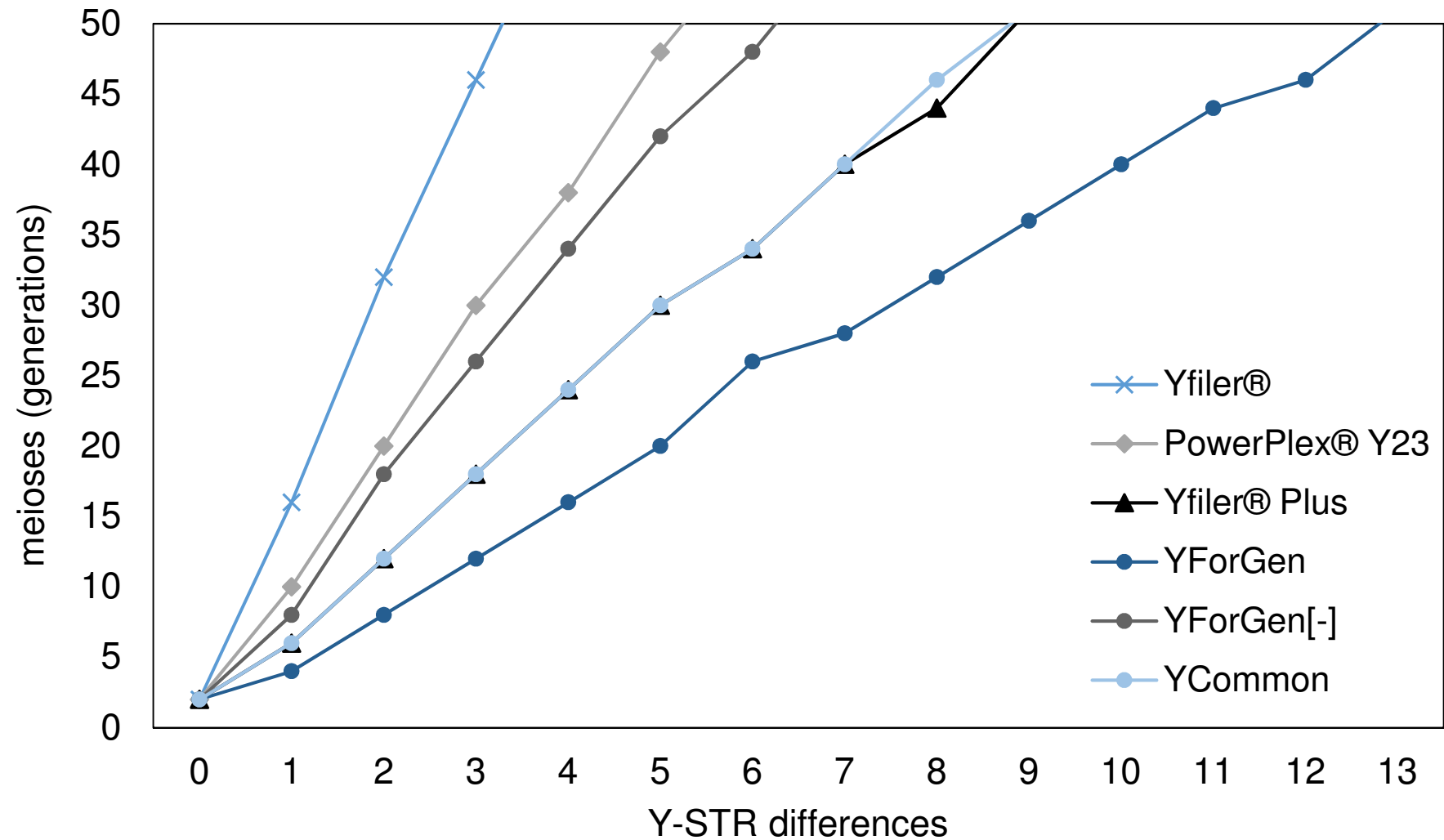


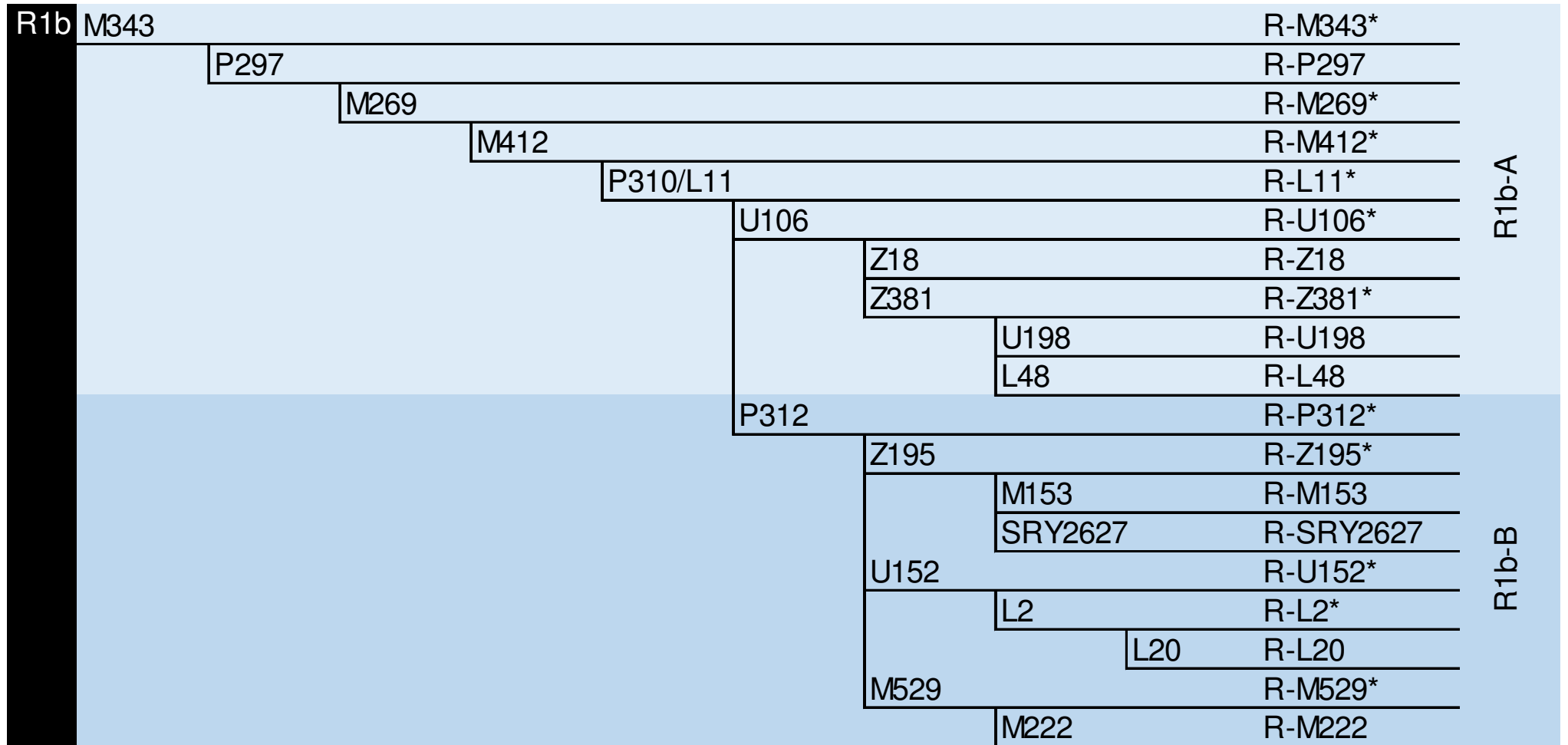
# Ysurnames? The patrilineal Y-chromosome and surname correlation for DNA kinship research.

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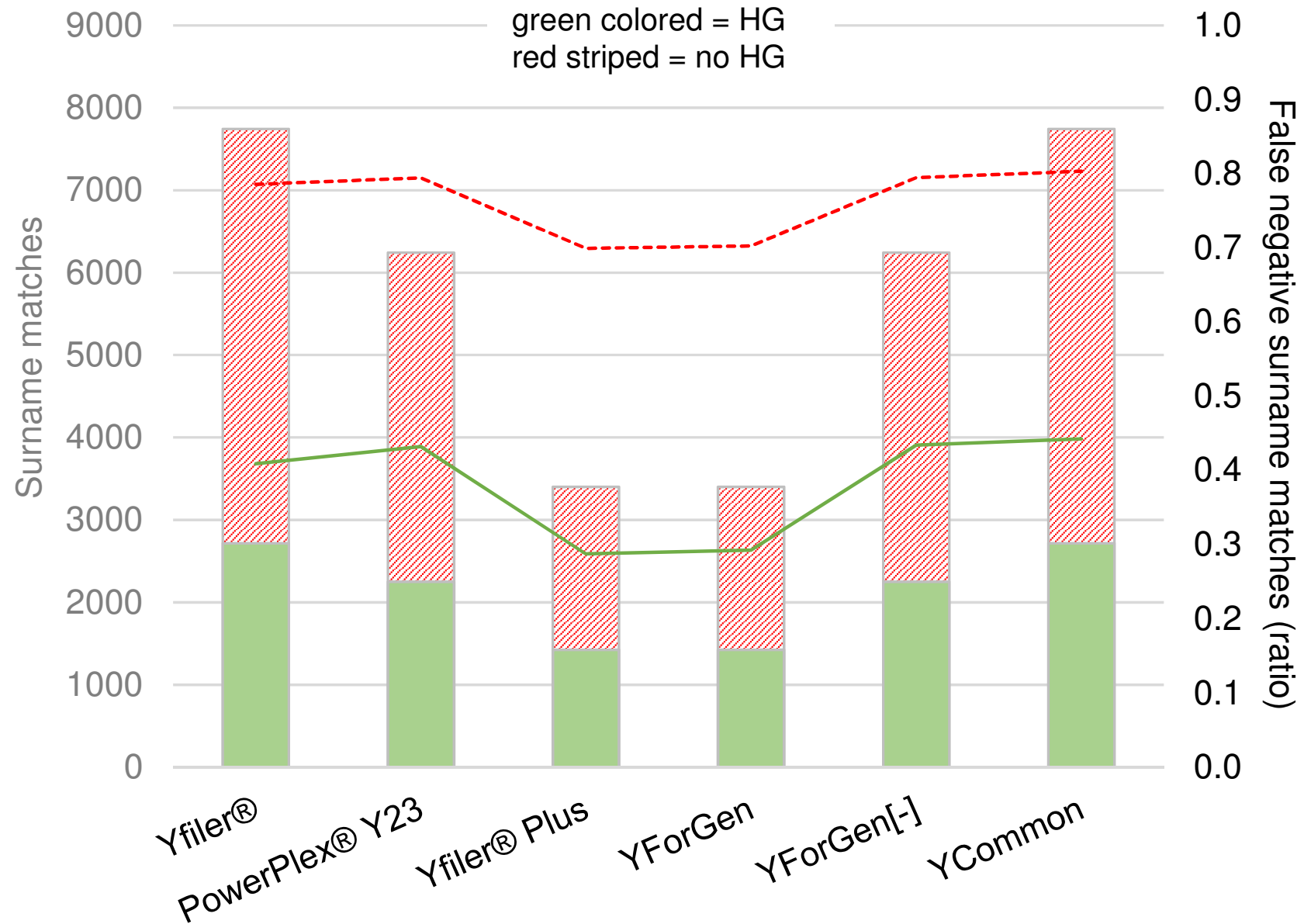
## Supplemental Figures



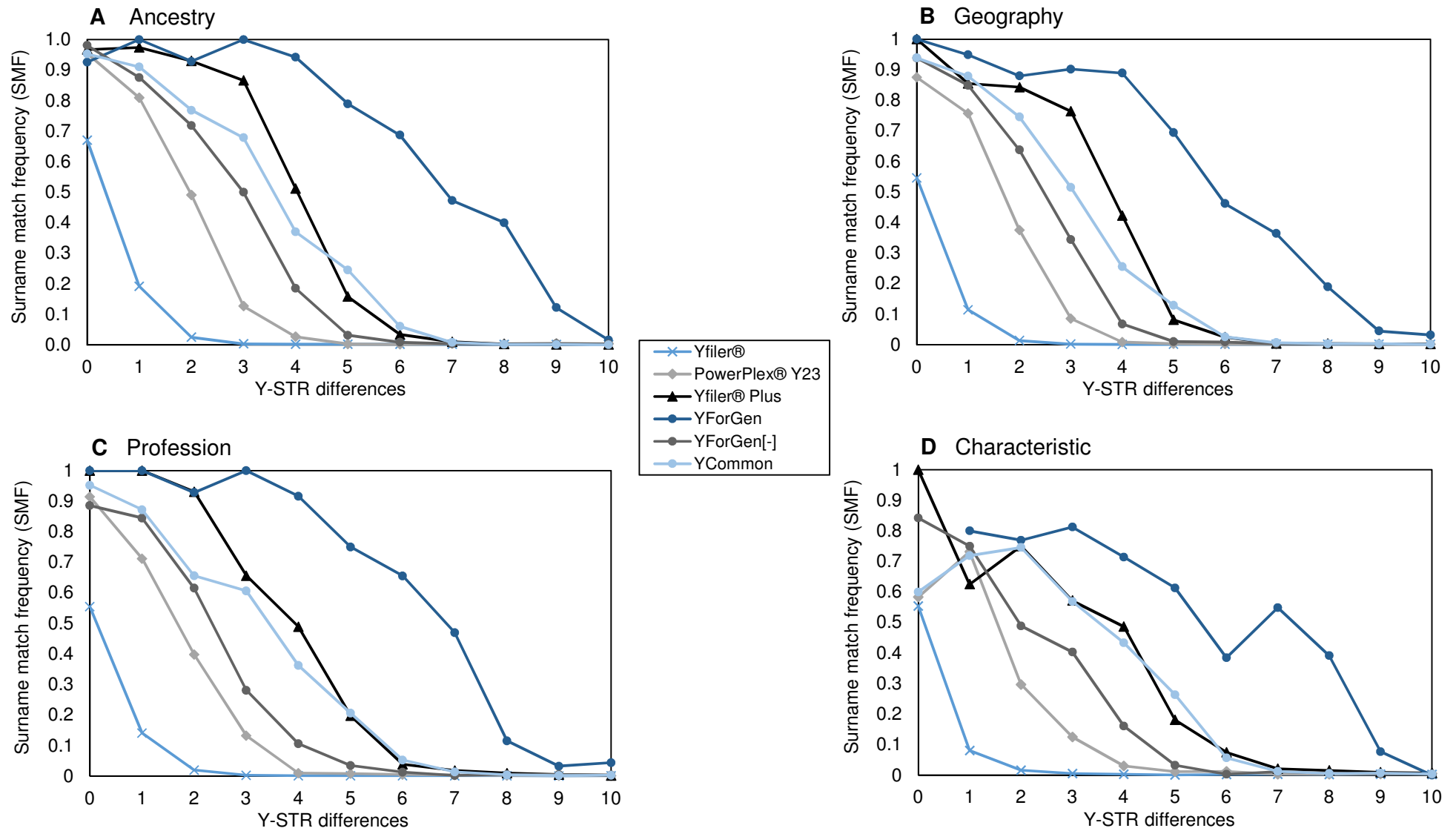
**Figure S1:** Generation probability curves per Y-haplotype kit based on the online tMRCA calculator of McDonald.



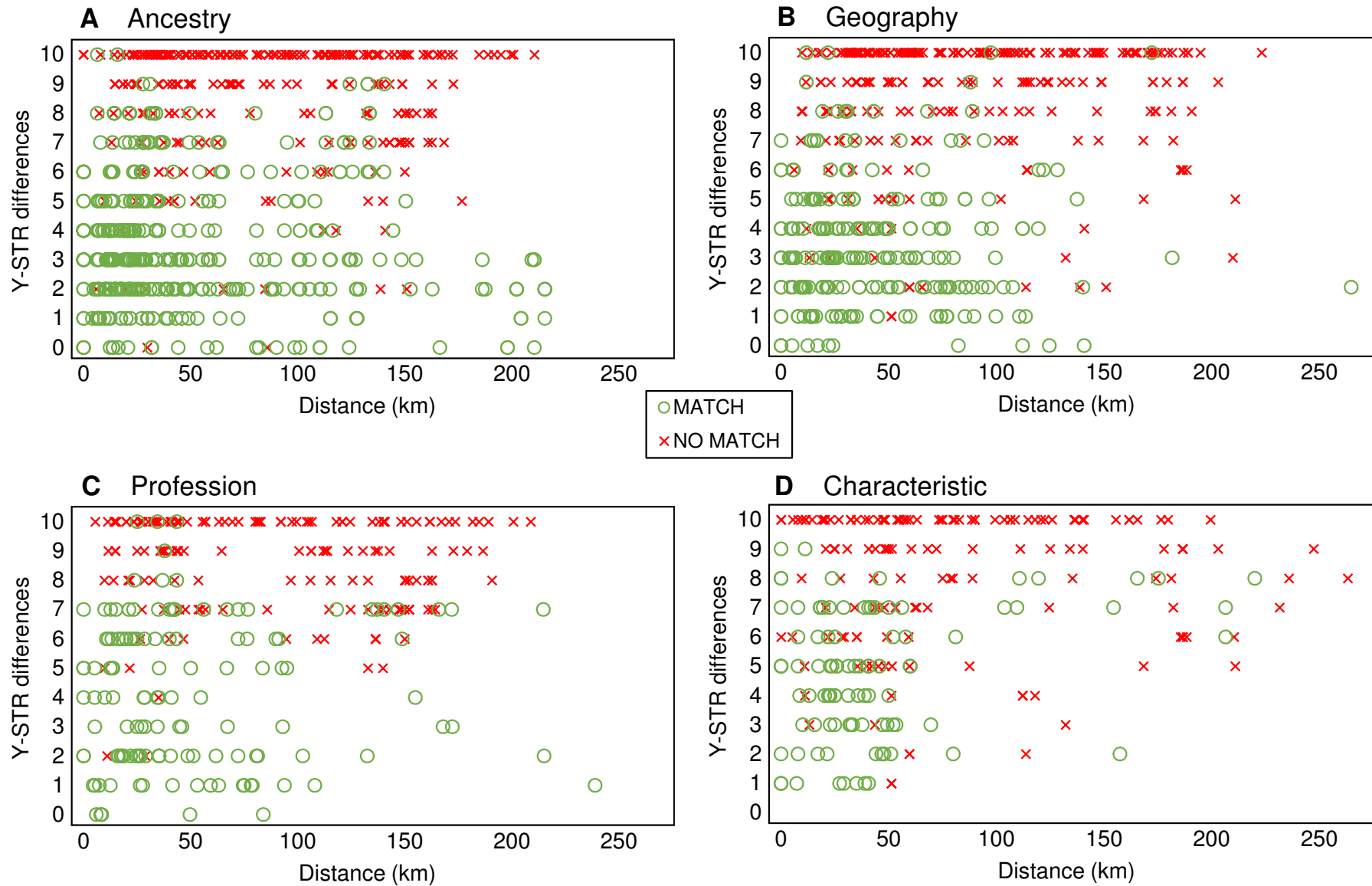
**Figure S2:** A detailed Y-SNP phylogenetic tree of the subhaplogroup 'R1b' subdivision into 'R1b-A' (top) and 'R1b-B' (bottom).



**Figure S3:** False negative surname matches per Y-haplotype with (green) and without (red) Y-SNP subhaplogroup match as a boundary condition. Bars: number of surname matches; lines: false negative surname matches.



**Figure S4:** SMF results per Y-haplotype for the four surname origin groups (A) Ancestry, (B) Geography, (C) Profession and (D) Characteristic.



**Figure S5:** Y-STR differences from 0-10 with the in-house YForGen kit for (no) surname match (green circle: match; red cross: no match) were plotted against the distance of residence (km) for the surname origin groups (A) Ancestry, (B) Geography, (C) Profession and (D) Characteristic.

## Supplemental Tables

**Table S1:** A list of the included Y-STRs and their mutation rates within the six Y-haplotype kits.

Y-STR	Yfiler®	PowerPlex Y23	Yfiler® Plus	YForGen	YForGen[-]	Ycommon	Mutation Rate ( $\times 10^{-3}$ ) Claerhout <i>et al.</i> <sup>27</sup>
<i>DYS388</i>	-	-	-	+	+	+	0.28
<i>DYS438</i>	+	+	+	+	+	+	0.28
<i>DYS454</i>	-	-	-	+	+	+	0.57
<i>YCAII-a</i>	-	-	-	+	+	+	0.57
<i>YCAII-b</i>	-	-	-	+	+	+	0.57
<i>DYS392</i>	+	+	+	+	+	+	1.13
<i>DYS393</i>	+	+	+	+	+	+	1.13
<i>DYS426</i>	-	-	-	+	+	+	1.13
<i>DYS643</i>	-	+	-	+	+	-	1.13
<i>DYS459-a</i>	-	-	-	+	+	+	1.27
<i>DYS459-b</i>	-	-	-	+	+	+	1.27
<i>DYS448</i>	+	+	+	+	+	+	1.41
<i>DYS455</i>	-	-	-	+	+	+	1.41
<i>GATA H4.1</i>	+	+	+	+	+	+	1.98
<i>DYS19</i>	+	+	+	+	+	+	2.26
<i>DYS607</i>	-	-	-	+	+	+	2.54
<i>DYS385-a</i>	+	+	+	+	+	+	2.69
<i>DYS385-b</i>	+	+	+	+	+	+	2.69
<i>DYS390</i>	+	+	+	+	+	+	3.11
<i>DYS437</i>	+	+	+	+	+	+	3.11
<i>DYS439</i>	+	+	+	+	+	+	3.67
<i>DYS447</i>	-	-	-	+	+	+	3.67
<i>DYS533</i>	-	+	+	+	+	-	3.96
<i>DYS464-a</i>	-	-	-	+	+	+	4.10
<i>DYS464-b</i>	-	-	-	+	+	+	4.10
<i>DYS464-c</i>	-	-	-	+	+	+	4.10
<i>DYS464-d</i>	-	-	-	+	+	+	4.10
<i>DYS389I</i>	+	+	+	+	+	+	4.24
<i>DYS391</i>	+	+	+	+	+	+	4.52
<i>DYS549</i>	-	+	-	+	+	-	4.52
<i>DYS389II</i>	+	+	+	+	+	+	4.80
<i>DYS442</i>	-	-	-	+	+	+	4.80
<i>DYS460</i>	-	-	+	+	+	+	4.95
<i>DYS635</i>	+	+	+	+	+	+	5.94
<i>DYS481</i>	-	+	-	+	+	-	7.35
<i>DYS456</i>	+	+	+	+	+	+	7.91
<i>DYF387S1-a</i>	-	-	+	+	-	-	8.13
<i>DYF387S1-b</i>	-	-	+	+	-	-	8.13
<i>DYS576</i>	-	+	+	+	-	+	8.20
<i>DYS458</i>	+	+	+	+	-	+	9.33
<i>DYS570</i>	-	+	+	+	-	+	10.18
<i>DYS449</i>	-	-	+	+	-	+	11.59
<i>DYS724-a</i>	-	-	-	+	-	+	15.19
<i>DYS724-b</i>	-	-	-	+	-	+	15.19
<i>DYS627</i>	-	-	+	+	-	-	15.55
<i>DYS518</i>	-	-	+	+	-	-	18.65
No. Y-STR loci	17	23	27	46	36	38	

**Table S2:** Anthroponymy origin categories in which family clusters of surnames were divided.

<b>Origin</b>	<b>No. samples</b>	<b>Sub-group</b>	<b>Explanation</b>	<b>Examples</b>
<i>Ancestry</i>	713	Patronymic	Surnames based on the given name of a male ancestor.	Peeters, Janssens
		Metronymic	Surnames based on the given name of a female ancestor.	Mariën, Verleyen
		Rest	Surnames based on remaining relationships.	Ooms, De Neve
<i>Geography</i>	791	Geographically	Surnames based on a city, village or region.	Van Mechelen, Brusselmans
		Habitat	Surnames based on a spatial entity where people lived.	Van Acker, Verstraete
<i>Profession</i>	377		Surnames based on a profession or employment.	De Bakker, De Wever
<i>Characteristic</i>	231	Physical	Surnames based on striking physical characteristics of people.	Decorte, Holvoet
		Psychical	Surnames based on notable psychical characteristics of people.	De Wilde, Goeman
		Animals	Surnames based on animals.	Devos, De Pauw
		Objects	Surnames based on objects.	Bloemen, Cailliau
<i>Mythology</i>	3		Surnames based on mythological figures.	Alcide, Collin
<i>Combi</i>	204		A combination of the origin categories above.	Schoonejans (patronymic-physical)
<i>Undefined</i>	82	Rest	Surnames which could not be classified in the origins above.	Opsomer, Vrijens
		Unknown	Surnames of which the origin was not found.	Winnicki, Copal