Supplementary Material 1

Resolving the ancestry of Austronesian-speaking populations

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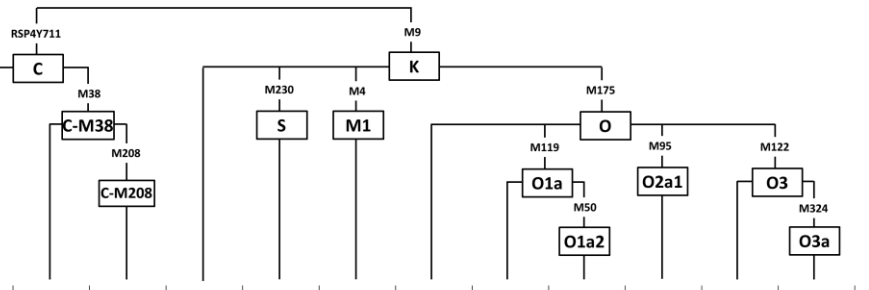
Figure S1. Y-chromosome tree of the SNPs analysed. The embedded table indicates the distribution of the haplogroups across the sampled area.



Location/Group	C	C-M38	C-M208	S	M1	K	O1a	O1a2	O2a1	O3	O3a	n
S. China						2	4		1		16	23
Ami							9	14	2	2	22	49
Atayal							27	8				35
Bunun							4	17	4			25
Paiwan						1	44	19			1	65
Yami							7		3			10
Philippines							7	1		2	13	23
Pekanbaru	1						10	3	8	2	7	31
Kota Kinabalu	3	3					11	7	7	3	10	44
Banjarmasin	8			3			1	2	7		4	25
Palu		2			3	1	4		5		13	28
Toraja	1	2		1	5	3	4	16	8		8	48
Mataran	3	2		2	2	2	3	4	16		4	38
Alor		21		4		11	1	2			7	46
Madang		3	9	22	10	28			1			73
Lihir		10		21	2	2		2				41
Kavieng		4		7	1	13		1			4	26
Vanuatu		9	5	33	7	10	1	2			3	70
Fiji	2	4	8	6		3					3	26
Atiu			33	3							1	37
French Polynesia			18	4			1				11	34
Total												797

Figure S2. Overall Y-chromosome STR network, calculated using the median-joining algorithm. SNPs were not included in the phylogenetic reconstruction and the samples were labelled according to their SNP lineage after the network construction, to test the robustness of the phylogeny.

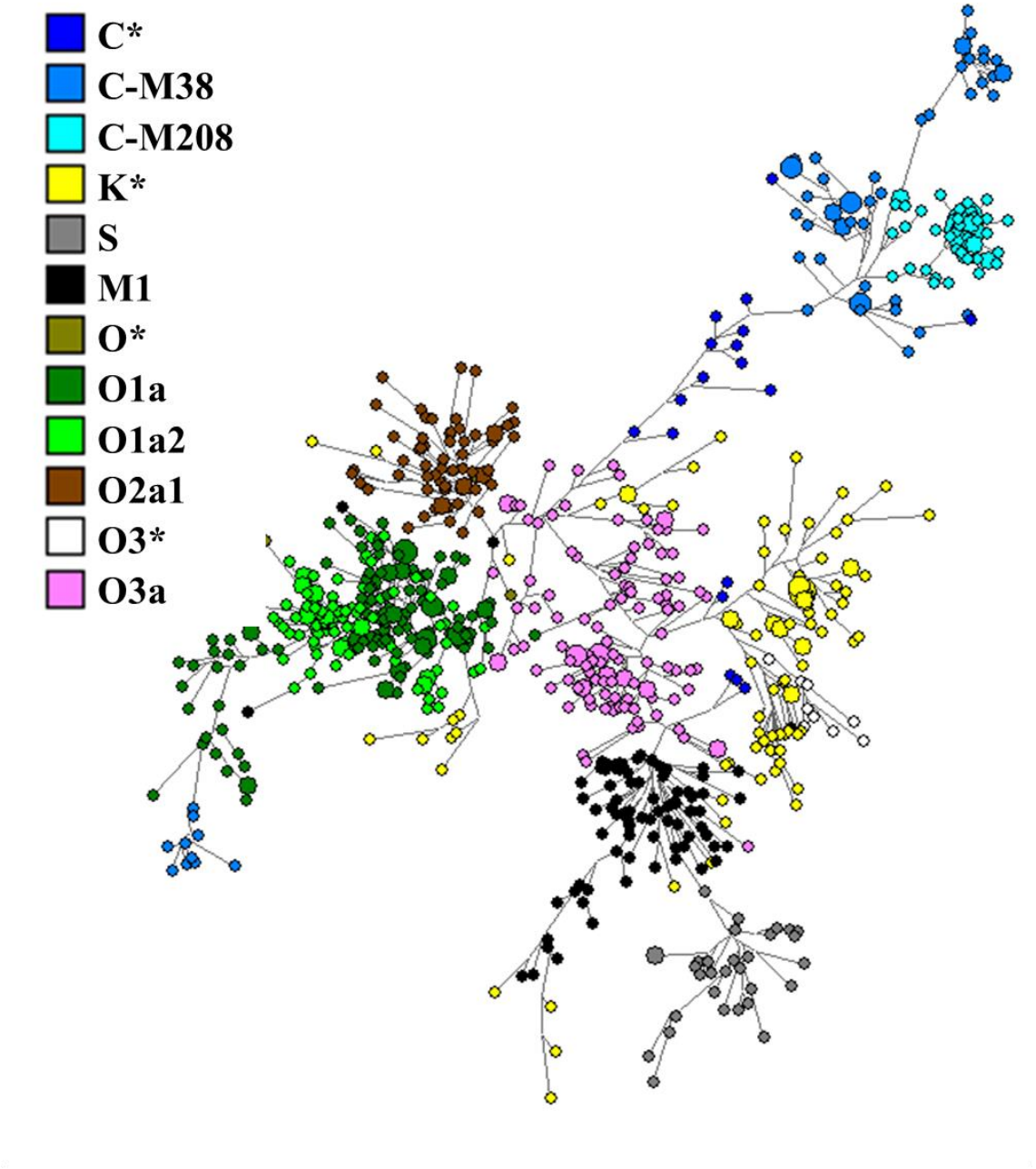


Figure S3. STR network of haplogroup C-M208, indicating the subclade that is exclusive to the Remote Pacific

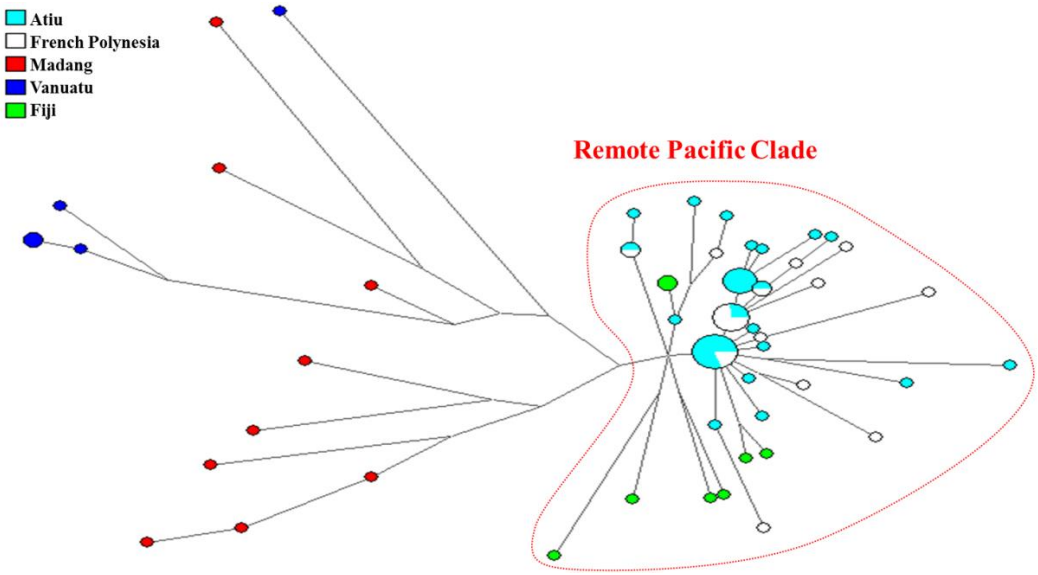


Figure S4. STR network of haplogroup O1*. A subclade displaying a deeper ancestry in ISEA than the remainder of the haplogroup is indicated as indicated by the founder analysis.

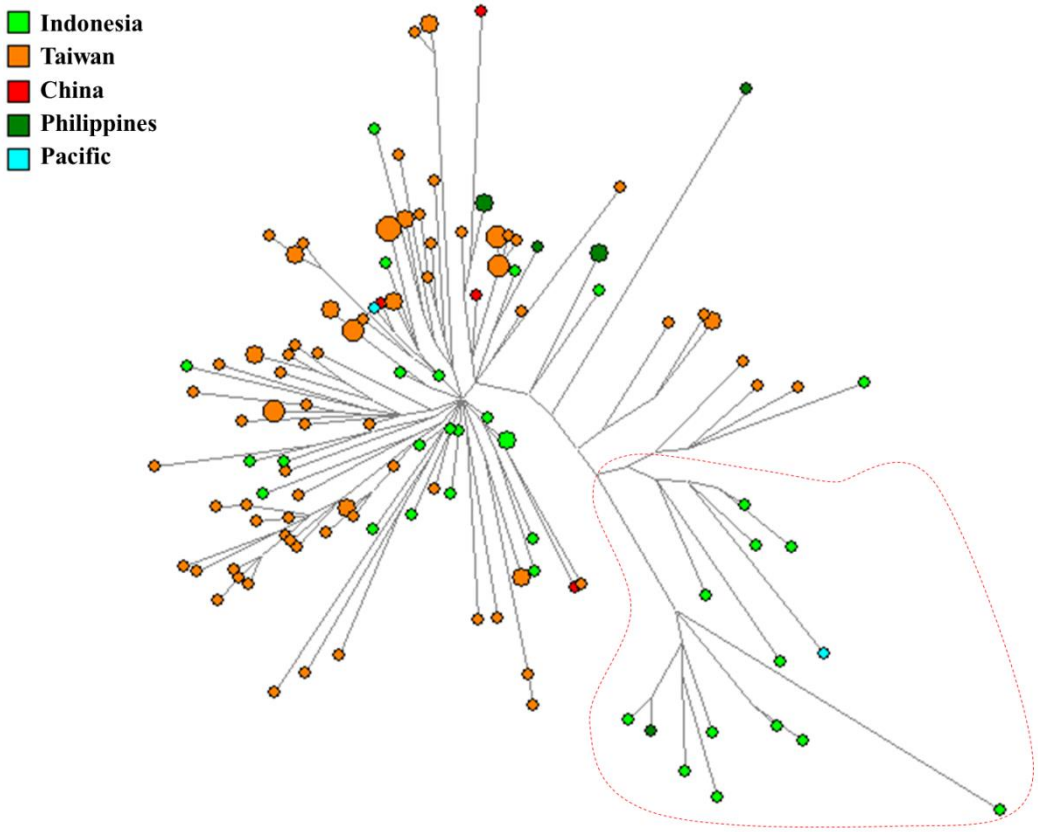


Figure S5. Scan of migration time from ISEA/Near Oceania into Remote Oceania using both Y-chromosome and mtDNA variation

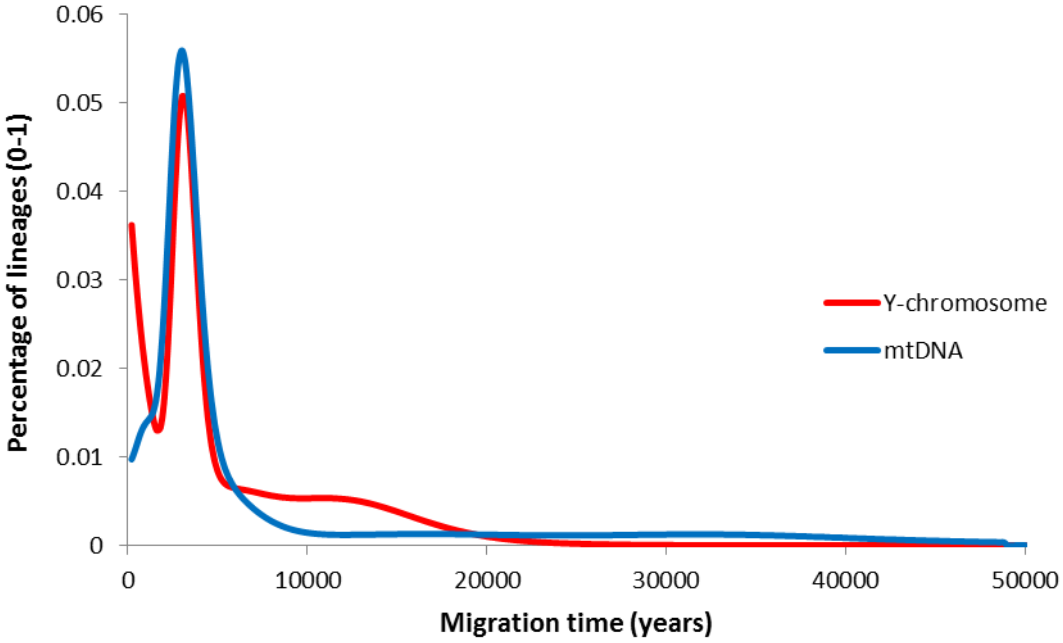


Figure S6. Plot of cross-validation errors across different analyses of ADMIXTURE, against different numbers of ancestral populations (K)

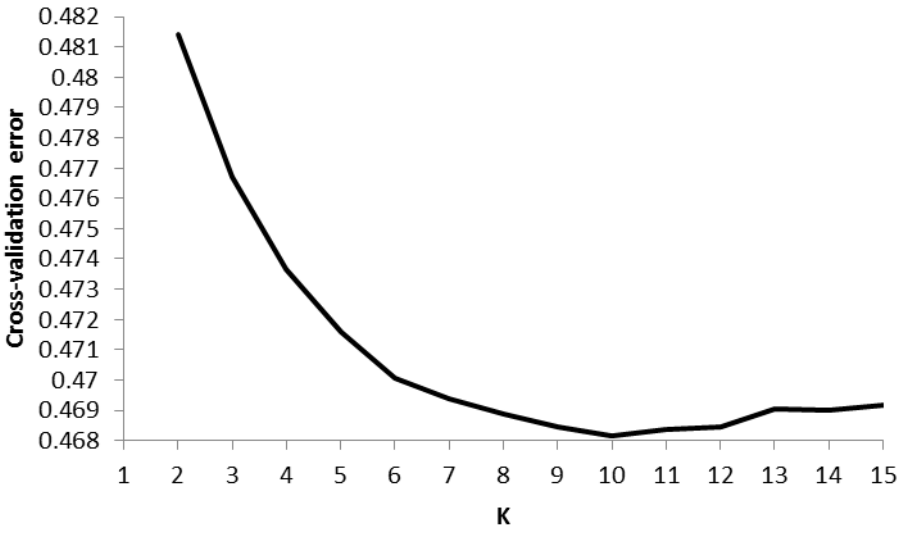


Figure S7. Data points used in the Surfer software for obtaining the frequency distribution of mtDNA clades (A) and autosomal components (B). The outline map was obtained from www.outline-world-map.com.

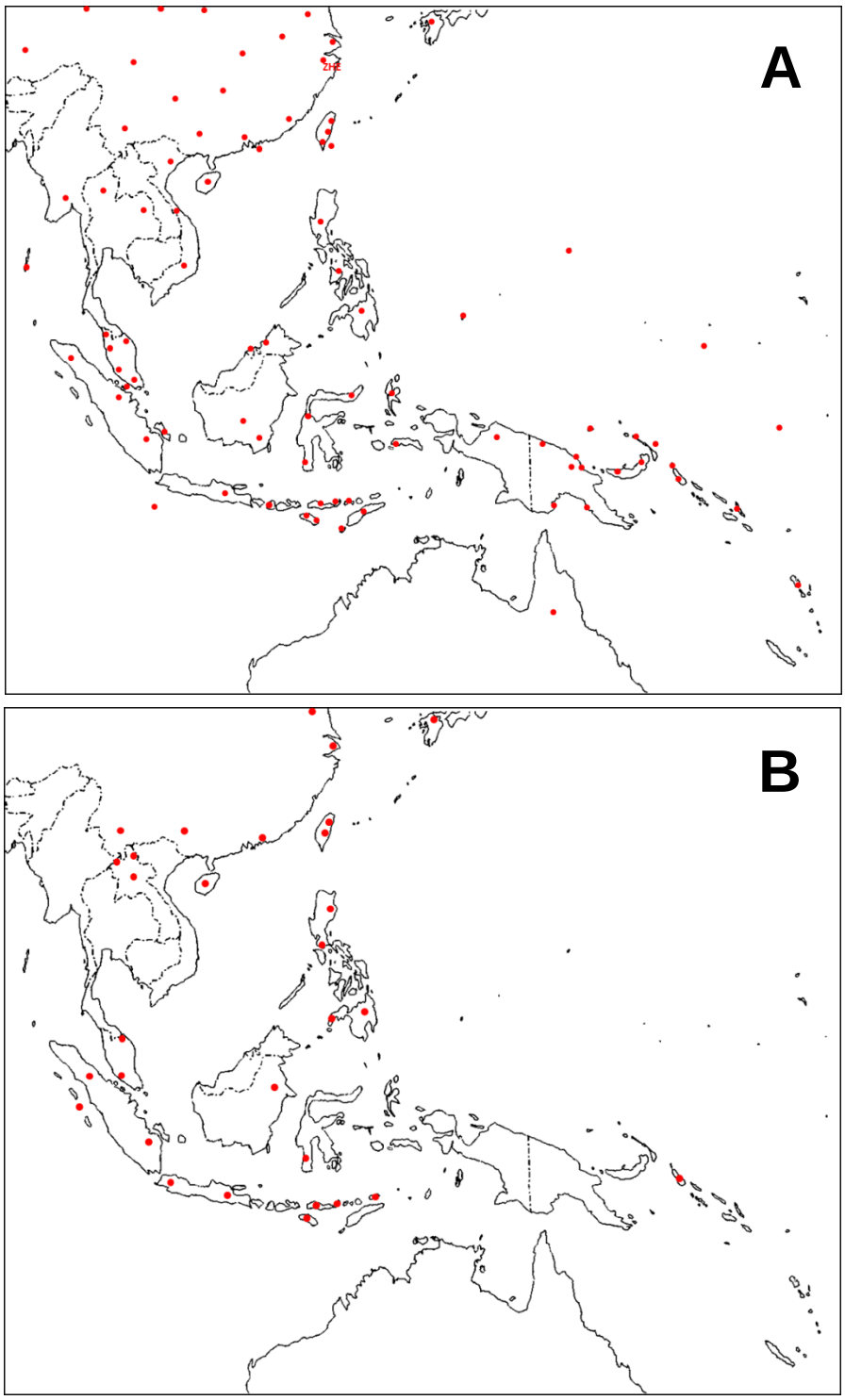


Figure S8. Frequency distribution maps of the two East Asian components obtained on the A*DMIXTURE* analysis when five ancestral populations were considered. The outline map was obtained from www.outline-world-map.com.

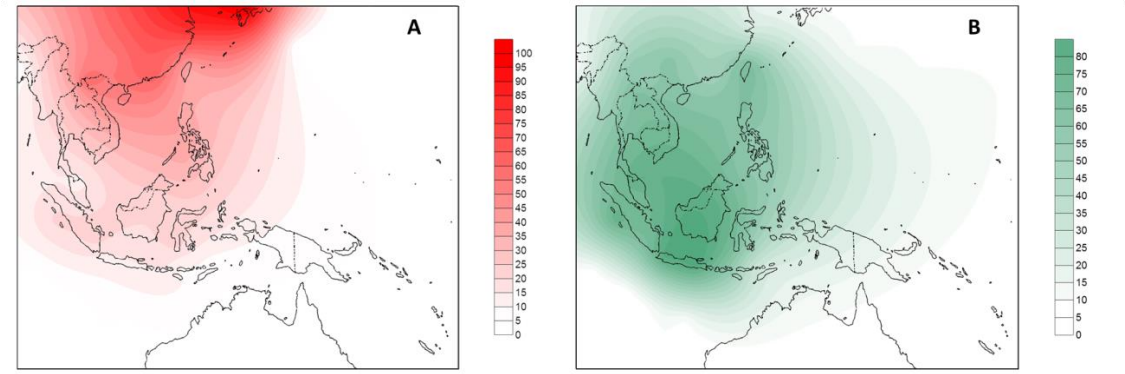


Figure S9. Frequency distribution map of an Island Southeast Asian/Taiwanese component obtained on the ADMIXTURE analysis when 10 ancestral populations were considered. The outline map was obtained from www.outline-world-map.com.

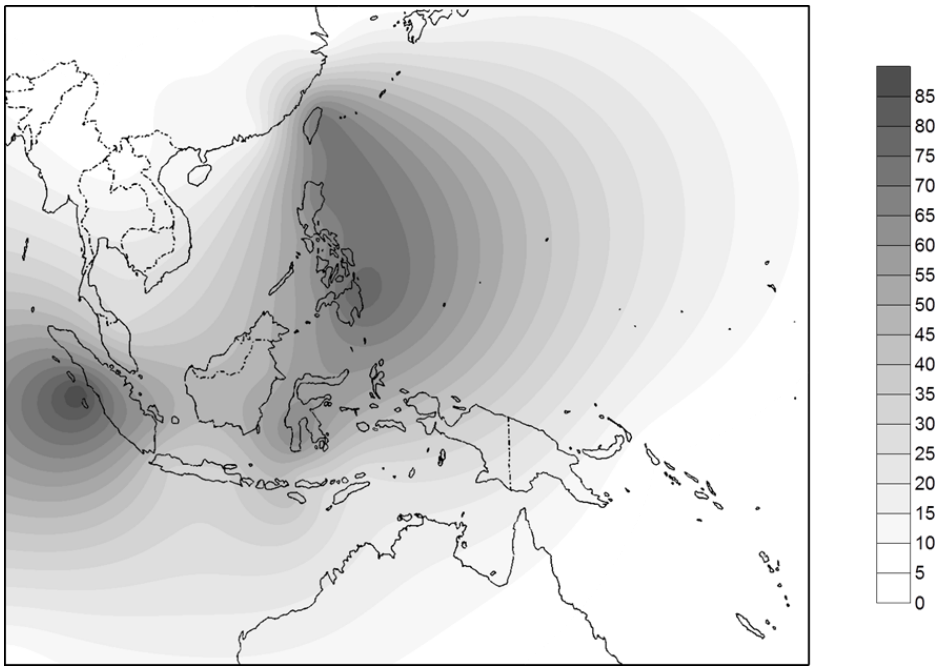


Figure S10. Bayesian skyline plots (BSPs) for haplogroups B4a1a, E and M7c3c in ISEA and Taiwan

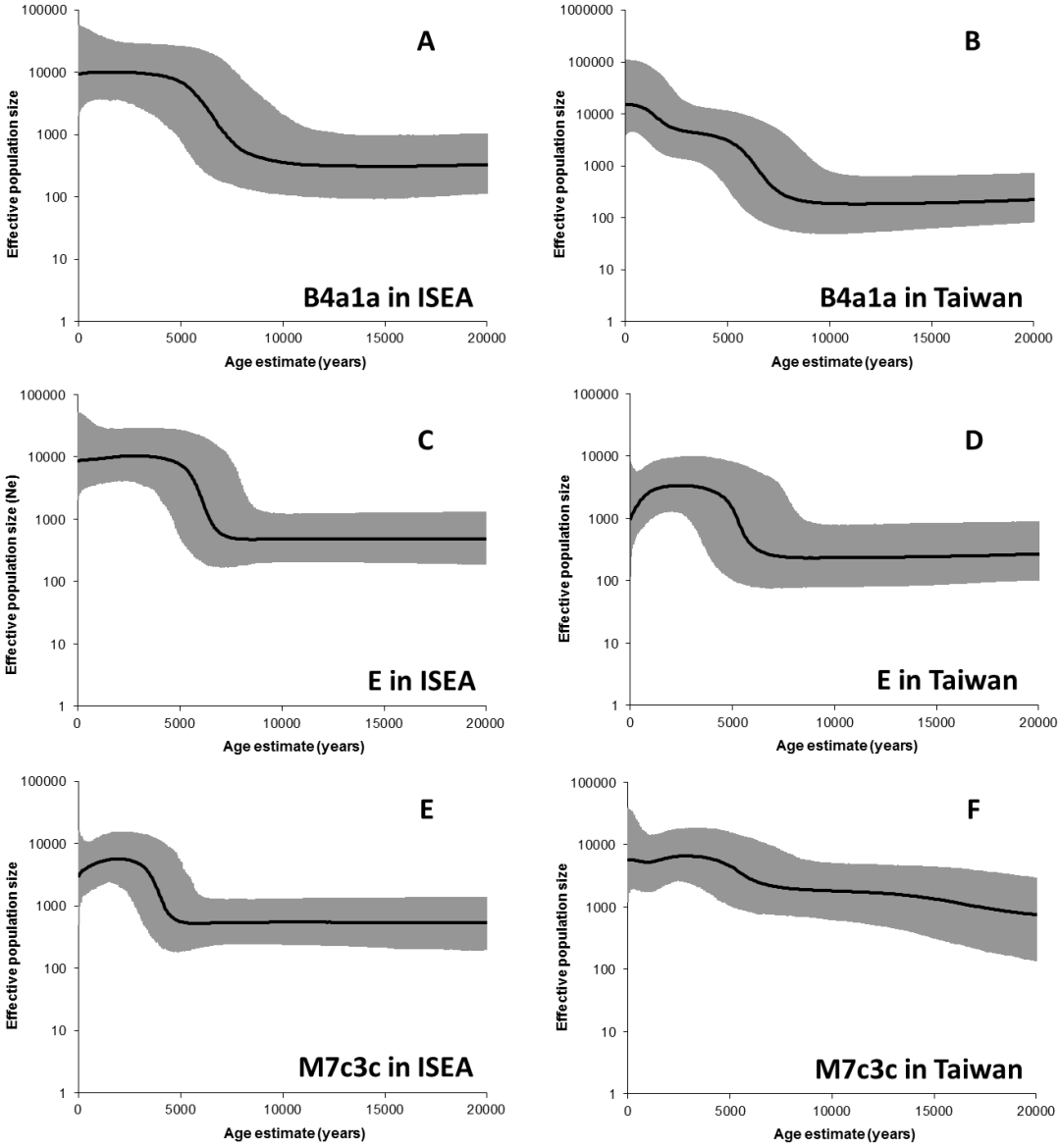


Table S1. Source and sink mtDNA HVS-I datasets employed in the mtDNA founder analysis into ISEA

Region	**Sub-region/group**	***n***	**Reference**
Source			
China	Beijing	40	[1]
	Guangxi	1138	[2-6]
	Guizhou	355	[3; 7; 8]
	Hainan	162	[3]
	Zheijiang	61	[6]
	Manchurian	40	[1]
	Northern Han	60	[9]
	Qinghai	171	[2; 6; 10; 11]
	Shanghai	193	[3; 6; 12]
	Yunnan	1238	[2; 3; 5; 6; 10; 13-16]
	Xinjiang	214	[16-18]
	Hunan	291	[5; 6; 19]
	Fujian	54	[6]
	Inner Mongolia	200	[6; 13]
	Liaoning	102	[6; 16]
	Jilin	106	[20; 21]
	Shandong	50	[16]
	Gangsu	128	[6; 11]
	Guangdong	631	[3; 5; 16; 22-24]
	Anhui	42	[6]
	Jiangsu	67	[6]
	Jiangxi	23	[6]
	Shaanxi	123	[6; 19]
	Hubei	52	[3; 16]
	Hong Kong	397	[25; 26]
	Sichuan	132	[6; 11]
Tibet	-	452	[11]
Mongolia		199	[1; 18; 27]
Central Asia	Kazakhstan	108	[18; 28]
	Kyrgyzstan	149	[28]
	Tuvan	36	[29]
Japan	-	1721	[9; 12; 19; 30-34]
Korea	-	64	[35; 36]
	South	583	[1; 30; 37]
North Asia	Tuvan	102	[38; 39]
	Tofalar	31	[38; 39]
	Todjins	26	[38]
	Sojots	15	[38]
	Khakassians	30	[38]
	Buryat	231	[9; 38-40]
	Altai	54	[38]
	Tubalar	26	[39]
	Evenk	15	[29; 35; 39]
	Yakuts	104	[29; 40]

	Ulchi	43	[39]
	Udegey	16	[35; 39]
	Nivkh	78	[9; 35; 39]
	Koryak	257	[9; 41]
	Yukaghirs	15	[29]
	Chukchi	72	[42; 43]
	Eskimo	83	[42; 43]
	ItelÆmen	46	[41]
	Negidal	17	[39]
Taiwan	Yami	84	[44; 45]
	Han	66	[30]
	Paiwan	97	[44-46]; Unpublished
	Rukai	70	[44; 45]
	Puyuma	72	[44; 45]
	Ami	149	[44-46]; Unpublished
	Tsou	80	[44; 45]
	Bunun	129	[44-46]; Unpublished
	Saisiat	83	[44; 45]
	Atayal	147	[44-46]
Thailand	Northwest	354	[47; 48]; Unpublished
	Hill Tribe	58	[49]
	Central/ Lao Song/ Phuthai	90	[1]
	Chantaburi	24	[47]
	Trang	20	[47]
	North Thailand	32	[2]
	Khon Kaen/ Mukdahan	94	[47]
	Chong	24	[47]
	Mussur	21	[47]
Vietnam	South Vietnam	211	[3; 19]; Unpublished
	Central Vietnam	58	[3]
	North (Hanoi)	443	[1; 50]; Unpublished
Burma	-	378	Unpublished
Sink			
Borneo	Brunei	30	Unpublished
	Palangkaraya	112	Unpublished
	Kota Kinabalu	109	[46]; Unpublished
	Banjarmasin	89	[46]
Indonesia	Adonara/Lembata	111	[51]
	Alor/Pantar	165	[46; 51]; Unpublished;
	Ambon	72	[46]; Unpublished
	Bali	99	[46]; Unpublished
	Bangka	34	[52]
	East Timor	38	[51]
	Flores	84	[51]; Unpublished
	-	54	[9]
	Lombok	74	Unpublished; [46]
	Manado	89	[46]
	Medan	45	[46; 53]
	Moluccas/Nusa Tenggaras	61	[54]
	Padang	25	[52]; Unpublished

	Palu	38	[46]
	Pekanbaru	56	[52; 53]
	Solor	41	[51]
	Palembang	37	[46]; Unpublished
	Jawa Timur	36	[46]
	Toraja/ Ujung Padang	110	[46]
	Waingapu - Sumba	51	[46]; Unpublished
Philippines	Luzon	47	[55]
	Mindanao	27	[55]
	Visayas	26	[55]
	Undetermined	456	[9; 46; 55]; Unpublished

Table S2. Additional data compiled and eventually used to refine the topology of the HVS-I networks but not employed either as source or sink population in any analysis

Region	**Sub-region/group**	***n***	**Reference**
Andaman islands	Great Andamanese	20	[56]
	Jarawa	4	[56]
	Onge	63	[56]
Australia	Unknown	54	[54]
	Darling River, West	63	[57]
	Kimberley of Western Australia	2	[25]
	western desert of Western Australia	2	[25]
	Yuendumu, Central Australia	51	[57]
	northwestern Australia	32	[58]
Singapore	-	55	Unp.
Malaysia	Johor	71	[59; 60]
	Kedah/Perlis/Penang	52	[59; 60]
	Perak	67	[59; 60]
	Kelantan/Terengganu	106	[59; 60]
	Selangor/Wilayah/Negeri/Melaka	223	[59-61]
Orang Asli	Malaysia	288	[53]; Unp
	Sakai	20	[47]
Christmas Islands	Christmas Islands	70	[62]
Micronesia	Guam	40	Unpublished
	Nauru	34	Unpublished
	Kiribati	14	Unpublished

Table S3. Source and sink mtDNA HVS-I datasets employed in the mtDNA founder analysis into Remote Oceania. Both source and sink populations in Table S1 are included in the source for this analysis.

Region	Sub-region/group	*n*	Reference
Source			
Karkar Islands		47	[63]
New Guinea	Simbu/Western Highlands	16	Unpublished
	Bundi	58	[58]; Unp
	Irian Jaya	178	Unpublished
	Southern Highlands	17	Unpublished
	Sepik Province	219	[64]
	Port Moresby	117	Unpublished
	Madang	163	Unpublished
	Undetermined	78	[54]; Healy and Hunley (GenBank direct submission); Unpublished
Bismarck Archipelago	Balopa	59	[65]
	East New Britain	222	[66]
	West New Britain	353	[66]
	Lavongai	18	[66]
	Kavieng	83	Unpublished
	Lihir	94	Unpublished
	New Ireland Papua	62	[66]
	North New Ireland Astronesian	98	[66]
	Mussau	16	[66]
Bougainville	South	109	[66]
	North	91	[66]
	Central - Aita	33	[66]
	-	22	Healy and Hunley (GenBank direct submission); Unpublished
Solomon Islands	Malaita	237	[66]
	-	21	Unp
Sink			
Vanuatu	-	130	[67]; Unpublished
New Zealand	-	13	Pierson and Fris (GenBank direct submission); Unpublished
Cook Islands		27	Pierson and Fris (GenBank direct submission); Unpublished
Fiji	-	1	Pierson and Fris, 2006
Tonga	-	51	[65]; Pierson and Fris (GenBank direct submission);
Samoa	-	39	[54]; Pierson and Fris (GenBank direct submission);
French Polynesia	Mangareva	17	[68], Unpublished

Table S4. Primers used in the typing of ten Y-STRs, including the fluorescence label for each forward primer (FAM, TET, HEX). References are provided when the primers were taken from the literature.

STR	Forward Primer	Reverse Primer
DYS460	FAM-AGCAAGCACAAGAATACCAGAG [69]	TCTATCCTCTGCCTATCATTTATTA [70]
DYS461	FAM-AGGCAGAGGATAGATGATATGGAT [70]	TGATGCTGTGTCACTATATTTCTG [69]
DYS438	FAM-TGGGGAATAGTTGAACGGTAA [71]	GTGGCAGACGCCTATAATCC [71]
DYS448	FAM- TGTCAAAGAGCTTCAATGGAGA (*)	TCTTCCTTAACGTGAATTTCCTC (*)
DYS425	TET- TGGAGAGAAGAAGAGAGAAAT (*)	AGTAATTCTGGAGGTAAAATGG (*)
DYS458	TET-GCAACAGGAATGAAACTCCAAT (*)	GTTCTGGCATTACAAGCATGAG (*)
DYS437	TET-GACTATGGGCGTGAGTGCAT [71]	AGACCCTGTCATTCACAGATGA [71]
DYS439	TET-TCCTGAATGGTACTTCCTAGGTTT [71]	GCCTGGCTTGGAATTCTTTT [71]
GATA-H4	TET-GTTATGCTGAGGAGAATTTCCAA [69]	CCTCTGATGGTGAAGTAATGGAATTAGA [70]
DYS388	HEX – GTGAGTTAGCCGTTTAGCGA (*)	CAGATCGCAACCACTGCG (*)
GATA-A10	HEX-CCTGCCATCTCTATTTATCTTGC (*)	TGGAGATAGTGGGTGGATTGA(*)
DYS635	HEX-AGTGTCTCACTTCAAGCACCAAGCAC [70]	GCAGCAAAATTCACAGTTGGAAAAATGT [70]

(*) Newly designed primer

Table S5. Primers and restriction enzymes used in the typing of three Y-chromosome SNPs.

SNP	Forward Primer	Reverse Primer	Restriction Enzyme
M208	GCAACGATTTATCAGCTTTCA	GCAGGAAAAGCCTGTTTGTT	*TaqI*
M230	AATGTCACATTTAGTCTTAACCCAT	ACATTATTAGTATGTAAATCTTCATTGC	*Tsp5091*
M324	TGATAGAAGGCAAGAGGGAGT	AACAAATTGATTTCCAGGGATA	*MnlI*

Table S6. Samples used in the ADMIXTURE analysis

Population	code	n	Ethnicity	Location
Yoruba	YRI	60	Yoruba	Nigeria
India	IN-WI	25	Caucasoids	Rajasthan, India
	IN-WL	14	Caucasoids	Maharashtra, India
Japanese	JP-ML	71	Japanese	Tokyo, Japan
	JPT	44	Japanese	Tokyo, Japan
Koreans	KR-KR	90	Koreans	Gyunggi-province, Korea
Han	CN-SH	21	Han	Shanghai, China
Han	CHB	45	Han	Beijing, China
Chinese in	TW-HA	48	Chinese	Taipei, Taiwan

Taiwan	TW-HB	32	Chinese	Taipei, Taiwan
Han	CN-GA	30	Han	Guangzhou, China
Zhuang	CN-CC	26	Zhuang	Guangxi, China
Jiamao	CN-JI	31	Jiamao	Hainan, China
Wa	CN-WA	29	Wa	Yunnan, China
Wa	CN-WA	27	Wa	Yunnan, China
Jinuo	CN-JN	29	Jinuo	Yunnan, China
Yao	TH-YA	19	Yao	Chiang Rai province, Thailand
				Phayao province, Thailand
				Nan province, Thailand
Paluang	TH-PL	18	Paluang	Chiang Mai province, Thailand
Karen	TH-KA	20	Karen	Mae Hong Son province, Thailand
				Chiang Mai province, Thailand
Lawa	TH-LW	19	Lawa	Mae Hong Son province, Thailand
Tai	TH-TU	20	Tai Yuan	Lamphun province, Thailand
				Chiang Mai province, Thailand
				Saraburi province, Thailand
	TH-TY	18	Tai Yong	Lamphun province, Thailand
	TH-TL	20	Tai Lue	Nan province, Thailand
				Chiang Mai province, Thailand
	TH-TK	18	Tai Khuen	Chiang Mai province, Thailand
Ami	AX-AM	10	Ami	Taiwan
Atayal	AX-AT	10	Atayal	Taiwan
Filipino	PI-UB	20	Filipino	Isabela Province, The Philippines
Filipino	PI-UN	19	Filipino	Metro Manila, The Philippines
Minanubu	PI-MA	18	Minanubu	Loreto, Agusan del Sur, The Philippines
Filipino	PI-UI	20	Filipino	Zamboango, The Philippines
Proto-Malay	MY-TM	49	Proto-Malay	Jelebu District, Negri Sembilan, Malaysia
			Proto-Malay	Kuala Pilah District, Negri Sembilan, Malaysia
Malay	MY-KN	18	Malay	Jeli (Dabung), Machang, Kelantan, Malaysia
Malay	MY-MN	20	Malay	Lenggeng, Negeri Sembilan, Malaysia
Dayak	ID-DY	12	Dayak	East Kalimantan, Indonesia
Batak	ID-TB	20	Batak Toba	Balige, Sumatra, Indonesia
	ID-KR	17	Batak Karo	Karo, North Sumatra, Indonesia
Malay	ID-ML	12	Malay	Pelembang, South Sumatra, Indonesia
Mentawai	ID-MT	15	Mentawai	Mentawai Island, Indonesia
Sunda	ID-SU	25	Sunda	Jakarta, Java, Indonesia
Javanese	ID-JV	19	Javanese	Java, Indonesia
	ID-JA	34	Javanese	Jakarta, Java, Indonesia
Toraja	ID-TR	20	Toraja	Tana Toraja, Sulawesi, Indonesia
Kambera	ID-SB	20	Kambera	Sumba Timur, Indonesia
Manggarai	ID-SO	19	Manggarai	Ngada, Flores, Indonesia
	ID-RA	17	Manggarai	Rampasasa, Manggarai, Indonesia
Lamaholot	ID-LA	20	Lamaholot	Larantuka, East Flores, Indonesia
Alorese	ID-AL	19	Alorese	Alor Island, Indonesia
Lembata	ID-LE	19	Lembata	Lembata, East Flores, Indonesia
Melanesians	AX-ME	5	Melanesians	Indo-Pacific

Table S7. M7 sequences used in the phylogenetic reconstruction

Sequence (accession number / Code)	Location/ group	Reference
AP008249, AP008266, AP008270, AP008274, AP008280, AP008282, AP008295, AP008297, AP008299, AP008310, AP008316, AP008327, AP008330, AP008336, AP008341, AP008350, AP008351, AP008354, AP008359, AP008365, AP008367, AP008372, AP008376, AP008387, AP008394, AP008402, AP008404, AP008405, AP008429, AP008439, AP008455, AP008466, AP008469, AP008483, AP008485, AP008503, AP008507, AP008509, AP008514, AP008517, AP008541, AP008548, AP008555, AP008571, AP008585, AP008586, AP008588, AP008592, AP008600, AP008621, AP008625, AP008643, AP008647, AP008653, AP008671, AP008686, AP008689, AP008695, AP008699, AP008711, AP008721, AP008725, AP008728, AP008729, AP008731, AP008734, AP008750, AP008755, AP008758, AP008779, AP008794, AP008797, AP008799, AP008886, AP008887, AP008902, AP008913, AP009420, AP009421, AP009423, AP009427, AP009435, AP009443, AP009451, AP009459, AP009466, AP010685, AP010979, AP010986, AP010993, AP010996, AP011009, AP011022, AP011039, AP011048	Japan	[72]
AP010661, AP010672, AP010680, AP010681, AP010692, AP010698, AP010717, AP010719, AP010730, AP010739, AP010747, AP010750, AP010758, AP010763	Japan	[73]
AP010824, AP010825, AP010826, AP010827, AP010997	Japan	[33]
AP012360, AP012363	East Malaysia (Borneo)	[74]
AP012419, AP012426	Peninsular Malaysia	[74]
AY255146	Inner Mongolia	[75]
AY255158	Liaoning, China	[75]
AY255159	Hunan, China	[75]
AY255171	Shandong, China	[75]
AY255173	Xinjiang, China	[75]
AY289097, AY289098	Taiwanese Indian	[76]
DQ272117, DQ272126	China - Guizhou	[77]
DQ372868	Taiwan	[78]
DQ372876	Micronesia: Majuro Atoll	[78]
EF153777, EF153781, EF153782, EF153789,EF153790, EF153817, EF153818, EF153820	South Siberia	[79]
EF153810	Czech Republic	[79]
EF153823, EF397561	South Korea	[79]
EU007890	Mongolia	[80]
EU597541	China	[81]
FJ748706, FJ748715	Tibet	[82]
GQ119018, GQ119023	Philippines	[55]
GU123012	Volga-Ural - Russia	[83]
GU392071, GU392103	China	[84]
GU733735, GU733736	Philippines - Mamanwa	[85]

GU733762, GU733766, GU733767, GU733771, GU733772, GU733777, GU733788, GU733792, GU733799	Philippines - Manobo	[85]
GU733804	Philippines - Surigaonon	[85]
GU810069	Sea nomads of Thailand	Unp.
HG00403, HG00410, HG00448, HG00501, HG00512, HG00524, HG00525, HG00593, HG00611, HG00650, HG00689, HG00692, HG00701	South Han Chinese	[86; 87]
HG00759, HG01028, HG01029, HG01810, HG01817, HG02156, HG02166, HG02180, HG02185, HG02187, HG02355, HG02367, HG02371, HG02384, HG02389, HG02390, HG02396, HG02401	Chinese Dai in Xishuangbanna	[87]
HG01596, HG01599, HG01840, HG01841, HG01843, HG01846, HG01851, HG01861, HG01871, HG02019, HG02031, HG02046, HG02048, HG02057, HG02060, HG02067, HG02075, HG02079, HG02084, HG02085, HG02088, HG02121, HG02127, HG02137, HG02141	Kinh in Ho Chi Minh City, Vietnam	[87]
HM030506	China -Sichuan	[88]
HM030509, HM030514, HM030523	China - Yunnan	[88]
HM030527,HM030547	China- Guangxi	[88]
HM030531	China - Qinghai	[88]
HM030532	China - Guizhou	[88]
HM238203, HM238206	Philippine Islanders - Ivatan	[89]
HM238210, HM238218	Orchid Islands - Yami	[89]
HM357815, HM357816, HM357819, HM357821	China- Guangxi	[90]
HM596649, HM596650, HM596659, HM596662, HM596663, HM596664, HM596668, HM596669, HM596673, HM596674, HM596678, HM596685, HM596714	Sumatra	[91]
HM852807	Azeri	[92]
HQ157976, HQ157980, HQ157984	China - Hainan	[93]
JQ705503	Japan	[94]
JQ702069, JQ702126, JQ703812, JQ705461, JQ705619	Unknown	[94]
JQ702664, JQ704806, JQ705375	China	[94]
JQ703844	Philippines	[94]
JX390633	Philippines	FT- DS
KC993909, KC993919, KC993930	Philippines - Abaknon	[95]
KC993937	Philippines - Aeta_Bataan	[95]
KC993974, KC993977, KC993981, KC993983, KC993984, KC993985, KC993987, KC993993, KC993995, KC993998, KC994002	Philippines - Bugkalot	[95]
KC994005, KC994006, KC994008, KC994011, KC994012, KC994013, KC994016, KC994025, KC994026	Philippines - Ibaloi	[95]
KC994032, KC994033, KC994034, KC994038, KC994041, KC994044, KC994051, KC994052	Philippines - Ifugao	[95]
KC994065, KC994071, KC994079	Philippines - Ivatan	[95]
KC994088, KC994089, KC994090, KC994096, KC994098, KC994099, KC994100, KC994102, KC994103, KC994106,	Philippines - Kalangoya	[95]

KC994110, KC994113		
KC994116, KC994121, KC994122, KC994126, KC994133, KC994142	Philippines - Kankanaey	[95]
KC994153, KC994158	Philippines - Maranao	[95]
KF540506, KF540507, KF540510, KF540511, KF540518, KF540526, KF540527, KF540531, KF540535, KF540536, KF540537, KF540539, KF540540, KF540545, KF540546,KF540548, KF540553, KF540555	Taiwan - Ami	[96]
KF540556, KF540557, KF540562, KF540564, KF540565, KF540567, KF540570, KF540571, KF540574, KF540576, KF540578, KF540579, KF540580, KF540583, KF540589, KF540593, KF540597, KF540598, KF540602, KF540604	Taiwan - Atayal	[96]
KF540606, KF540609, KF540631	Taiwan - Bunun	[96]
KF540664, KF540667, KF540669, KF540687, KF540700	Taiwan - Hakka	[96]
KF540705, KF540710, KF540721, KF540728, KF540731, KF540736, KF540742, KF540749, KF540750	Taiwanese Han	[96]
KF540753, KF540754, KF540759, KF540760, KF540762, KF540772, KF540776, KF540781, KF540782, KF540790, KF540791, KF540793	Taiwan - Paiwan	[96]
KF540801, KF540809, KF540820, KF540823, KF540826, KF540828, KF540833, KF540846, KF540849	Taiwan - Makatao	[96]
KF540858, KF540863, KF540877, KF540879	Taiwan - Puyuma	[96]
KF540892, KF540907, KF540912	Taiwan - Rukai	[96]
KF540942, KF540946, KF540951, KF540953, KF540955, KF540958, KF540960, KF540961, KF540963	Taiwan - Saisiat	[96]
KF540966, KF540977, KF540980, KF540982	Taiwan - Tao	[96]
KF541008, KF541015, KF541048, KF541052, KF541053	Taiwan - Tsou	[96]
KC252344, KC252345, KC252348, KC252349, KC252350, KC252351, KC252353, KC252365, KC252371, KC252378, KC252379, KC252397, KC252398, KC252402, KC252406, KC252421, KC252427, KC252428, KC252431, KC252433, KC252439, KC252448, KC252455, KC252456, KC252458, KC252461, KC252462, KC252463, KC252468, KC252470, KC252471, KC252473, KC252479, KC252480, KC252483, KC252484, KC252490, KC252491, KC252501, KC252505, KC252509, KC252510, KC252523, KC252527, KC252531, KC252537, KC252552, KC252553, KC252555, KC252558, KC252559, KC252569, KC252573	South Taiwan (mixed)	[97]
KJ154325	Solomon Islands: Tuvalu	[98]
KJ154750, KJ154751, KJ154752, KJ154753, KJ154754, KJ154755, KJ154756, KJ154757	Solomon Islands: Ontong Java	[98]
KJ154775,KJ154941	Solomon Islands: Vella Lavella	[98]
NA17969, NA18126, NA18138, NA18149, NA18152, NA18674, NA18707	Chinese in Denver, USA	[86]
NA17971, NA18124, NA18550, NA18574, NA18582, NA18618, NA18636, NA18638, NA18639, NA18644, NA18756, NA18769, NA18771	Han Chinese in Beijing	[86]
NA18755	Beijing Han Chinese	[86]
NA18940, NA18943, NA18952, NA18953, NA18965,	Japan	[86]

NA18999, NA19001, NA19075, NA19548, NA19558, NA19566, NA19573		
NA19011, NA19090	Japan	[87]
SSM041, SSM047, SSM057, SSM062, SSM072, SSM076, SSM086	Malaysia	[99]
BRU18, BRU49, BRU53	Brunei (Borneo)	This study
BUR1	Myanmar	This study
Fuj5274, FujP91043M	China - Fujian	This study
HA056, HA064	Hakka	This study
ALO193, ALORX	Indonesia - Alor	This study
BAL38	Indonesia - Bali	This study
BAN4	Indonesia - Banjarmasin (Borneo)	This study
IN159, IN170, In197, IN246, IN251, IN370	Indonesia - Java	This study
MND48	Indonesia -Manadu	This study
PAD11	Indonesia - Padang	This study
PRY100, PRY65	Indonesia - Palangkaraya (Borneo)	This study
WAI48, WAI56	Indonesia - Waigapu (Sumba)	This study
LAO236, LAO245, LAO276, LAO318, LAO419, LAO442	Laos	This study
AC06	Malaysia - Acheh - Kedah Yan	This study
BJ120, BJ136	Malaysia - Banjar-Perak Kuala Kurau	This study
BG104	Malaysia - Bugis- Johor Pontian	This study
JW78	Malaysia - Johor Muar - Jawa	This study
JW73	Malaysia - Johor Semerah - Jawa	This study
MB15	Malaysia - Kelantan Kota Bahru	This study
RP04, RP26	Malaysia - Kelantan RantauPanjang	This study
KK136, KK172, KK2, KK23, KK48, KK49, KK96	Malaysia - Kota Kinabalu (Borneo)	This study
MI51, MI58	Malaysia - Minangkabau - Negeri Sembilan Lenggeng	This study
100B	Malaysia - Semelai	This study
KB23, KB31	Micronesia - Kiribati	This study
NAU29, NAU31	Micronesia - Nauru	This study
PE003, PE009, PE010, sbb043, SD10362, P91043M, AD269	Taiwan - Minnan	This study
PZ003, PZ022, PZ078, PZ102	Taiwan - Pazeh	This study
PH277	Philippines - Luzon	This study
FIL34	Philippines (general)	This study
PU018	Taiwan - Puyuma	This study
DM006, DM007	Taiwan - Siraya western Plain	This study

	tribe/Pimpu	
Am002, AM009, Am051, AMI21, KA28, KA43, KA65, KA72	Taiwan - Ami	This study
AT033, ATA20	Taiwan - Atayal	This study
BUN20	Taiwan - Bunun	This study
KP24, KP30, Pw034	Taiwan - Paiwan	This study
Sa004, Sa027	Taiwan - Saisiat	This study
SL017, SL273, SL495, SL588	Taiwan - Siraya	This study
AD014, AD183, AD203, AD232	Taiwan Han	This study
Thai142	Thailand	This study
DKX3729, DKX4103, DKX4440, DKX4468, DOX2001, DOX2198, DOX4692, DOX6353, VNM184, VNM201, VNM253, VNM264, VNM271, VNM274, VNM313, VNM363, VNM202, VNM224, VNM237, VNM340	Vietnam	This study

Table S8. M9/E sequences used in the phylogenetic reconstruction

Sequence (accession number)	**Location/ group**	**Reference**
AF346972	China	[100]
AP008353, AP008378, AP008629, AP008677, AP008702, AP008704, AP008710, AP008766, AP008815, AP008860, AP008863, AP010662, AP010687, AP010767, AP011019	Japan	[72]
AY255153	Xinjiang, China	[75]
AY289070	Philippines	[76]
AY963582	Malay (Melayu)	[53]
DQ272112	China	[77]
EF061148, EF061150	North New Ireland	[66]
EF061149, EF061151, EF061152	West New Britain	[66]
EF093535, EF093536, EF093537, EF093538	Taiwan - Ami	[101]
EF093539	Taiwan - Atayal	[101]
EF093544, EF185810	Taiwan - Bunun	[101]
EF093552	Taiwan - Puyuma	[101]
EF093553	Taiwan - Saisiat	[101]
EF093540, EF093541, EF093542, EF093543, EF093547, EF093548, EF093549, EF093550, EF093551	Philippines	[101]
EF093545, EF185793	Vietnam	[101]
EF093546	New Guinea	[101]
EF093554, EF093555	Taiwan - Siraya	[101]
EF093556	Taiwan - Thao	[101]
EF093557, EF093558	Taiwan - Tsou	[101]
EF185794	Indonesia - Ambon	[101]
EF185795, EF185796, EF185797, EF185798, EF185799	Indonesia - Banjarmasin	[101]
EF185800	Malaysia - Kota Kinabalu	[101]
EF185801, EF185802, EF185803	Indonesia - Manado	[101]
EF185804, EF185805, EF185806	Indonesia - Ujung Padang	[101]
EF185807, EF185815	Indonesia - Waingapu	[101]
EF185808	Indonesia - Bali	[101]

EF185809	Indonesia - Bangka	[101]
EF185811, EF185812, EF185813	Indonesia - Kota Kinabalu	[101]
EF185814	Indonesia - Toraja	[101]
EF185816	Indonesia - Palangkaraya	[101]
EU007852	Nivkchi; North Asia	[80]
FJ383310, FJ383311, FJ383312, FJ383313, FJ383314, FJ383315, FJ383316, FJ383317, FJ383318, FJ383319, FJ383320, FJ383321, FJ383322, FJ383323, FJ383324, FJ383325, FJ383326, FJ383327, FJ383328, FJ383329, FJ383330	India	[102]
FJ428235, FJ428236	Papua New Guinea	[101]
FJ544236, FJ748723, FJ748729, FJ748735, FJ748743, FJ748744, FJ748755, FJ748758, FJ968772, FJ968774, FJ968775	Tibet	[82]
GQ119027, GQ119043, GQ119047	Philippines	[55]
GQ337542	Bangladesh	[103]
GQ337575	West Bengal	[103]
GQ337588	Himalayas	[103]
GQ895140, GQ895143, GQ895145, GQ895146, GQ895148, GQ895150, GQ895151, GQ895159, GQ895160	Tibet	[104]
GU012637	Philippines	FT-DS
GU014567	Tibet	[11]
GU733721, GU733723, GU733727, GU733741, GU733749, GU733756	Philippines - Mamanwa; negrito group	[85]
GU733757, GU733758, GU733761, GU733763, GU733769, GU733774, GU733775, GU733778, GU733779, GU733780, GU733781, GU733784, GU733789, GU733791	Philippines - Manobo	[85]
GU733806, GU733807, GU733808, GU733809, GU733810, GU733816, GU733820	Philippines - Surigaonon	[85]
GU810007, GU810031, GU810035, GU810036, GU810040, GU810041, GU810063, GU810064, GU810070	sea nomads of Thailand	Unp
HG02081, HG02522	Kinh in Vietnam	[87]
HG02379	Chinese Dai	[87]
HM036540, HM036545, HM036546, HM036547, HM036552, HM036568, HM036569, HM036570, HM036572, HM036573	Great Himalayas	Unp
HM238216	Orchid Islands - Yami	[89]
HM346881, HM346889, HM346886, HM346885, HM346883	Vietnam	[103]
HM346882, HM346932, HM346933	China- Shandong	[103]
HM346884, HM346888	China -Guangxi	[103]
HM346887	China- Hainan	[103]
HM346890, HM346891, HM346912	China- Guangdong	[103]
HM346892	China - Hunan	[103]
HM346893, HM346934	China- Liaoning	[103]
HM346894	China- Gansu	[103]
HM346895, HM346896	Myanmar	[103]

HM346897, HM346902, HM346898, HM346916, HM346917, HM346918, HM346919, HM346920, HM346921, HM346922, HM346923, HM346924, HM346925, HM346926, HM346927, HM346928	Tibet	[103]
HM346899, HM346909, HM346915, HM346931, HM346936	China- Sichuan	[103]
HM346900	India	[103]
HM346901, HM346911	China- Qinghai	[103]
HM346903, HM346913	China - Xinjiang	[103]
HM346904, HM346910, HM346930	China- Yunnan	[103]
HM346905	China- Shaanxi	[103]
HM346906, HM346907, HM346914	China - Henan	[103]
HM346908, HM346929, HM346935	Inner Mongolia	[103]
HM036548	Ladakh tribe of the Great Himalayas	Unp
HM596647, HM596651, HM596652, HM596658, HM596660, HM596661, HM596666, HM596688	Indonesia - Sumatra	[91]
HQ700841, HQ700842, HQ700843, HQ700844, HQ700845, HQ700846, HQ700847, HQ700848, HQ700849, HQ700850, HQ700851, HQ700852, HQ700853, HQ700854, HQ700855, HQ700856, HQ700857, HQ700858, HQ700859, HQ700860, HQ700861, HQ700862, HQ700863, HQ700864, HQ700865, HQ700866, HQ700867, HQ700868, HQ700869, HQ700870	Guam	[105]
JN857018, JN857047, JN857054, JN857063	Russia: South Siberia	[106]
JN857048, JN857049	Russia: Kalmyk Republic	[106]
JN857050, JN857051	South Korea	[106]
JN857056	Mongolia	[106]
JQ703727	Netherlands	[94]
KC896622	Burma: Rangoon	FT-DS
KF006361	Philippines	FT-DS
KF540505, KF540514, KF540515, KF540516, KF540524, KF540525, KF540532, KF540543, KF540549	Taiwan - Ami	[96]
KF540559, KF540568, KF540569, KF540581, KF540582, KF540588, KF540599, KF540601	Taiwan - Atayal	[96]
KF540615, KF540618, KF540645	Taiwan - Bunun	[96]
KF540656, KF540693	Taiwan - Hakka	[96]
KF540711, KF540714	Taiwanese Han	[96]
KF540780	Taiwan - Paiwan	[96]
KF540805, KF540812, KF540819, KF540824, KF540827, KF540832, KF540844	Taiwan - Makatao	[96]
KF540851, KF540852, KF540854, KF540859, KF540861, KF540869, KF540870, KF540876, KF540880, KF540883, KF540886, KF540887, KF540888	Taiwan - Puyuma	[96]
KF540944, KF540949, KF540950, KF540952	Taiwan - Saisiat	[96]
KF540968	Taiwan - Tao	[96]
KF541014, KF541034, KF541036	Taiwan - Tsou	[96]
NA17965, NA18115	Chinese in Denver	[86]
NA18593	Han Chinese	[86]
NA18956, NA18969, NA19563	Japan	[86]

Table S9. B4a1a sequences used in the phylogenetic reconstruction

Sequence (accession number)	Location/ group	Reference
AF346993	Korea	[100]
AF347007	Samoa	[100]
AJ842744, AJ842745, AJ842748,AJ842749	Taiwan (Ami)	[45]
AJ842746	Taiwan (Atayal)	[45]
AJ842747, AJ842751	Taiwan - Tao	[45]
AJ842750	Taiwan - Paiwan	[45]
AP008257, AP008412, AP008415, AP008521, AP008567, AP008595, AP008597, AP008640, AP008650, AP008661, AP008842, AP008889, AP008912	Japan	[72]
AP009463	Japan	[107]
AP010705, AP010757	Japan	[73]
AY195770	Asia	
AY195770	Asia	[108]
AY255133	China - Guangdong	[75]
AY289068, AY289069	Cook Islander	[76]
AY289076, AY289077, AY289080, AY289083	Coastal New Guinea	[76]
AY289093, AY289094	Samoan	[76]
AY289102	Tonga	[76]
AY519492	Tofalar, Russia: Siberia	[39]
AY519495	Tuvan; Russia: Siberia	[39]
AY963574	Melanesia Bougainville	[53]
(20 sequences not deposited in GenBank)	Maori, New Zealand	[109]
DQ272120	China	[77]
DQ372871, DQ372873	Papua New Guinea: Trobriand Islands	[78]
DQ372874, DQ372875	Micronesia: Kapingamarangi Atoll	[78]
DQ372877	Micronesia: Majuro Atoll	[78]
DQ372878, DQ372881	Vanuatu	[78]
DQ372886	Tonga	[78]
EU597505	Mongolian; China	[81]
EU597506	South China	[81]
EU597531, EU597555	Melanesian, Boungainville	[81]
FJ748745	Tibet	[82]
FJ767910, FJ767911, FJ767912	Madagascar	[110]
GQ119021, GQ119029	Philippines	[55]
GQ214523	Kiribati	[111]
GU733730, GU733732	Philippines - Mamanwa; negrito group	[85]
GU733764, GU733797	Philippines - Manobo	[85]
GU733802, GU733812, GU733824	Philippines - Surigaonon	[85]
GU810060, GU810061, GU810067, GU810068	sea nomads of	Unp

	Thailand	
HG00419, HG00452, HG00537	South Chinese	[86]
HG00599, HG00608, HG00631, HG00654, HG00729	South Chinese	[87]
HG01869, HG02072, HG02122, HG02134	Kinh in Ho Chi Minh City, Vietnam	[87]
HG02399	Chinese Dai	[87]
HM238197, HM238202, HM238207	Philippine Islanders - Ivatan	[89]
HM238212, HM238213	Orchid Islands - Yami	[89]
HM596665, HM596684, HM596686, HM596696, HM596699, HM596700, HM596704	Indonesia - Sumatra	[91]
HQ700839, HQ700840	Guam - Micronesia	[105]
HQ873489, HQ873495, HQ873566	Vietnam	[112]
HQ873496, HQ873497, HQ873498, HQ873500, HQ873501, HQ873502, HQ873503, HQ873504, HQ873505, HQ873506, HQ873507, HQ873508, HQ873509, HQ873510, HQ873511, HQ873512, HQ873513, HQ873514, HQ873515, HQ873516, HQ873517, HQ873518, HQ873519	Bismarch Archipelago	[112]
HQ873564, HQ873568, HQ873569	China	[112]
HQ873546, HQ873550, HQ873552, HQ873554	Indonesia - Ambon	[112]
HQ873538, HQ873544, HQ873545, HQ873556	Indonesia - Banjarmasin	[112]
HQ873559	Indonesia - Java	[112]
HQ873493, HQ873541, HQ873555	Indonesia - Manado	[112]
HQ873540, HQ873548, HQ873553	Indonesia - Mataran	[112]
HQ873549	Indonesia - Palangkaraya	[112]
HQ873494, HQ873551	Indonesia - Toraja	[112]
HQ873499, HQ873547	Indonesia - Ujung Padang	[112]
HQ873539	Indonesia - Waingapu	[112]
HQ873542, HQ873543	Malaysia - Kota Kinabalu	[112]
HQ873490, HQ873491, HQ873492, HQ873530, HQ873531, HQ873533, HQ873534, HQ873535	Papua New Guinea	[112]
HQ873536, HQ873537	Philippine	[112]
HQ873557, HQ873558	Taiwan - Ami	[112]
HQ873560, HQ873565	Taiwan - Siraya	[112]
HQ873561	Taiwan - Tsou	[112]
HQ873563	Taiwan - Saisiat	[112]
HQ873562	Thailand	[112]
HQ873520, HQ873521, HQ873522, HQ873523, HQ873524, HQ873525, HQ873526, HQ873527, HQ873528, HQ873529	Vanuatu	[112]
HQ873532	West New Guinea	[112]
JQ411478, JQ411479	Chinese	Unp
JQ703874	Thailand	[94]
JQ704922, JQ705700	Hawai'i	[94]
JX893364, JX893365	Maori - Ancient DNA	[113]
JX900327, JX900328, JX900329, JX900330, JX900331, JX900332, JX900333, JX900334, JX900335, JX900336,	Solomon Islands: Bellona	[114]

JX900337, JX900338, JX900339, JX900340, JX900341, JX900342, JX900343, JX900344, JX900345, JX900346, JX900347, JX900348, JX900349, JX900350, JX900351, JX900352, JX900353, JX900354, JX900355, JX900356, JX900357, JX900358, JX900359, JX900360, JX900361, JX900362, JX900363, JX900364, JX900365, JX900366, JX900367, JX900368, JX900369		
JX900370, JX900371	Solomon Islands: Choiseul	[114]
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KC993914, KC993917, KC993918, KC993922	Philippines - Abaknon	[95]
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KC994045, KC994047, KC994049, KC994050, KC994053	Philippines - Ifugao	[95]
KC994063, KC994064, KC994073, KC994074, KC994080	Philippines - Ivatan	[95]
KC994091, KC994097, KC994101, KC994104, KC994105, KC994107, KC994109	Philippines - Kalangoya	[95]
KC994114, KC994115, KC994119, KC994132, KC994136	Philippines - Kankanaey	[95]
KC994155, KC994161	Philippines - Maranao	[95]
KF540509, KF540512, KF540513, KF540517, KF540521, KF540522, KF540528, KF540534, KF540538, KF540551, KF540554	Taiwan - Ami	[96]
KF540572, KF540590	Taiwan - Atayal	[96]
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KF540706, KF540707, KF540708, KF540716	Taiwanese Han	[96]
KF540756, KF540761, KF540763, KF540764, KF540765, KF540767, KF540773, KF540774, KF540777, KF540779, KF540784, KF540787, KF540792, KF540796, KF540797, KF540798	Taiwan - Paiwan	[96]
KF540814, KF540829, KF540836, KF540843	Taiwan - Makatao	[96]
KF540894, KF540897, KF540905, KF540913	Taiwan - Rukai	[96]
KF540954	Taiwan - Saisiat	[96]
KF540967, KF540983, KF540987, KF540991, KF540997, KF540998, KF541000, KF541001	Taiwan - Tao	[96]
KF541020, KF541032, KF541042, KF541047	Taiwan - Tsou	[96]
NA17990, NA18109, NA18141	Chinese in Dever, USA	[86]
NA18528, NA18537, NA18541, NA18567, NA18614, NA18617, NA18770, NA18794	China-Beijing	[86]
NA18948, NA18975, NA19551	Japan	[86]
SSM091	Malaysia	[99]

Table S10. Sequences used in the ancient DNA fossil calibration with BEAST

Sequence (accession number)	**Reference**
AF346995	[100]
AP008482	[72]
AY714005	[115]
AY882379	[116]
DQ200802	[117]
DQ304925	[118]
DQ304954	[118]
DQ305010	[118]
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DQ341080	[119]
DQ341081	[119]
DQ341089	[119]
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EF093547	[101]
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EF185794	[101]
EF185804	[101]
EF222234	[120]
EF556173	[121]
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EU597502	[81]
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FJ951545	[130]
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HM596745	FT - DS
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JQ045062	[135]
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JQ045101	[135]
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JQ702441	[94]
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JQ702659	[94]
JQ702802	[94]
JQ703793	[94]
JQ704286	[94]
JQ704875	[94]
JQ704919	[94]
JQ705000	[94]
JQ705310	[94]
JQ705673	[94]
KC417443[a]	[136]
KC521454[b]	[137]
KC911536	[138]
KF540505[c]	[96]

[a] Ancient sample: 39475 years
[b] Ancient sample: 8180 years
[c] Ancient sample: 7900 years

Table S11. List of founders under the *f1* and *f2* criteria [139] including the effective number of samples for each founder, the age estimate and its standard error. Fifty networks displayed relevant founders for ISEA. The positions of the variants at the root for each network against the rCRS (less 16,000) are indicated, but note that the classification of the lineages was based in many cases on additional coding-region typing.

Network (root variants against rCRS)	Variants in network from root to founder	*f1* criterion			*f2* criterion		
		n	Age estimate (years)	Standard error	n	Age estimate (years)	Standard error
A4 (223, 290, 319, 362)	**root**	1	0	0	1	0	0
B4a (189, 217, 261)	**root**	142	8691	3486	172	11344	3481
	168 311	1	0	0			
	242	1	0	0	1	0	0
	92	10	15009	10678			
	286	1	0	0			
	178	2	0	0			
	278	1	0	0			
	223	16	5212	2331			
	311	2	0	0	3	5559	5559
	324	4	0	0	4	0	0
	93	1	0	0	1	0	0
	129	2	0	0	2	0	0
B4b (136,189,217)	**root**	64	4951	1669	79	7389	2728
	92	1	0	0			
	217	1	0	0			
	300	11	0	0			
	86	2	0	0	2	0	0
	261	2	0	0			
B4 (189, 217)	**root**	3	16677	9628	8	37523	18411
	311 92 274 140 335	1	0	0			
	92 274 140 335	1	0	0			
	129 274 140 335	1	0	0			
	136 274 140 335	1	0	0			
	311 274 140 335	7	2382	2382			
	274 140 335	54	1853	874	65	5645	2578
	184A 235 147	11	15161	6780	11	15161	6780
	274 335	1	0	0			
	140 335	2	8339	8339			
	362 140	1	0	0			
	274 140	6	2779	2779	6	2779	2779
	235 147	13	8980	3394	13	8980	3394
	235	5	0	0	3	22236	13617
	147	9	7412	3706	9	7412	3706
	140				1	0	0
B5 (140,189)	**root**	5	6671	4717	5	6671	4717
	129 111 234 243	10	15009	13445			
	111 234 243	2	0	0	12	26405	17852
	309 243	1	0	0			
	218 243	3	0	0			
	355 243	2	0	0	2	0	0
	234 243	1	0	0	1	0	0
	145 266A	2	0	0			

	260 266A	1	0	0	1	0	0
	266G 266A	1	0	0	1	0	0
	140 266A	1	0	0	1	0	0
	261 266A	5	6671	4717	5	6671	4717
	243	56	3276	1298	60	4169	1497
	266A	46	3988	1202	48	5212	1514
B (189)	**root**	20	10840	6295	21	13500	6202
	129	1	0	0	1	0	0
	93	1	0	0			
	51	2	0	0	2	0	0
C (223, 298, 327)	**root**	5	6671	4717	6	8339	4814
	298	1	0	0	1	0	0
	51	1	0	0			
D2 (129, 223, 271, 362)	**129**	1	0	0	1	0	0
D4b2b2b (172, 362)	**root**	1	0	0	1	0	0
D4e1 (092, 223, 362)	**root**	1	0	0	1	0	0
D with 274 (223, 274, 362)	**root**	5	86720	33354	10	71711	20628
	278	1	0	0			
	129	4	4169	4169			
	192	2	0	0	2	0	0
	311	1	0	0	1	0	0
D4i (223, 294, 362)	**root**	1	0	0	1	0	0
D4j2 (223, 291, 362)	**root**	2	0	0	2	0	0
D4 (223, 362)	**root**	22	7580	3556	31	13987	5942
	311 189	1	0	0			
	261	7	0	0			
	209	1	0	0			
	355	1	0	0	1	0	0
	301	2	0	0	2	0	0
	234	1	0	0	1	0	0
	286	1	0	0			
	311	2	0	0	2	0	0
	93	2	0	0	2	0	0
	189				1	0	0
D5 (189, 223, 362)	**root**	6	2779	2779	6	2779	2779
	92 148	16	3127	1805	16	3127	1805
	311	2	0	0	2	0	0
	172	1	0	0	1	0	0
	148	8	4169	2948	8	4169	2948
E (223, 362, 390)	**root**	63	20383	12593	107	24782	10382
	185 51	10	3335	3335			
	51	34	12753	5678			
	291	179	8665	1770	179	8665	1770
F1 (129, 304)	**266**	2	16677	11792	2	16677	11792
F1a (129, 172, 304)	**root**	103	14572	7792	105	14612	7650
	362 294	91	4032	1533	91	4032	1533
	189 129	1	0	0	1	0	0
	301	2	0	0			
	362	7	9530	6739	7	9530	6739
	294	1	0	0	1	0	0

	295	2	16677	11792	2	16677	11792
	129	1	0	0	1	0	0
F1a1a (129, 162, 172, 304)	**root**	7	4765	3369	9	11118	5860
	189	2	0	0			
	399	2	8339	8339	2	8339	8339
F1a1a1 (108, 129, 162, 172, 304)	**root**	44	5306	1857	45	5559	1853
	398	3	16677	12430	3	16677	12430
	391	2	0	0	2	0	0
	293	1	0	0			
	304	1	0	0	1	0	0
F3 (298, 362)	**root**	1	0	0	1	0	0
	311 93 265 220C	2	0	0	2	0	0
	93 265 220C	2	0	0			
	93 260 355	1	0	0	1	0	0
	265 220C	35	22395	10918	37	22086	10367
	93 220C	5	0	0			
	220C	9	31501	19871	14	26207	14095
	355	1	0	0	1	0	0
F4b (218, 304, 311)	**root**	5	13342	9434	5	13342	9434
G2a (223, 227, 278, 362)	**root**	1	0	0	1	0	0
	227 189	1	0	0	1	0	0
M10a1 (129, 223, 311)	**129 93 193**	2	66708	31200	2	66708	31200
M11a2 (173, 223)	**root**	5	56702	29268	5	56702	29268
M12 (223, 234, 290)	**root**	1	0	0	1	0	0
	362 93 311 129 362	1	0	0			
	249 189 172	1	0	0			
	311 129 362	4	0	0			
	189 172	1	0	0	2	25016	14443
	129 172	1	0	0			
	261	2	16677	11792			
	129 362				5	40025	22125
	172				1	0	0
	261				2	16677	11792
M13b1 (129, 223, 263)	**root**	18	50031	16522	18	50031	16522
M26 (214A, 223, 256, 278)	**root**	6	11118	8790	6	11118	8790
M71 (223, 271)	**root**	1	0	0	7	54796	16333
	140 129	2	25016	14443	2	25016	14443
	129	4	41693	17689			
	269	9	9265	9265	9	9265	9265
	311	2	8339	8339			
M74 (223, 311, 362)	**root**	41	13423	5621	41	13423	5621
M76 (189, 193C, 362)	**124**	1	0	0	1	0	0
M7a (209, 223)	**root**	1	0	0	1	0	0
M7b (129, 223, 297)	**root**	1	0	0	2	16677	11792
	189 129	1	0	0	1	0	0
	191	1	0	0			
	189	5	3335	3335	5	3335	3335
	129	1	0	0	1	0	0
M7b1 (129, 192,	**root**	3	16677	9628	13	24374	11546

223, 297)	**129**	2	25016	18645			
	126	8	6254	4661			
	189	12	8339	5896	12	8339	5896
M7b3 (086, 129, 297)	**root**	26	6414	3009	26	6414	3009
M7c3 (223, 295)	**root**	1	0	0	3	22236	15723
	274 362	1	0	0			
	93 362	6	19456	14443			
	311 362	4	8339	8339			
	168 362	9	27795	11572	9	27795	11572
	295 319	9	29648	18714			
	311	2	0	0			
	86	1	0	0	1	0	0
	362	155	5164	1282	166	5626	1714
	319				9	46325	25067
M7 (223)	**root**	1	0	0	2	41693	18645
	129	1	0	0			
	362	9	0	0	9	0	0
	223	1	0	0	1	0	0
M8a (223, 298, 319)	**root**	1	0	0	1	0	0
M9 (223, 234, 362)	**158**	1	0	0	1	0	0
M (223)	**root**	31	42499	6784	78	58156	6569
	278 172 189 140	2	0	0	2	0	0
	381 344 304	1	0	0			
	319 311 278 243	1	0	0			
	181 304 291 145	3	22236	17579			
	192 304 291 145	2	0	0	2	0	0
	209 325	7	23824	15440			
	86 272	7	42884	21309			
	209 129 272	12	4169	3108			
	311 249	1	0	0			
	304 291 145	7	2382	2382	10	13342	7458
	311 278	1	0	0			
	140	4	29185	11031	4	29185	11031
	325	1	0	0			
	305	9	72267	29240			
	299	1	0	0			
	295	1	0	0			
	291	1	0	0			
	287	3	22236	15723			
	284	5	20012	14151			
	272	2	58370	22062	21	46854	16449
	259	4	83385	29481	4	83385	29481
	233	7	83385	23464			
	219	3	0	0	3	0	0
	209	1	0	0			
	193	1	0	0	1	0	0
	172	2	16677	11792	2	16677	11792
	166	1	0	0			
	148	3	38913	18437			
	124	1	0	0	1	0	0
	147	3	33354	17579			
	278	20	29185	8544	21	28589	8176

	184A	6	30574	13330	6	30574	13330
	311	7	0	0	7	0	0
	362	3	11118	11118	3	11118	11118
	129	2	0	0			
	234	4	54200	23951	4	54200	23951
	344 304				1	0	0
N9a (223, 257A, 261)	**292**	9	37060	17383	15	28907	12380
	189 292	6	0	0			
N9b (189, 223)	**root**	2	33354	16677	2	33354	16677
N(223)	**root**	9	40766	16365	17	43164	12095
	357 311 343 274 263	12	19456	13758			
	224 319 274 263	1	0	0			
	249 168	5	20012	12480			
	111 172	5	73379	27906			
	291	1	0	0			
	213	2	0	0			
	311 343 274 263				12	19456	13758
	274 263				1	0	0
	172				5	90056	32509
R9 with 189 (189, 304)	**root**	2	16677	11792	3	22236	11118
	284	1	0	0	1	0	0
	311	1	0	0			
R9b (304, 309, 390)	**192 309 288**	1	0	0			
	172 390	1	0	0			
	192 288	10	16677	10808	10	16677	10808
	309	1	0	0	1	0	0
	288	3	0	0	4	12508	7221
	390				1	0	0
R9c (157, 304)	**root**	5	10006	10006	6	11118	8790
	311 335 256	4	12508	12508			
	335 256	50	7004	2187	54	8647	2547
	256	1	0	0			
R9 (304)	**root**	5	23348	12026	13	43617	14739
	233	5	53366	29077			
	362	2	0	0	2	0	0
	209	3	0	0			
R (0)	**root**	7	33354	11175	14	35736	10521
	301 390 304 249 288	3	0	0	3	0	0
	390 304 249 288	9	0	0			
	304 249 288	5	13342	8170	14	15486	11111
	249 288	4	20846	11031			
	355	1	0	0			
	288	2	58370	27656	6	44472	16207
	192	1	0	0			
	172	1	0	0	1	0	0
	256	5	3335	3335			
	189	11	1516	1516	11	1516	1516
Y (126, 231)	**root**				1	0	0
	209	1	0	0			
	189	1	0	0	1	0	0
	311	58	5463	2620	58	5463	2620
Z (185, 223, 260, 298)	**root**	1	0	0	3	16677	12430
	185	6	13898	13898	6	13898	13898
	129	2	8339	8339			

Table S12. Relevant age estimates of three clades for the phylogeographic parameters defined in the main text using the traditional 95% confidence interval (CI) and the expanded 95% CI calculated as in Mellars et al. [140].

	Clade	Age estimate (years)	95% confidence interval	Expanded 95% confidence interval
Founder age estimate of putative migration Taiwan to ISEA	**B4a1a**	7270	[5210; 9370]	[4920;9660]
	E	8770	[5980; 11600]	[5670;11920]
	M7c3c	4460	[3220; 5720]	[3040;5900]
Founder age estimate of putative migration Taiwan and Philippines to rest of ISEA	**B4a1a**	8520	[4770; 12340]	[4550;12580]
	E	6400	[4780; 8030]	[4500;8320]
	M7c3c	4200	[2520; 5890]	[2400;6020]
Age estimate of clade	**B4a1**	14700	[11020; 18460]	[10350;19150]
	M9	39160	[26870; 51960]	[25350;53620]
	M7c3	11830	[3880; 20220]	[3680;18270]
	B4a1a	9940	[5530; 14460]	[5270;14740]
	E	23950	[14470; 33840]	[13740;34630]
	M7c3c	5230	[4000; 6470]	[3760;6720]

Table S13. Increment period, peak of increment and ratio of increment in the Bayesian skyline plots (BSPs) for mtDNA haplogroups B4a1a, E and M7c3c in ISEA and Taiwan

Clade	Location	Increment period	Ratio of increment	Peak
B4a1a	*ISEA*	3.5-10.2 ka	21x	6.7 ka
	Taiwan	0.4-9.3 ka	85x	6.7 ka; 1.5 ka
E	*ISEA*	3.8-7.7 ka	11.5x	6.1 ka
	Taiwan	3.1-7.4 ka	8.9x	5.2 ka
M7c3c	*ISEA*	2.2-5.2 ka	7.6x	4 ka
	Taiwan	3.6-7.6 ka	2.9x	5.2 ka

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