

Supplemental Data

Rapid coastal spread of First Americans: novel insights from South America's Southern Cone mitochondrial genome:

Martin Bodner, Ugo A. Perego, Gabriela Huber, Liane Fendt, Alexander W. Röck, Bettina Zimmermann, Anna Olivieri, Alberto Gómez-Carballa, Hovirag Lancioni, Norman Angerhofer, Maria Cecilia Bobillo, Daniel Corach, Scott R. Woodward, Antonio Salas, Alessandro Achilli, Antonio Torroni, Hans-Jürgen Bandelt, and Walther Parson

Table S1. List of novel fully sequenced D1 mtDNAs.

ID	sample ID	haplogroup	country	province/state	city	ethnic group	reference for CR	GenBank ID
1	ABS354	D1g1a	Argentina	Buenos Aires	n.a.	n.a.	(Bobillo et al. 2010)	JN253394
2	ARN093	D1g1a	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253395
3	ARN103	D1g1a	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253396
4	ARN128	D1g1a	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253397
5	S-686469	D1g1b	Chile	Tarapaca	Huara	n.a.	--	JN253398
6	ACH363	D1g1b	Argentina	Chubut	n.a.	n.a.	(Bobillo et al. 2010)	JN253399
7	ARN099	D1g1b	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253400
8	ARN110	D1g2a	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253406
9	ARN106	D1g2a	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253405
10	ARN104	D1g2a	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253404
11	ABS259	D1g2	Argentina	Buenos Aires	n.a.	n.a.	(Bobillo et al. 2010)	JN253402
12	S-686389	D1g2	Chile	Biobio	Bulnes	n.a.	--	JN253401
13	ARN105	D1g2	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253403
14	S-686335	D1g3	Chile	Maule	Molina	n.a.	--	JN253407
15	ARN117	D1g3	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253409
16	S-686986	D1g3	Chile	Valparaiso	Valparaiso	n.a.	--	JN253408
17	S-686439	D1g4a	Chile	Valparaiso	Valparaiso	n.a.	--	JN253410
18	ARN121	D1g4a	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253411
19	S-686145	D1g4	Chile	Atacama	Vallenar	n.a.	--	JN253412
20	S-686622	D1g5	Chile	Aisen	Chico	n.a.	--	JN253413
21	ARN129	D1g5	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253416
22	ABS231	D1g5	Argentina	Buenos Aires	n.a.	n.a.	(Bobillo et al. 2010)	JN253414
23	ARN126	D1g5	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253415
24	Mco-50	D1g6	Argentina	Neuquén	n.a.	Mapuche	--	JN253418
25	S-686291	D1g6	Chile	Araucania	Angol	n.a.	--	JN253417
26	S-686951	D1g	Chile	Los Lagos	Isla Huar	n.a.	--	JN253393
27	S-686944	D1j1a	Chile	Valparaiso	San Felipe	n.a.	--	JN253425
28	S-618473	D1j1a	Argentina	Cordoba	Leones	n.a.	--	JN253423
29	S-686864	D1j1a	Chile	Maule	Curico	n.a.	--	JN253424
30	Di-9	D1j1a	Argentina	Catamarca	n.a.	Diaguita	--	JN253427
31	Di-8	D1j1a	Argentina	Catamarca	n.a.	Diaguita	--	JN253428
32	S-689414	D1j1a	Brazil	Sao Paulo	Santos	n.a.	--	JN253426
33	ABS251	D1j1a1	Argentina	Buenos Aires	n.a.	n.a.	(Bobillo et al. 2010)	JN253431
34	S-622236	D1j1a1	Argentina	Tucuman	n.a.	n.a.	--	JN253429
35	Sa-32	D1j1a1	Argentina	Salta	n.a.	Kolla (Coya)	--	JN253433
36	ABS323	D1j1a1	Argentina	Buenos Aires	n.a.	n.a.	(Bobillo et al. 2010)	JN253432
37	S-654823	D1j1a1	Argentina	Buenos Aires	Necochea	n.a.	--	JN253430
38	ABS355	D1j1a2	Argentina	Buenos Aires	n.a.	n.a.	(Bobillo et al. 2010)	JN253434
39	ACO389	D1j1a2	Argentina	Corrientes	n.a.	n.a.	(Bobillo et al. 2010)	JN253435
40	ABS161	D1j1	Argentina	Buenos Aires	n.a.	n.a.	(Bobillo et al. 2010)	JN253421
41	Di-16	D1j1	Argentina	Catamarca	n.a.	Diaguita	--	JN253422
42	S-689648	D1j	Brazil	Rio Grande do Sul	n.a.	n.a.	--	JN253420
43	S-686616	D1j	Chile	Biobio	Concepcion	n.a.	--	JN253419
44	ABS311	D1	Argentina	Buenos Aires	n.a.	n.a.	(Bobillo et al. 2010)	JN253391
45	ARN127	D1	Argentina	Rio Negro	n.a.	n.a.	(Bobillo et al. 2010)	JN253392

The donors' origins and ethnic affiliations are listed as available. The IDs correspond to the numbers used in Figure 1. The countries of origin are shaded as in Figure 1. References for published partial sequences are given, if applicable.

Table S2. List of mutations relative to the reference sequence (rCRS) identified in the novel 45 D1 mitochondrial genomes.

[illegible]

Sequenced range: full mitochondrial genome (nps 1-16569). All mutations are indicated. Bases are denoted according to the IUPAC nucleotide codes.

Table S3. List of additional putative haplogroup D1g and D1j samples found by screening literature and unpublished records.

haplotype or sample ID	n	putative haplogroup	sequenced range	country	province/state/region	linguistic/ethnic group	reference
YA1D, YA2D	5	D1g	~15997-408	Chile	Antarctica	Yaghan	(Moraga et al. 2000)
HU1D, HU2D, HU3D	3	D1g	~15997-408	Chile	Huapi Island	Mapuche	(Moraga et al. 2000)
PE5D	2	D1g	~15997-408	Chile	Biobio	Pehuenche	(Moraga et al. 2000)
Ca147	1	D1g	16024-16383	Argentina	Catamarca	n.a.	(Tamm et al. 2007)
17, 20	5	D1g	16129-16569, 1-36	Chile (?)	n.a.	Native Americans	(Ginther et al. 1993)
n.a.	3	D1g	16050-16400, 73-370	Argentina	Rio Negro	Mapuche	(Ginther et al. 1993)
2098	1	D1g	16024-16365, 73-340	Argentina	Santa Cruz	n.a.	(Catelli et al. 2011)
2299	1	D1g	16024-16365, 73-340	Argentina	San Juan	n.a.	(Catelli et al. 2011)
2377	1	D1g	16024-16365, 73-340	Argentina	Tucumán	n.a.	(Catelli et al. 2011)
ABS221	1	D1g	control region	Argentina	Buenos Aires	n.a.	(MC Bobillo, unpublished)
n.a.	1	D1g1	16050-16400, 73-370	Argentina	Rio Negro	Mapuche	(Ginther et al. 1993)
21	2	D1g1	16129-16569, 1-36	Chile (?)	n.a.	Native Americans	(Horai et al. 1993)
n.a.	1	D1g1b	16050-16400, 73-370	Argentina	Rio Negro	Mapuche	(Ginther et al. 1993)
22	2	D1g1b	16129-16569, 1-36	Chile (?)	n.a.	Native Americans	(Horai et al. 1993)
14, 18	2	D1g2	16129-16569, 1-36	Chile (?)	n.a.	Native Americans	(Horai et al. 1993)
HU4D, HU5D, HU6D, HU7D	6	D1g2a	~15997-408	Chile	Huapi Island	Mapuche	(Moraga et al. 2000)
PE1D, PE2D	2	D1g2a	~15997-408	Chile	Biobio	Pehuenche	(Moraga et al. 2000)
19	1	D1g4a	16129-16569, 1-36	Chile (?)	n.a.	Native Americans	(Horai et al. 1993)
Ca35, Ca78, Ca140, Ca149	4	D1g5	16024-16383	Argentina	Catamarca	n.a.	(Tamm et al. 2007)
29, 32	2	D1g5	16024-16383	Argentina	Cordoba	n.a.	(Salas et al. 2008)
33	1	D1g5	16024-16390	Argentina	Cordoba	n.a.	(Salas et al. 2008)
15	1	D1g5	16129-16569, 1-36	Chile (?)	n.a.	Native Americans	(Horai et al. 1993)
PE4D, PE3D	2	D1g5	~15997-408	Chile	Biobio	Pehuenche	(Moraga et al. 2000)
F50	1	D1g5	~16158-16394	Chile	Tierra del Fuego	Yamana (bones, 19th century)	(García-Bour et al. 2004)
F57	1	D1g5	~16158-16394	Chile	Tierra del Fuego	Kaweskar (bones, 19th century)	(García-Bour et al. 2004)
1114, 2364	2	D1g5	16024-16365, 73-340	Argentina	Cordoba	n.a.	(Catelli et al. 2011)
Ca91	1	D1j	16024-16383	Argentina	Catamarca	n.a.	(Tamm et al. 2007)
M7	1	D1j	16024-16383	Argentina	Mocovi	n.a.	(Tamm et al. 2007)
ABS239, ABS277, ABS303, ABS349	4	D1j	control region	Argentina	Buenos Aires	n.a.	(Bobillo et al. 2010)
CO-04	1	D1j	16024-16569	Argentina	Jujuy or Salta	Kolla (Coya)	(Alvarez-Iglesias et al. 2007)
41, 42	2	D1j	16024-16383	Argentina	Cordoba	n.a.	(Salas et al. 2008)
36, 39, 40	3	D1j	16024-16390	Argentina	Cordoba	n.a.	(Salas et al. 2008)
37, 38	2	D1j	16024-16400	Argentina	Cordoba	n.a.	(Salas et al. 2008)
n.a.	4	D1j	16050-16400, 73-370	Argentina	Rio Negro	Mapuche	(Ginther et al. 1993)
A23, A35	2	D1j	16025-16390	Uruguay	Flores, Trinidad	Basque descendants	(Saris et al. 2011)
H128	1	D1j	16017-16569, 1-249	Bolivia	Potosi	Quechua	(Gaya-Vidal et al. 2011)
D-03.1	1	D1j	16024-16400	Argentina	Formosa	Pilaga	(Cabana et al. 2006)
D-03.2	2	D1j	16024-16400	Argentina	Formosa	Wichí	(Cabana et al. 2006)
167	1	D1j	16056-16409	Dominican Republic	La Caleta site	Taino (bones, pre-Columbian)	(Lalueza-Fox et al. 2001)
CO19	1	D1j	16129-16596, 1-41	Dominican Republic	n.a.	n.a.	(Tajima et al. 2004)
49	1	D1j	16060-16362	Brazil	South	n.a.	(Alves-Silva et al. 2000)
1807, LuC, 794, 795, CAR, CGO	6	D1j	16024-16365, 73-340	Argentina	Córdoba	n.a.	(Catelli et al. 2011)
428, 517, 1767	3	D1j	16024-16365, 73-340	Argentina	Buenos Aires	n.a.	(Catelli et al. 2011)
1173, 1972	2	D1j	16024-16365, 73-340	Argentina	La Rioja	n.a.	(Catelli et al. 2011)
309, 2356	2	D1j	16024-16365, 73-340	Argentina	Santiago del Estero	n.a.	(Catelli et al. 2011)
1216	1	D1j	16024-16365, 73-340	Argentina	Neuquén	n.a.	(Catelli et al. 2011)
Ca55, Ca66, Ca124, Ca125, Ca136, Ca161	6	D1j1a	16024-16383	Argentina	Catamarca	n.a.	(Tamm et al. 2007)
ABS901	1	D1j1a2	control region	Argentina	Buenos Aires	n.a.	(MC Bobillo, unpublished)
1012	1	D1j1a2	16024-16365, 73-340	Argentina	Córdoba	n.a.	(Catelli et al. 2011)
17405-2	1	D1 *	16024-16365, 72-340	Brazil	Southwest	n.a.	(Prieto et al. 2011)
48.1, 48.2	2	D1 *	16060-16362	Brazil	Southeast	n.a.	(Alves-Silva et al. 2000)
48.3	1	D1 *	16060-16362	Brazil	South	n.a.	(Alves-Silva et al. 2000)
48.4	1	D1 *	16060-16362	Brazil	North	n.a.	(Alves-Silva et al. 2000)
AFR33	1	D1 *	~16000-16400	Brazil	Maranhao	Tamauari African Braz.	(Carvalho et al. 2008)
726	1	D1 *	16024-16365, 73-340	Argentina	Corrientes	n.a.	(Catelli et al. 2011)

Geographic and ethnic origin and sequenced ranges are listed as available.

* These seven samples display the motif pattern found in sequence no. 44 (transversion at np.16187)

Table S4. Frequencies of haplogroups D1g and D1j in four databases.

Database	range	subset	N	D1g frequency [%]	D1j frequency [%]
Sorenson Molecular Genealogy Foundation as of July 2011	CR ^a	all Americas	38460	0.33	0.03
		Argentina	43	2.33	9.30
		Bolivia	187	0.00	1.07
		Brazil	1351	0.22	0.15
		Chile	729	16.60	0.41
		Peru	2003	0.00	0.05
		Uruguay	116	0.86	0.00
		Michigan (USA)^d	350	0.29	0.00
Bobillo 2010	CR ^a + SNPs ^b	Argentina total	338	4.73	2.66
		North Argentina	98	0.00	1.01
		Central Argentina	193	1.55	4.15
		South Argentina	47	27.7	0.00
A. Salas as of May 2011	HVS-I ^c	South America total	5732	1.19	0.87
		South America Natives	3835	1.77	1.30
EMPOP 2.1, release 5	CR ^a	total	9567	0.18	0.10
		all Americas	1441	1.18	0.69
		South America	605	2.81	1.65
		Argentina	386	4.40	2.59

a control region of the mitochondrial genome

b single nucleotide polymorphisms within the coding region of the mitochondrial genome

c hypervariable segment I of the mitochondrial genome

d this sample could be traced back to a migration from west central Argentina