



John Doe DNA Fingerprint Plus 18 Marker Ethnic Panel

D6124 – 7304964

Genetic systems known as **autosomal markers** were analyzed at **DNA Diagnostics Center**. Testing revealed a unique **DNA fingerprint** or **profile**. The table below shows you how your personal DNA Fingerprint looks. The numbers reflect your genetic inheritance from all previous generations and can suggest statistical matches for your overall ancestry or mix of lines.

Your Lab Results

Locus	Alleles		Range
D8S1179	13	14	<9 - >17
D21S11	31.2	29	<24.2 - >36
D7S820	8	11	6 - >14
CSFIPO	12	11	<6 - 15
D3S1358	11	18	<12 - >19
THO1	9	8	<5 - >10
D13S317	12	12	<8 - >15
D16S539	12	11	<8 - 15
D2S1338	22	22	15 - 28
D19S433	13	14	9 - 18.2
VWA	16	18	11 - >22
TPOX	11	10	<6 - >13
D18S51	16	13	<11 - >22
D5S818	12	11	<7 - >15
FGA	25	21	<18 - >30

The scores shown in green and yellow known as **CODIS** markers were compared with profile frequencies for 450 populations from around the world stored in our computer program **atDNA 7.0**. The following populations—though not in strict order of importance—proved to be the leading matches for you on a multi-locus basis:

Rank	World Population Matches
1	Spanish - Majorcan (n = 103)
2	Iranian (n = 93)
3	Italian - Piedmont (n = 147)
4	Algerian Mozabites (n = 88)
5	Greek (n = 143)
6	Spanish - Balearic Islands (n = 113)
7	Sardinia (n = 125)
8	Italian (n = 441)
9	Portuguese - Northern (n = 200)
10	Italian (n = 223)
11	Greek (n = 205)
12	Albanian - Kosovo (n = 136)
13	Saudi Arabian (n = 73)
14	North African - Maghreb (n = 59)
15	Native American - Florida (n = 105)
16	Brazilian - Mato Grosso do Sul (n = 158)
17	Moroccan Berber - Bouhria (n = 104)
18	Yemeni (n = 101)
19	Bosnian (n = 210)
20	Sicilian (n = 220)
21	Omani (n = 79)
22	White - U.S (n = 200)
23	India - Golla (n = 65)
24	India - Tanjore Kallar (n = 101)
25	South African - European - Capetown (n = 98)
26	Italian - Tuscany (n = 188)
27	Greek - Northern (n = 318)
28	Spanish (n = 401)
29	White - Canadian (n = 164)
30	Turkish (n = 198)
31	White - Canadian (n = 83)
32	Portuguese - Northern (n = 250)
33	Portuguese - Azores Archipelago (n = 95)
34	Omani (n = 162)
35	Italian (n = 1,541)
36	Turkish (n = 310)
37	Spanish - Andalusian (n = 100)
38	Paraguayan (n = 168)
39	Belarusian (n = 176)
40	Slovenian (n = 193)
41	White - Kentucky (n = 349)
42	Spanish - Andalusian (n = 114)
43	Spanish - Northeast (n = 204)
44	Romania - Dobruja (n = 569)
45	Spanish (n = 342)
46	U.S. Cherokee Admixed (n=62)
47	Hispanic - Connecticut (n = 187)
48	Brazilian - Santa Catarina (n = 160)
49	Spanish/Moroccan - Moroccan Arabs (n = 47)
50	Argentinian - Buenos Aires (n = 101)

Your matches are also shown on the attached ancestry map. **Green** stands for locations of strongest probable genetic origins, **red** likely absence of ancestry, and **brown** weak or

ambiguous contributions of ancestry. Blank dots indicate No Comparison Possible. The time frame is historical, not pre-historical.

According to recent research in population genetics, genes mirror the geography of Europe. Modern-day European subpopulations correspond roughly to national and linguistic boundaries (Lao et al. 2008). An additional search was made for high Random Match Probabilities in the [Strbase](#) of [ENFSI](#), covering 39 countries. By a calculation restricted to European data, the top ten country matches are:

Rank	European Population Matches
1	Portugal (n = 150)
2	Croatia (n = 200)
3	Denmark (n = 200)
4	Austria (n = 222)
5	Scotland - Highlands (n = 228)
6	Netherlands (n = 231)
7	France (n = 208)
8	Northern Ireland (n = 207)
9	Estonia (n = 150)
10	Scotland - Lowlands (n = 494)

Megapopulations: the Bottom Line

These are the [Top Ten broadest possible categories](#) for your relative mix of ethnicities. "1 in 1 trillion" is the random probable match or chance of occurrence for your unique DNA profile or fingerprint. The lower the number the greater the match and more likely it is you have ancestry in that population.

<u>Mega Population</u>	<u>Frequency</u>
Mediterranean European	1 in 71 billion
Jewish	1 in 99 billion
Middle Eastern	1 in 122 billion
Northern European	1 in 157 billion
Iberian	1 in 158 billion
European American	1 in 163 billion
Australoid	1 in 194 billion
East European	1 in 199 billion
Central European	1 in 213 billion
Iberian American	1 in 264 billion

18 Marker Ethnic Panel

These eighteen markers correlate at a rate of 80% with probable ethnic ancestry as indicated. They reflect major human migrations as depicted on the following map. Since you receive one allele (unit of human variation) from one parent and one from the other, you can potentially have two markers, one or none. It is not possible to say which parent you get a marker from in any instance, and the fact that you do not have a marker does *not* mean that you lack that ancestry. Due to the nature of autosomal DNA, one sibling can get a marker and another could miss getting it.

Marker	Allele	Allele
NATIVE AMERICAN I	✓	
NATIVE AMERICAN II	✓	
EUROPEAN I		
EUROPEAN II	✓	✓
EASTERN EUROPEAN I	✓	
EASTERN EUROPEAN II		
JEWISH I	✓	
JEWISH II		
JEWISH III	✓	
JEWISH IV		
ASIAN I	✓	
ASIAN II		
ASIAN III		
ASIAN IV		
SUB-SAHARAN AFRICAN I		
SUB-SAHARAN AFRICAN II	✓	
SUB-SAHARAN AFRICAN III		
SUB-SAHARAN AFRICAN IV		

Analysis and Conclusion

Our worldwide and European approaches are combined in the following analysis. Profile frequencies suggest your principal ancestral lines—not necessarily in strict order of importance—are:

European, primarily Austrian, Scottish, Irish, French, Italian, Belgian, Spanish/Portuguese, Greek, Albanian, Danish, Dutch, Estonian and Croatian (1, 3, 5-12, megapopulations, markers, EURO, map) with **American Indian** (15, 46, markers, map) **admixture**. There is also Jewish (markers, green diamond in Israel) and other Middle Eastern (2, 4, 13-14, 17-19, megapopulations, map).

Tribal affiliations cannot always be determined from the Native American matches, as types of Native American DNA are distributed all across the Americas. Some, moreover, may be deep, shared ancestry. Hispanic matches (including Brazilian) do not necessarily indicate Latin American ancestry but may signal rather a mixture of Iberian and Native American ancestry. Some of the Iberian matches can probably be attributed to deep ancestry, as it is believed that Iberians on the Atlantic Coast such as the Basques and Portuguese were the leading colonizers of the British Isles following the last Ice Age (Oppenheimer). Asian is a common deep ancestral match for anyone with Native American ancestry. Sub-Saharan African markers may be attributed to Iberian (Spanish/Portuguese) ancestry, which is marked by relatively elevated Sub-Saharan admixture, as well as to deep ancestry, as scientists believe we all come from Africa. Moreover, Sub-Saharan African is also common with anyone who has matches to older populations like Jewish and Middle Eastern. Finland and Estonia may appear because of high Native American admixture. As proved by fossils, modern Europeans and Native Americans share deep ancestry in the Finno-Uralic-Baltic region of northern Europe (Lazaridis; Seguin-Orlando).

There appears to be no [East Asian](#), [Sub-Saharan African](#), [Australoid](#) or [Sub-Continental Indian](#) (except as may pertain to Gypsies, who originated in India), any apparent matches being due to accidental [convergence](#) or deep history.

Remember: results do not equal percentages. They show only that your profile, on the face of it, is most common in present-day European, American Indian, Jewish and certain other populations. These unique genetic [polymorphisms](#) may or may not be reflected in your individual physical appearance. Nonetheless, they can be expected to be associated with certain recognizable family traits. You may order an [Ancestry Certificate](#) for one or more of these ancestries. We suggest also that you add [Rare Genes from History](#) to obtain the maximum information about your autosomal ancestry.

Susan Levin
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July 16, 2015

Key to Ethnic Groups

NATIVE AMERICAN I. This marker is inherited by an individual who has some degree of Native American ancestry. Often it comes from only one parent. As with other markers, if you didn't get it, that does not mean you don't have any Native American ancestry. Pairs of markers (**alleles**) are reshuffled from generation to generation, and it could have been lost. You may have it, but a sibling might not. By "Native American" is meant any of the indigenous groups who lived in either North or South America before Columbus. It is the same designation as **American Indian**. Native American DNA is so distinctive that this test can detect even small amounts of it because of multigenerational interbreeding and effective conservation of admixture markers. But despite what you may have heard, no DNA test can definitively tell you what percentage of admixture you have. *Studies show about 80% of modern-day North and South American indigenous peoples have at least one of these markers.* NA I is strong throughout the Americas, from Apaches and Algonquian Indians to Mexican and Peruvian Indians.

NATIVE AMERICAN II. Similar to Native American I but found typically in people who are half or less Native American and about half Iberian with sometimes a lesser amount of Sub-Saharan African, i.e., Hispanic or Latino.

EUROPEAN markers are located on two different **chromosomes** and relate to prehistoric human migrations in **Eurasia**. Certain readings on these two sites are nearly specific to European populations, including European emigrants to North and South America. **Europe** embraces, north to south, Scandinavia, Spain, Italy and Greece, and west to east, the British Isles, Poland and that part of Russia west of the Ural Mountains. Both **EUROPEAN markers** were carried westward by proto-Europeans approximately 40,000 years ago after they split off from an earlier stock from which Asians and Native Americans are also descended.

EUROPEAN I is a **Mediterranean** marker. If you have it, your ancestors passed down to you a genetic heritage emphasizing the South of Europe, populated by the oldest Europeans. The frequency of this marker decreases as we go north. Conversely, **EUROPEAN II** is more common in the Atlantic-facing countries of the British Isles and Northern Europe, particularly Northwest Europe.

EASTERN EUROPEAN. These are two markers, each diagnostic of Eastern European ancestry in your family tree. They are most common in Swedes, Poles, Lithuanians, Belarusians, Latvians, Ukrainians and Russians. They are found frequently also in **Ashkenazi Jews**. Except for Sweden, all the matching countries are predominately **Slavic** in their demography and culture.

JEWISH. These markers do not *necessarily* point to Jewish ancestry but can also signal ancestry in any of the places where Jews historically lived due to Jews' admixture with local populations, conversion, identity loss and the phenomenon of crypto-Judaism. *Still, statistics show that over 80% of modern-day Jews have one or more markers.* They are sensitive for both major branches of Judaism, **Ashkenazi** and **Sephardic**, or Spanish, Jews. Ashkenazi Jews ("German," in Hebrew) started out in the Rhineland and northern France following the collapse of the Roman Empire. During the Age of Charlemagne around 800 they began to settle eastward as the lands of the Central and Eastern European Slavs were conquered by the Franks and Germans. There they met the Turkic Khazar people moving in from the Caucasus region. They reached a high point in their development in seventeenth-century Poland, Lithuania, Silesia, the Ukraine, Russia and Romania. During Germany's Third Reich, six million or more of them were killed in the Holocaust. In contemporary times, they represent perhaps the best-known face of Judaism, accounting for about 80% of American and Israeli Jews. Because they trace back to a small nucleus (founder effect or bottlenecking) which kept expanding while preserving the same gene pool (genetic drift), Ashkenazi Jews have very recognizable genetic traits. They are subject to a range of hereditary disorders such as Tay-Sachs disease. As in the case of other markers, Jewish I, II and III are not completely conclusive in showing ancestry, nor do they tell you how much you may have or where in your genealogies it may stem from.

JEWISH I. This is the most common of the three markers. It can occur without known Jewish ancestry for a variety of reasons including an ancestor's conversion to Christianity during the centuries of persecutions against Jews in Europe. Its frequency is highest in Poles, Russians,

Germans, Hungarians, Romanians and Slavic peoples who intermarried with Ashkenazi Jews. It also appears in Spanish, Portuguese and Moroccan Jews (**Sephardim**).

JEWISH II. This marker is the strongest. It is found in Jewish families who have intermarried with other Jews down through the centuries. It is characteristic of Ashkenazi Jews.

JEWISH III. This marker is an indication of Middle Eastern roots. Preserved by Jews, it is also borne by Kurds, Syrians, Arabs, Berbers, Basques, Turks, Greeks, Italians and other populations from the ancient world. It is particularly common in Sephardic Jews.

JEWISH IV. A marker indicative of Tatar or Khazar heritage. Khazars were a Central Asian people of Turkic, Hunnish and Iranian elements that arose in the Caucasus region. After converting to Judaism in the early Middle Ages, they moved westward into Russia and the Ukraine under pressure from Islam, eventually becoming a large component of Eastern and Central European Jewry. Many Ashkenazi Jews now find they have some Khazar (or intermingled Tatar) ancestry.

ASIAN I, II, III, IV. In the context of DNA Fingerprint Plus, Asia consists of China, Siberia, Mongolia, Korea, Japan and other islands around the China Sea, as well as **India**, Southeast Asia and Australia. Asian I is centered in North China, Asian II in India and Asian III and IV in Southeast Asia.

SUB-SAHARAN AFRICAN (Black). Humans are believed to have lived originally in Africa. All non-African peoples are thought to have left that continent in a single small group about 80,000 years ago, developing into the proto-Arab, Indian, **Southeast Asian**, Australoid, East Asian, European and Native American ethnic groups. **Sub-Saharan Africa** (below the Sahara Desert) excludes North Africa, which is considered Caucasian (White) and customarily grouped with the **Middle East**. Between the sixteenth and nineteenth centuries, about 15 million Africans were transported to the New World as slaves, primarily from West Africa, Angola and Mozambique. Their descendants are the African Americans, among others. African ancestry is not uncommon in Portuguese, Sicilian and Middle Eastern people. SSA I follows the out-of-Africa trail of early Eurasians through Arabia and South India and occurs at its highest frequency in the Horn of Africa. SSA II originates apparently in Southwest Africa, is deep seated and includes West Africans, Romani, Melungeons, Basques and Levantine peoples. SSA III is another deep seated marker from the interior of the African continent. It is very rarely found in Asian peoples. SSA IV includes Berbers and African Americans and is also found in Greeks, Egyptians, Italians and other Mediterranean peoples.

References and Suggestions for Further Reading

1. Atzmon, Gil et al. (2010), "Abraham's Children in the Genome Era: Major Jewish Diaspora Populations Comprise Distinct Genetic Clusters with Shared Middle Eastern Ancestry," *American Journal of Human Genetics* 86:850-59.
2. Butler, John M. (2010). *Fundamentals of Forensic DNA Typing*. Amsterdam: Elsevier. Authoritative treatment endorsed by the National Institute of Standards and Technology.
3. Cavalli-Sforza, Luigi Luca and Francesco Cavalli-Sforza (1995). *The Great Human Diasporas* (New York: Basic). Wonderful, readable classic on human genetics and prehistory by father and son.
4. DNA-Interactive (web site) <http://www.dnai.org/index.html>. Easy to explore video modules on the many applications of DNA in the words of the founders and practitioners of genetics today.
5. DNA Consultants Blog (Sept. 30, 2012). "Rare Genes from History: New Autosomal Ancestry Markers from DNA Consultants."
6. Dulik, M. C. et al (2012), "Mitochondrial DNA and Y Chromosome Variation Provides Evidence for a Recent Common Ancestry between Native Americans and Indigenous Altaians," *American Journal of Human Genetics* 90/2: 229-46.
7. Fagan, Brian M. (2000). *Ancient North America: The Archaeology of a Continent* (3rd ed.). New York: Thames and Hudson.
8. Gilbert, Elizabeth L. (2007). *Tribes of the Great Rift Valley*. New York: Abrams.
9. Gimbutas, Marija, Miriam Robbins Dexter and Karlene Jones-Bley (1997). *The Kurgan Culture and the Indo-Europeanization of Europe: Selected Articles from 1952 to 1993*. Washington: Institute for the Study of Man.
10. Hawass, Z. et al. (2010), "Ancestry and Pathology in King Tutankhamun's Family." *Journal of the American Medical Association* 303(7):638-647.
11. Iovita, Radee P. and Theodore G. Schurr, (2004), "Reconstructing the Origins and Migrations of Diasporic Populations: the Case of European Gypsies", *American Anthropologist* 106/2:267-281.
12. Irish, J.D. (2006). "Who Were the Ancient Egyptians? Dental Affinities among Neolithic through Postdynastic Peoples." *Am J Phys Anthropol* 129 (4): 529-43.
13. Kennedy, N. Brent, with Robyn Vaughan Kennedy (1997). *The Melungeons: The Resurrection of a Proud People: An Untold Story of Ethnic Cleansing in America*. 2nd ed. Macon: Mercer UP.
14. Lao, Oscar et al. (2008), "Correlation between Genetic and Geographic Structure in Europe." *Current Biology* 18/16: 1241-48.
15. Lazaridis, I. et al. (2014). "Ancient Human Genomes Suggest Three Ancestral Populations for the Present-day Europeans." *Nature* 513(7518):409-13.
16. Manco, Jean (2014). *Ancestral Journeys. The Peopling of Europe from the First Venturers to the Vikings*. London: Thames & Hudson. Best book integrating DNA with archeology and history of Europe.
17. Meltzer, David J. (2009). *First Peoples in a New World: Colonizing Ice Age America*. Los Angeles: U of California at Berkeley P.
18. Painter, Nell Irvin (2010). *The History of White People*. New York: W.W. Norton.
19. Oppenheimer, Stephen (2006). *The Origins of the British. A Genetic Detective Story*. New York: Carroll & Graf. -----(2005). *The Real Eve*. New York: Carroll & Graf. ----- (1999). *Eden in the East: The Drowned Continent of Southeast Asia*. New York: Orion. Brilliant Oxford professor's books.
20. Salas, A. et al. (2005). "Charting the Ancestry of African Americans." *American Journal of Human Genetics* 77/4:676-80.
21. Schurr, Theodore G. (2000). "Mitochondrial DNA and the Peopling of the New World." *American Scientist* 88/3:246-53. Describes the common lineages A, B, C, D and X of American Indians, to which now anomalous lineages H, I, J, T, K, N, U and others previously restricted to European origin must be added.
22. Seguin-Orlando et al. (2014). "Genomic Structure in Europeans Dating Back at Least 36,200 Years," *Science* 346/6213:1113-18.
23. Sykes, Brian (2001). *The Seven Daughters of Eve*. New York, Norton. ----- (2006). *Saxons, Vikings and Celts*. New York: Norton. ----- (2012). *DNA USA. A Genetic Biography of America*. New York: Liveright. Books by British geneticist who founded Oxford Ancestors.

24. Wade, Nicholas (2010). "Studies Show Jews' Genetic Similarity." *The New York Times*, Science, page 1 (June 9, 2010). ----- (2007). *Before the Dawn*. New York: Penguin.
25. Weber, Andrzej, Anne Katzenberg and Theodore Schurr (2010). *Prehistoric Hunter-Gatherers of the Baikal Region, Siberia: Bioarchaeological Studies of Past Life Ways*. Philadelphia: U of Pennsylvania P.
26. Wells, Spencer (2006). *Deep Ancestry: Inside the Genographic Project*. Washington: National Geographic.
27. Yates, Donald N. and Elizabeth C. Hirschman (2010). "Toward a Genetic Profile of Melungeons in Southern Appalachia," *Appalachian Journal* 38/1:92-111.
28. Zerjal, T. et al. (2003). "The Genetic Legacy of the Mongols." *American Journal of Human Genetics* 72/3:717-21.

Glossary of Terms Used in This Report: <http://dnaconsultants.com/glossary>.

Understanding Your Results (FAQs): <http://dnaconsultants.com/DNAScience#testfaq>.

Statement on Ethnicity. Allelic population analysis is a science still in the early stages of development. As our understanding of human history and prehistory improves and more specific markers are discovered for distinct populations we can expect the accuracy of prediction of the ethnic constituents in our ancestry to increase. Here are some links to common ancestries mentioned in this report.

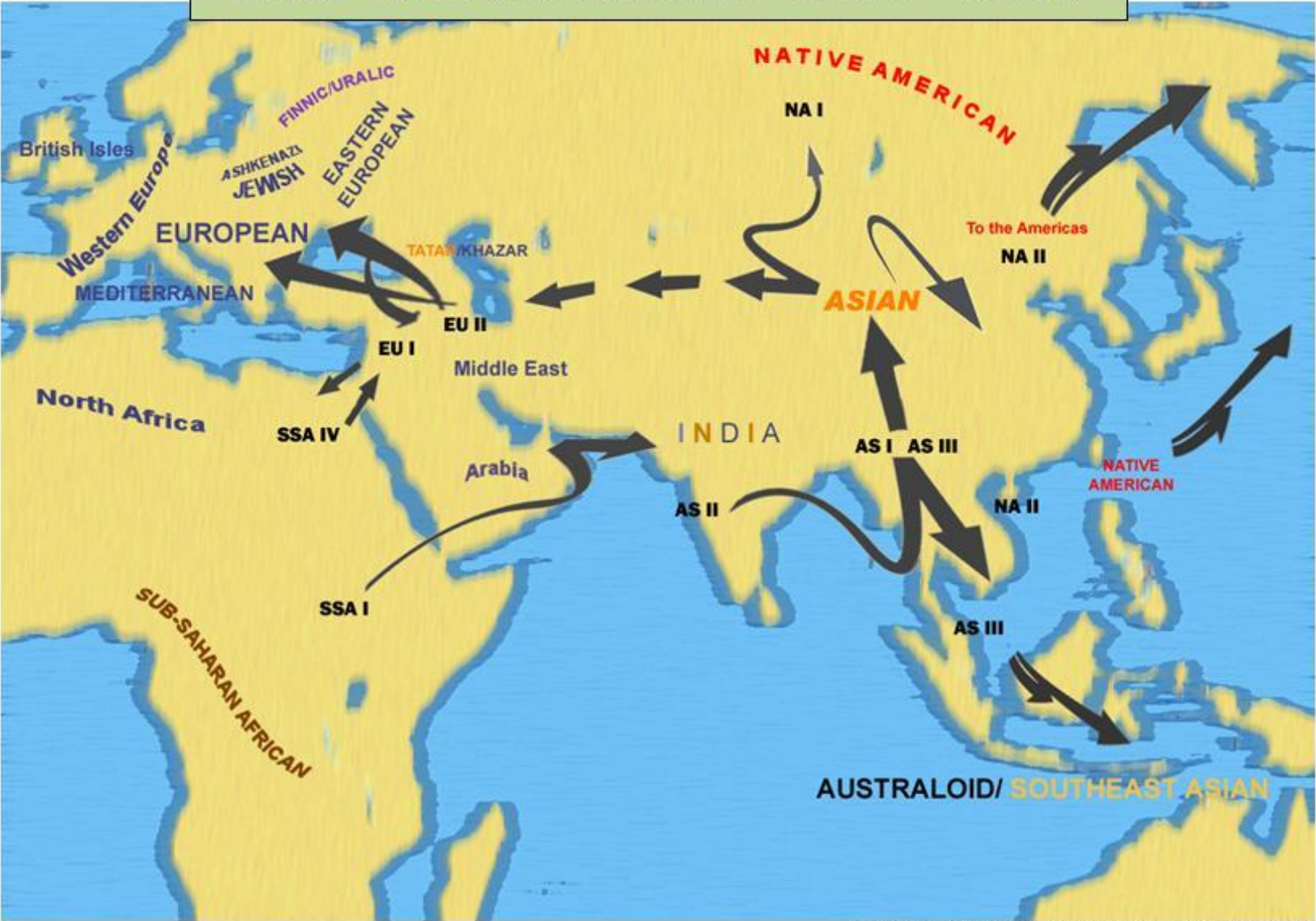
[Albanian](#) [Arab](#) [Ashkenazi](#) [Austrian](#) [Belgian](#) [British](#) [Croatian](#) [Czech/Slovak](#) [Danish](#) [Dutch](#) [English](#) [Europeans](#) [French](#) [German](#) [Greek](#) [Hungarian](#) [Irish \(included in British\)](#) [Italian](#) [Jews](#) [Middle Eastern](#) [Moroccan](#) [Norwegian](#) [Polish](#) [Romani/Gypsy](#) [Russian](#) [Scottish](#) [Sephardic](#) [Slovenian](#) [South Slavic](#) [Spanish/Portuguese](#) [Swedish](#) [Swiss](#) [Tunisian](#) [Turkish](#) [Welsh](#)

Reliability. While the laboratory methods used to determine your DNA markers are completely accurate and their statistical analysis is reliable, interpretation of the numerical results is subjective. Conclusions will vary. To form more confident opinions, we suggest that you combine the findings in this report with other testimony, such as that of DNA haplotypes, genealogical records and family history.

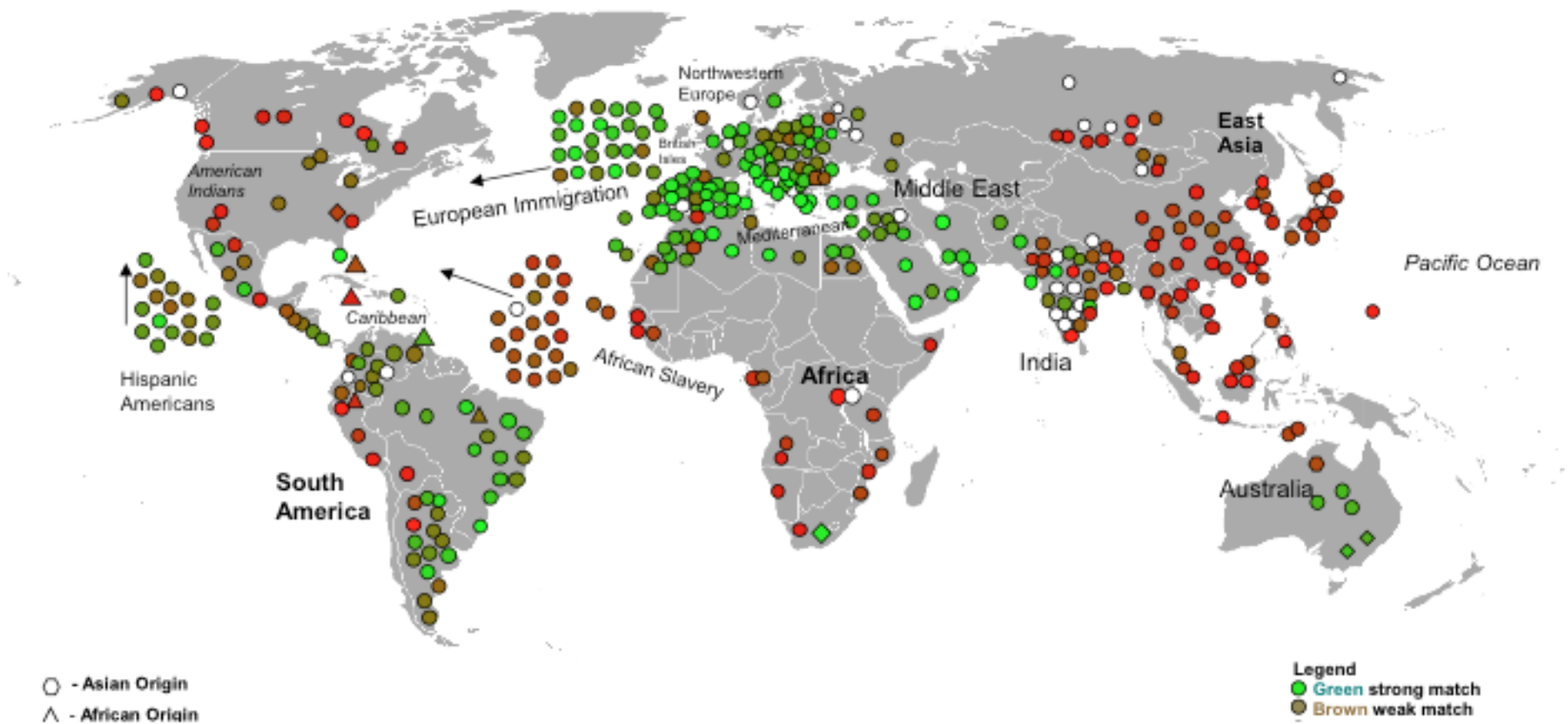
Confidentiality. Your testing, results and this report are 100% confidential.

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PREHISTORIC MOVEMENTS OF ETHNIC GROUPS



World Ancestry of John Doe





THIS DOCUMENT CERTIFIES THAT

John Doe

Ordered a DNA Fingerprint Test Yielding the Following Ancestry Matches

Rank European Population Matches

- 1 Portugal (n = 150)
- 2 Croatia (n = 200)
- 3 Denmark (n = 200)
- 4 Austria (n = 222)
- 5 Scotland - Highlands (n = 228)
- 6 Netherlands (n = 231)
- 7 France (n = 208)
- 8 Northern Ireland (n = 207)
- 9 Estonia (n = 150)
- 10 Scotland - Lowlands (n = 494)

Rank World Population Matches

- 1 Mediterranean European
- 2 Jewish
- 3 Middle Eastern
- 4 Northern European
- 5 Iberian
- 6 European American
- 7 Australoid
- 8 East European
- 9 Central European
- 10 Iberian American

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