Emergence of the Good Samaritan: Politics, Religion, History, Genetics

Marc Feldman
Department of Biology, Stanford University

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Samaritan Succoth in Shechem


Assyrian Empire
900-607 B.C.
Bible History Online

Facts: (i) Assyrians conquer Israel 722–721 BCE,
(ii) Assyrians replace [some?] locals with foreigners.
(iii) Hezekiah, king of Judah 715–686 BCE.

“The inhabitants of Samaria/Samerina, who agreed [and plotted] with a king [hostile to] me not to do service and not to bring tribute [to Ashshur] and who did battle, I fought against them with the power of the great gods, my lords. I counted as spoil 27,280 people, together with their chariots, and gods, in which they trusted. I formed a unit with 200 of [their] chariots for my royal force. I settled the rest of them in the midst of Assyria. I repopulated Samaria/Samerina more than before. I brought into it people from countries conquered by my hands. I appointed my eunuch as governor over them. And I counted them as Assyrians.”

(Nimrud Prisms, COS 2.118D, pp. 295–296.)

Politics and history in the ancestry of the Samaritans

Returnees from Babylonian exile (586–538 BCE) start to rebuild the temple destroyed by Babylonians.

Samaritans want to participate, but they want the temple at Mount Gerizim (near Shechem, Nablus). Spurned by Zerubavel and colleagues.

The Jews claim (1) Samaritans are not "Hebrews";
(2) They have adopted non-Hebrew customs.

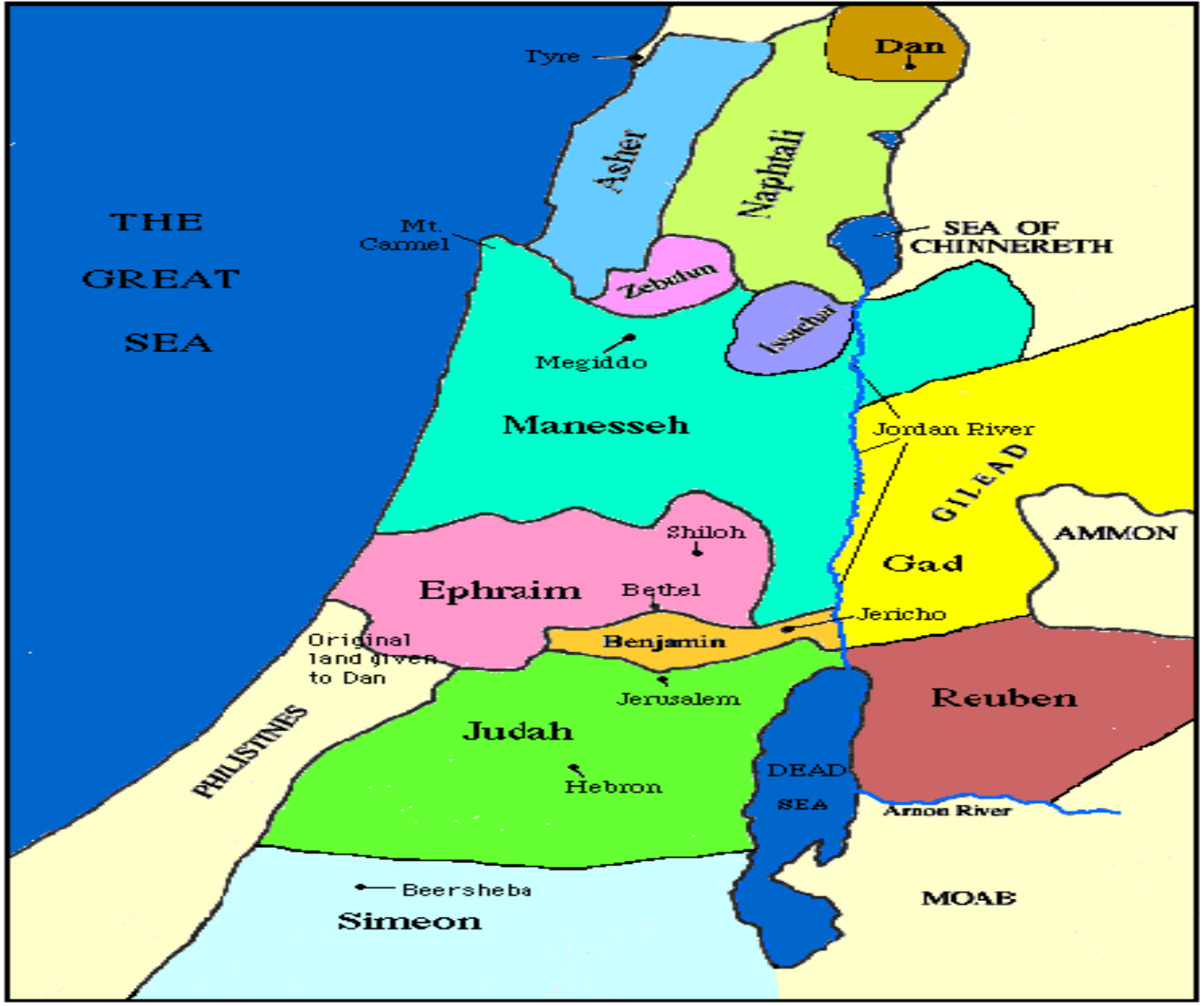
Result: Jewish documents from 6th century BCE and later regard Samaritans as "bad," at best 2nd class citizens. Except for the famous story in the New Testament.

Books of *Kings* (originally one book): post-Solomon era 960–560 BCE.

Division into: Israel (north), Judah (south).

Books of *Chronicles* (written much later, perhaps 4th century BCE) retells a lot of *Kings*.

- II Chronicles 30:1
- And Hezekiah sent to all Israel and Judah and wrote letters also to Ephraim and Manasseh that they should come to the home of the Lord at Jerusalem to keep the Passover.
- II Kings 17: 24
- And the king of Assyria brought men from Babylon and from Cuthah and from Ara and from Hamath and from Sepharaim and placed them in the cities of Samaria instead of the children of Israel and they possessed Samaria…



THE 12 TRIBES OF ISRAEL

Reuben Judah Naphtali Issachar Zebulun
Simeon Dan Gad Asher Benjamin
Ephraim Manesseh

The Samaritans claim to be descendants of the remnants of Israel not transplanted by the Assyrians but descended from Joseph's sons, Ephraim and Manasseh.

Samaritans numbered more than a million in early Roman times. Decimated by later Romans, Christians, Muslims

Less than 150 in 1917. About 750 in 2009.

Location: about half in Holon (Tel Aviv)
about half in Nablus (Shechem).

Extreme endogamy and marriage within the four remaining lineages. **Samaritan belonging is passed via male lineage:**

Cohen, Joshua-Marhiv, Danfi, Tsedaka

Classical Genetics of the Samaritans

Blood group O: 67%. One of the highest frequencies in the world (indigenous Americans excepted).

Rh–: 19%. (Basques ~ 21%
Europeans ~ 16%
Africans < 1%
Asians < 1%)

G6PD (favism): Absent (> 4% in most Middle East Arab populations).

Red-green color blindness: More than 28% of males, 24% of mothers or sisters of color blind men were color blind. (Bonné, B. (1966) Am. J. Phys. Anthrop. 24: 1–20)

84% of marriages are first or second cousins. Mean inbreeding coefficient 0.062, highest of any human population.

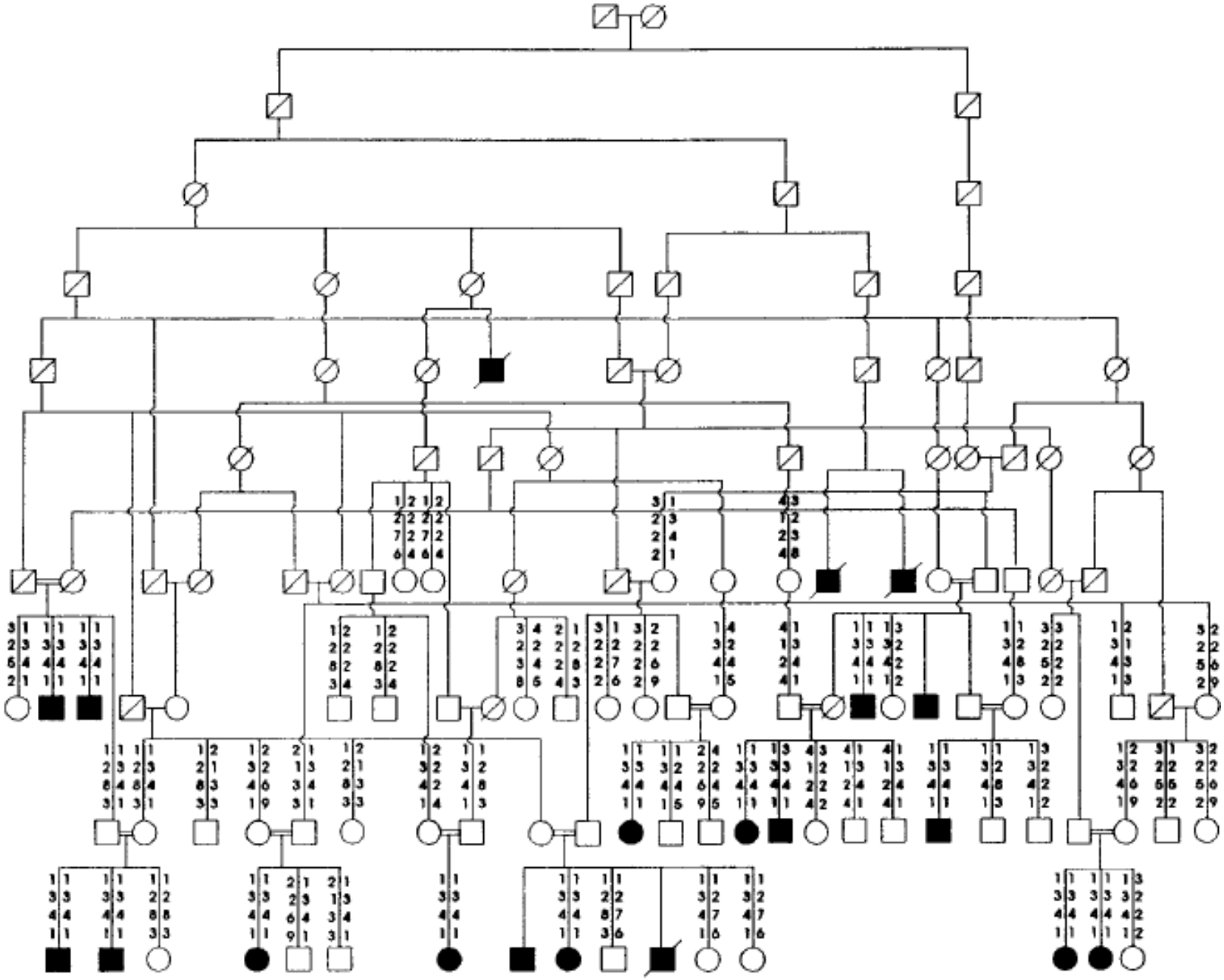


Fig. 1. Samaritan Usher kindred. Affected individuals are represented by the solid symbols and unaffected individuals are represented by open symbols. The genotyping data for four closely linked polymorphisms are shown above each symbol (from top to bottom: D11S916, GARP, D11S527, D11S533).

Sample from Holon

27 males 20 females
12 males separated by > 2 paternal generations

9 males, 7 females separated by > 2 maternal generations

Study sample

12 Y chromosomes

16 Mt DNA

Table 8. Y chromosome haplotype distances among Samaritan families.

	Tribe	**Levi**		**Ephraim**						**Manasseh**			
Lineage	**Family**	C1	C2	JM	JM	JM	JM	D1	D2	TS1	TS1	TS1	TS2
Cohen	C1		1	15	15	15	15	17	18	15	15	15	16
	C2			16	16	16	16	16	17	14	14	14	15
Joshua-Marhiv	JM				0	0	0	8	7	4	4	4	8
	JM					0	0	8	7	4	4	4	8
	JM						0	8	7	4	4	4	8
	JM							8	7	4	4	4	8
Danfi	D1								1	4	4	4	3
	D2									5	5	5	4
Tsedaka	TS1										0	0	1
	TS1											0	1
	TS1												1
	TS2												

Entries in the table are the total number of single-step repeats mutations between two corresponding chromosomes. Tribes may include more than one lineage as defined by family name. Family names annotated as in Table 1.

Table 4. Y-chromosome haplotypic distances between sets of populations from AMOVA.

Comparison	Jews-Samaritans	Jews-Palestinians	Samaritans-Palestinians
No. of different alleles	0.04 (0.293)	0.05 (0.281)	0.15*** (<0.001)
Sum of squared size differences	0.04 (0.246)	0.11 (0.213)	0.35*** (<0.001)

Calibrated Y-chromosome genetic distances (between-population *F* values reported by Arlequin). Genetic distance is based on the number of different alleles (top row) or the sum of squared size differences (bottom row). *** $P < 0.001$. Ethiopians are excluded from Jews. Numbers in parentheses are the exact *P* values for the differentiation test as reported by Arlequin.

Table 3 Pairwise F_{st} Between Populations for Y chromosome (bottom) and mtDNA (top)

Y\mtDNA	European	Ashkenazi	Iraqi	Libyan	Moroccan	Yemenite	Samaritan	Druze	Palestinian	Ethiopian	African
European		**0.065**	**0.042**	0.159	**0.056**	**0.027**	0.153	**0.040**	**0.023**	0.271	0.396
Ashkenazi	**0.075**		0.113	0.242	0.182	0.081	0.242	0.135	0.112	0.287	0.398
Iraqi	**0.082**	**0.000**		0.114	**0.077**	**0.035**	**0.105**	0.118	**0.037**	0.209	0.347
Libyan	0.182	**0.051**	**0.072**		0.093	0.130	0.325	0.134	0.087	0.245	0.376
Moroccan	0.155	**0.035**	**0.000**	**0.042**		**0.046**	0.238	**0.011**	**0.026**	0.257	0.392
Yemenite	0.120	**0.000**	**0.000**	**0.026**	**0.007**		0.203	**0.061**	**0.006**	0.219	0.360
Samaritan	0.267	**0.079**	**0.092**	**0.073**	**0.071**	**0.037**		0.261	0.173	0.337	0.432
Druze	0.123	**0.023**	**0.005**	**0.095**	**0.060**	**0.042**	**0.122**		**0.050**	0.275	0.400
Palestinian	0.369	0.257	0.229	0.217	**0.094**	0.204	0.344	0.300		0.145	0.302
Ethiopian	0.373	0.218	0.247	0.163	0.216	0.165	0.297	0.265	0.378		0.128
African	0.417	0.265	0.293	0.220	0.257	0.219	0.336	0.313	0.414	**0.087**	

Table 4 Fst values for Y chromosome and mtDNA for pooled Jewish sub-populations

	Y	mtDNA
J-Sam	**0.041**	0.159
J-P	0.163	**0.009**
J-D	**0.033**	**0.045**
J-Afr	0.219	0.4
J-Eur	0.111	**0.016**
J-Eth	0.187	0.239
J-J	**0.022**	0.116
Sam-P	0.344	0.173
Sam-Eth	0.297	0.337
Sam-Afr	0.336	0.432
Sam-Eur	0.267	0.153
Sam-D	0.122	0.261
Eth-Afr	**0.087**	0.128

Non-significant values ($p > 0.01$) are shown in bold.

J: Jewish populations of Ashkenazi, Iraqi, Libyan, Moroccan and Yemenite;

Sam: Samaritan; P: Palestinian; D: Druze; Eur: European; Afr: African; Eth: Ethiopian Jews.

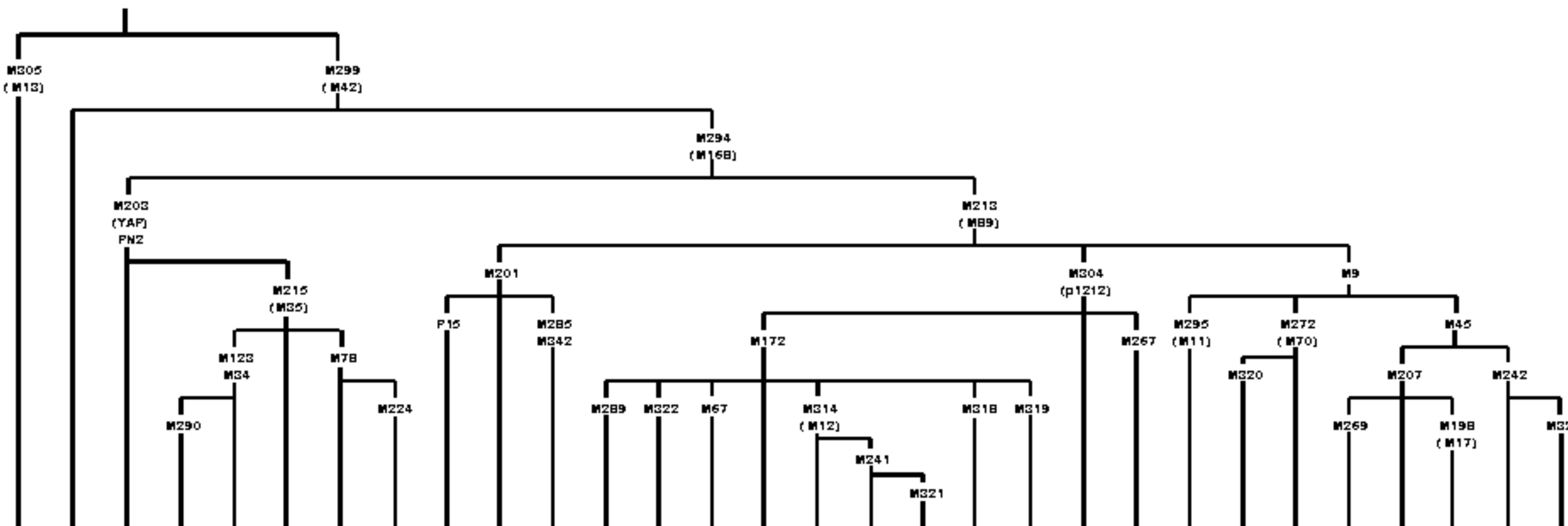
Table 7. Estimated time of divergence between Samaritans and Jews, and between Samaritans and Palestinians (Y and autosomes)

Divergence of	Y	Autosomes*
Samaritans- Jews	**0.568 (0.411)** **2029 2536**	**0.018 (0.07)** **171.3 214**
Samaritans-Palestinians	**3.373 (2.115)** **12,046 15,058**	**0.175 (0.118)** **1667 2083**

Top line gives estimated delta-mu-squared for Samaritans from Jews and for Samaritans from Palestinians for Y chromosome and autosomes. Figures in parentheses represent standard errors. Divergence times in years (Goldstein et al. 1995) are given in the second and fourth rows with the first number corresponding to a generation time of 20 years and the second to a generation time of 25 years.

* The effective mutation rate for autosomes is the weighted average of those for di- (0.00152), tri- (0.00085), and tetranucleotides (0.00093) as calculated by Zhivotovsky et al. (2000).

Y-chromosome tree of individuals from 9 Israeli populations



ETH	7/17		3/17		2/17	1/17	2/17								
ASH					2/20		2/20			1/20				3/20	
DRU							3/20					1/20	1/20	2/20	1/20
IRQ							3/20		2/20						2/20
LBY					4/20		2/20		2/20						1/20
MOR						1/20	3/20		6/20						2/20
PAL		1/20		1/20			2/20		15/20						
YMN	1/20				2/20		1/20	1/20	1/20		1/20				
SAM							2/12							2/12	4/12
Hap1	Eu1	N/A	Eu5	Eu4	Eu4	Eu4	Eu4	Eu4	Eu11	Eu11	Eu11	Eu9	Eu9	Eu9	Eu9
Hap2	I	II	III	III	III	III	III	III	VI	VI	VI	VI	VI	VI	VI
Hap3	A3b2	B	E'	E3b3a'	E3b3a	E3b'	E3b1	E3b1'	G2	G'	G1	J2j	J2k	J2l	J2'

ETH	1/17									1/17					
ASH						1/20	4/20				2/20		4/20	1/20	
DRU							1/20	7/20	1/20		1/20	1/20	1/20		
IRQ					1/20		3/20			4/20	2/20	1/20	1/20	1/20	
LBY		5/20	1/20	1/20			2/20				1/20		1/20		
MOR					2/20		2/20			2/20	2/20				
PAL										1/20					
YMN	2/20						6/20				2/20				3/20
SAM							4/12								
Hap1	Eu9	Eu9	Eu9	Eu9	Eu9	Eu10	Eu10	Eu17	Eu15	Eu15	Eu18	Eu18	Eu19	Eu20	Eu20
Hap2	VI	VI	VI	VI	VI	VI	VI	VIII	VIII	VIII	IX	IX	IX	X	X
Hap3	J2e	J2e1	J2e1a	J2l	J2i	J'	J1	L	K2a	K2	R1b10	R'	R1a1	Q'	Q4

C1-H
C2-U7a1

D1-U6
D2-U7a1

TS1-T2a1
TS2-T2a1
TS3-T2a1
TS4-U7a1

J1-U7a1
J2-T2a1
M1-U7a1
M2-T2a1

Cohanim. Modal Y chromosome (CMH).
50% of Cohanim have CMH (males).
5% of other Jews have CMH (males).
50% of Buba clan of Lemba (South Africa).
>50% of Bene Israel (Marathi speakers from Mumbai).

All Samaritans have CMH except the Samaritan Cohens

Levites. A Y chromosome with probable origin in the Volga-Khazar region. Khazar converts to Judaism in 8th or 9th century. 30–50% of Levites share this Y.

Generally: Jewish Y chromosomes tend to be more Middle Eastern and mitochondria relatively local.

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50% of Cohanim have CMH (males).
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All Cohanim descend from a very small group of ancestors.

New studies on Y and mitochondrial DNA (2013)