	13	24	11–14	1
53	11	13	11	30	12	15	14	13	13	24	11–12	1
54	10	14	11	30	12	15	15	13	14	24	11–14	1
55	10	12	12	28	11	16	16	11	13	24	13–15	1
56	10	13	12	31	10	14	15	13	14	25	16–20	1
57	10	13	10	30	10	14	13	11	13	25	17–18	1
58	11	13	13	30	11	14	14	13	13	24	12–13	1
59	10	12	13	30	11	16	15	11	14	22	15–15	1
60	11	13	12	29	12	15	14	13	13	24	12–14	1
61	10	13	12	29	12	15	14	13	13	24	11–14	2
62	11	13	12	29	13	15	14	13	13	24	11–13	1
63	11	13	12	30	12	15	14	13	13	24	11–11	1
64	10	13	12	29	12	15	14	13	13	24	11–15	1
65	10	13	12	29	12	15	14	13	13	25	11–14	1
66	11	15	12	31	12	14	14	13	13	24	11–14	1
67	11	15	11	31	12	14	14	13	13	24	11–14	1
68	11	13	12	29	12	15	14	13	13	25	11–11	2
69	10	13	11	29	11	14	15	11	15	21	16–19	1
70	11	13	11	29	10	15	16	12	14	23	14–15	1
71	9	13	12	29	9	14	15	11	12	23	13–16	2
72	11	13	11	29	12	15	14	13	13	24	11–14	2

TABLE 2—*Continued.*

Ha	DYS391	DYS389 I	DYS439	DYS389 II	DYS438	DYS437	DYS19	DYS392	DYS393	DYS390	DYS385	n[b]
73	12	13	11	29	12	15	14	13	13	24	11–14	1
74	10	13	9	29	12	15	14	13	13	24	11–14	1
75	11	12	12	30	10	16	15	11	15	21	13–15	1
76	9	13	11	30	10	14	15	12	13	25	17–17	1
77	9	14	11	31	9	14	13	11	14	24	16–17	1
78	10	13	11	29	10	14	14	11	12	23	13–19	1
79	11	13	12	29	12	15	14	13	14	24	11–14	1
80	10	12	11	29	10	16	15	11	14	21	13–16	1
81	10	12	11	29	10	14	13	11	13	24	17–18	1
82	10	13	12	30	10	14	13	11	14	25	15–17	1
83	10	13	11	29	9	15	14	11	12	24	14–17	1
84	10	12	10	30	11	14	13	11	12	24	17–18	1
85	10	13	12	29	9	15	13	13	14	23	15–16	1
86	11	13	13	29	10	15	15	13	13	25	11–14	1
87	10	13	13	28	10	14	16	11	13	23	12–12	1
88	10	14	11	30	12	14	14	13	13	24	11–14	1
89	11	13	13	29	13	15	14	13	12	24	11–12	1
90	11	13	11	29	12	14	15	13	13	24	11–14	1
91	10	13	12	29	12	15	13	13	14	23	15–16	1
92	11	13	13	29	12	15	14	12	13	24	11–14	1
93	10	13	12	29	12	15	13	13	12	23	12–14	1
94	10	14	13	30	12	14	14	13	13	24	11–14	1
95	10	12	11	28	10	16	15	11	13	22	13–15	1
96	11	13	12	30	12	14	14	13	13	25	12–14	1
97	10	13	12	30	10	14	14	10	13	24	18–19	1
98	10	13	12	29	13	15	14	13	13	24	11–14	1
99	11	13	12	29	12	16	14	13	13	24	11–14	2
100	12	13	10	31	11	14	15	11	13	25	11–14	1
101	11	13	11	29	12	15	14	13	13	24	11–15	1
102	10	13	12	28	12	15	14	13	13	24	12–14	1
103	11	13	12	29	11	15	14	13	13	24	11–14	2
104	10	13	13	31	11	14	15	11	15	21	17–18	1
105	11	13	13	28	12	15	14	13	13	24	11–14	1
106	9	12	12	29	11	14	14	11	12	25	13–16	1
107	10	14	13	31	10	14	13	11	13	24	16–18	1
108	11	13	11	30	12	15	15	13	14	24	11–14	1
109	11	13	12	29	12	15	14	13	13	24	11–14	1
110	10	13	11	30	10	14	14	11	12	23	14–18	1
111	11	13	12	29	12	15	15	13	13	24	11–14	1
112	11	13	13	31	12	15	14	13	13	24	11–14	1
113	11	13	13	29	10	15	14	13	13	24	11–14	1
114	11	13	12	29	10	15	15	12	14	23	15–15	1
115	10	12	12	28	10	16	14	11	13	22	14–14	1
116	10	13	12	29	9	15	14	11	12	23	16–16	1
117	10	12	11	30	10	15	15	11	14	22	14–15	1
118	10	13	11	29	13	15	14	13	12	25	11–14	1
119	11	12	13	29	10	16	14	12	13	23	14–14	1
120	10	13	11	31	10	14	15	11	12	24	13–18	1
121	11	13	13	30	12	15	14	13	12	24	11–15	1
122	11	12	10	26	12	15	15	14	13	24	12–14	1
123	10	12	11	27	10	16	14	11	13	22	12–15	1
124	10	12	11	28	10	16	14	11	13	23	14–15	1
125	10	13	11	31	11	14	15	11	14	23	15–17	1
126	10	12	11	28	10	16	16	11	14	22	13–14	1
127	10	13	11	29	12	15	14	13	12	24	11–14	1
128	11	13	11	30	12	15	14	13	13	24	11–16	1
129	10	14	11	31	9	14	15	13	12	23	14–14	1
130	9	13	10	29	10	14	13	11	13	24	13–14	1
131	10	12	12	28	10	16	15	11	13	22	13–14	2
132	10	13	12	29	12	17	14	13	13	23	11–13	1
133	10	12	12	28	10	15	13	11	12	24	12–19	1
134	10	13	11	30	10	14	14	11	12	23	13–15	1
135	9	13	11	30	12	15	14	12	13	24	11–14	1
136	10	12	11	28	9	16	16	11	12	25	13–17	1
137	11	14	12	30	12	15	14	13	13	24	12–14	1
138	10	13	11	30	9	15	15	11	12	25	14–16	1
139	12	13	13	29	12	15	15	13	13	24	11–14	1
140	10	13	11	31	9	15	14	11	12	22	13–15	1
141	10	13	11	29	12	15	16	13	13	24	11–15	1
142	10	13	12	30	10	14	13	11	13	25	18–18	1
143	10	13	11	29	9	15	15	11	12	24	13–18	1

H[a]: Haplotype; n[b]: number of individuals observed for each haplotype.