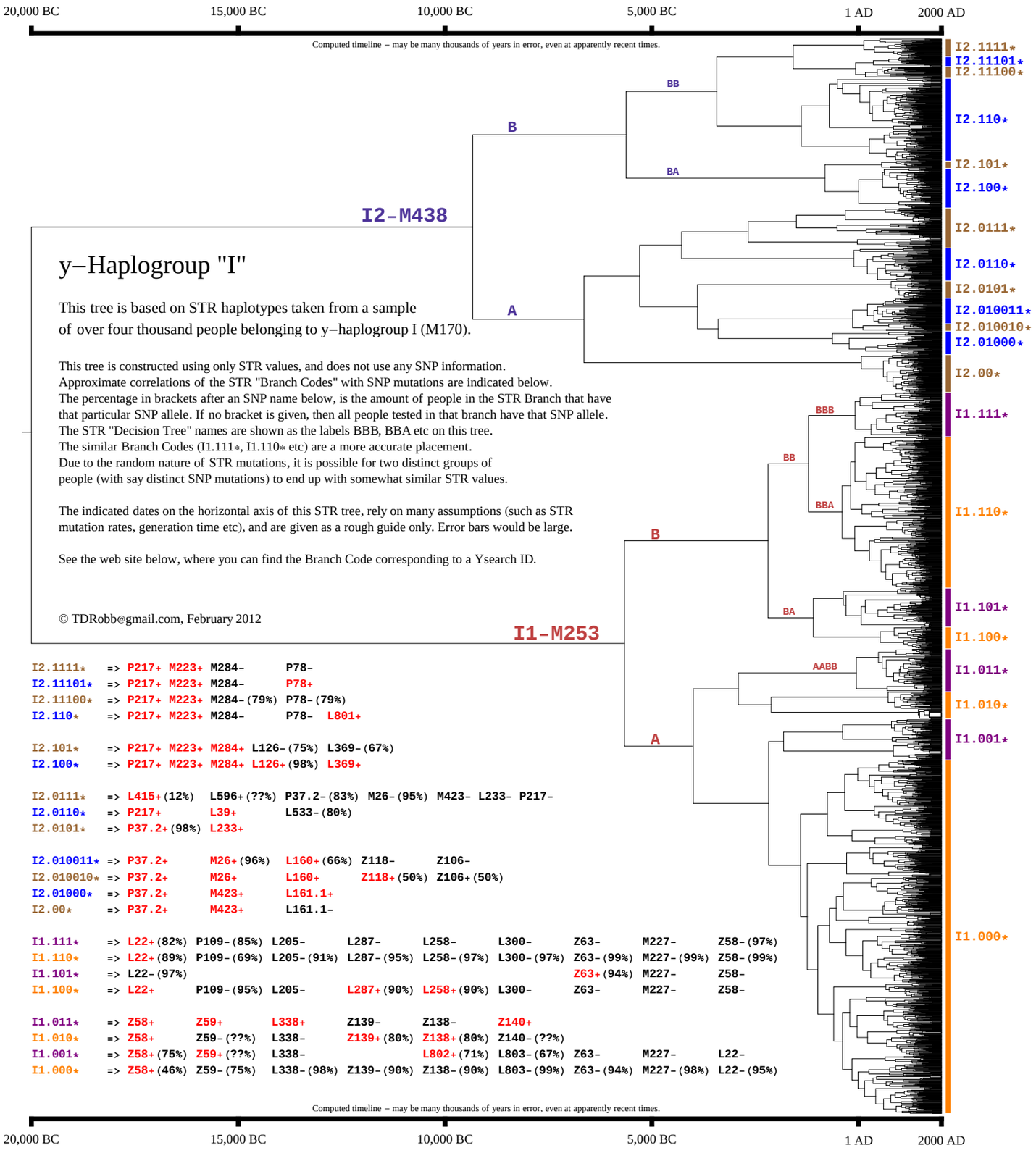
# y-Haplogroup "I" STR Tree

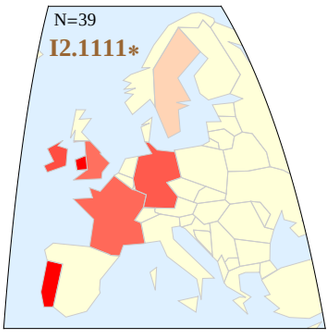
## With Branch Codes

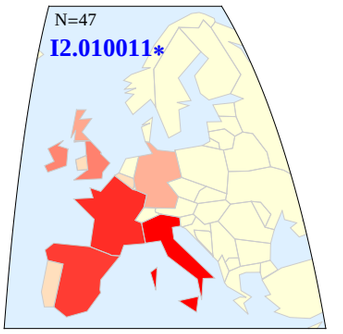


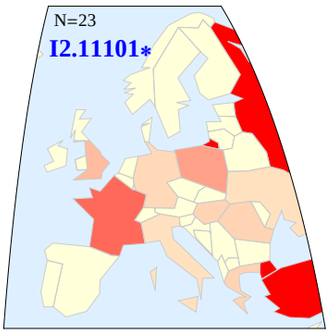

To translate your *FTDNA Kit Number*, or *Ysearch ID*, into an "***STR Branch Code***" go to http://www.goggo.com/terry/HaplogroupI1/ .

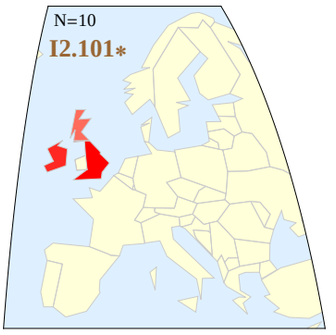
# y-Haplogroup I2

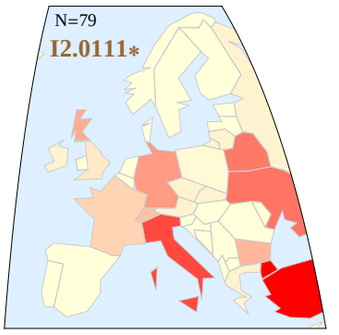
## Geographic Frequency Distribution

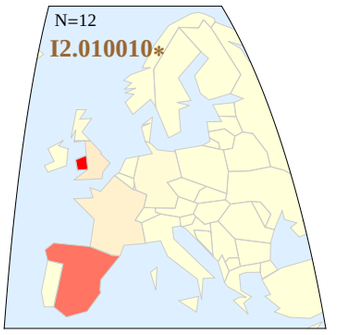


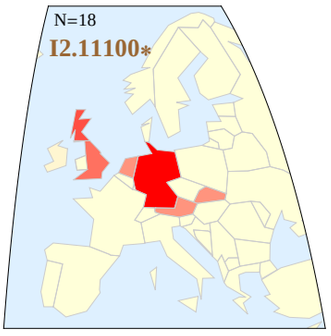



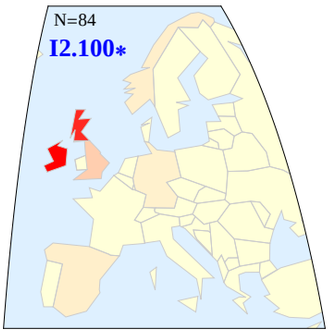



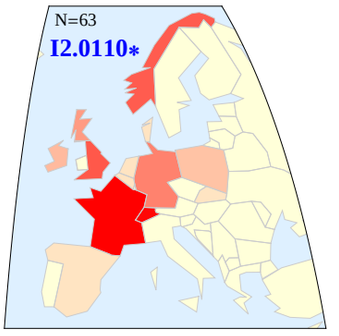



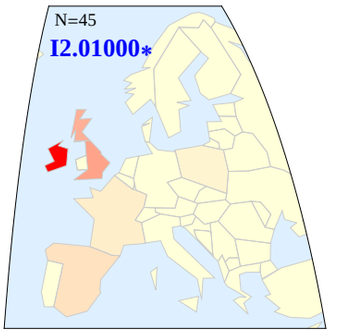



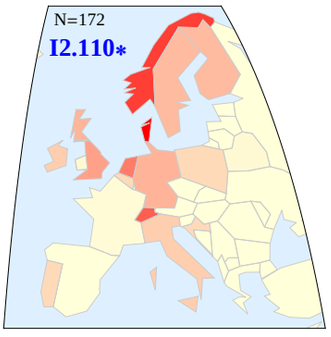



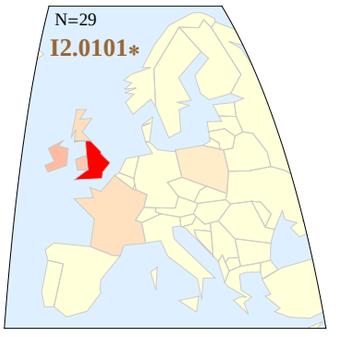



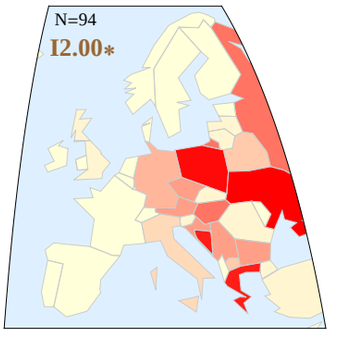



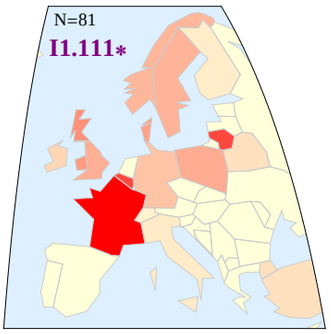



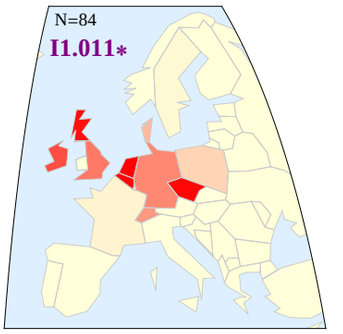

## SNP Counts for each I2 STR Branch

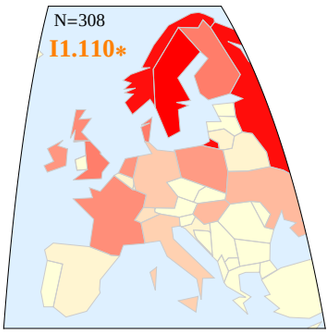
| | P37. | | M26 | | L160 | | Z118 | | Z106 | | M423 | | L161 | | P217 | | M223 | | P78 | | L801 | | M284 | | L126 | | L369 | | L39 | | L533 | | L233 | | L415 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - | + | - |
| I2.1111* | | 14 | | 14 | | | | | | | | | | | | | 49 | | | 22 | | 1 | | 22 | | 3 | | | | | | | | | |
| I2.11101* | | 5 | | 5 | | | | | | | | | | | | | 24 | | 16 | | | 2 | | 9 | | 2 | | | | | | | | | |
| I2.11100* | | 7 | | 7 | | | | | | | | | | | | | 32 | | 3 | 11 | | 5 | 3 | 11 | | 3 | | 1 | | | | | | | |
| I2.110* | | 53 | | 54 | | | | | | | | | | | 8 | | 221 | | | 91 | 40 | | | 91 | | 11 | | | | 2 | | | | | |
| I2.101* | | 3 | | 3 | | | | | | | | | | | | | 15 | | | 3 | | | 9 | | 2 | 6 | 1 | 2 | | | | | | | |
| I2.100* | | 18 | | 18 | | | | | | | | | | | | | 92 | | | 18 | | 1 | 46 | | 40 | 1 | 25 | | | | | | | | |
| I2.0111* | 10 | 41 | 1 | 19 | | 3 | | | | | | 14 | | 2 | | 32 | | 36 | | | | | | 11 | | 2 | | | | 21 | | | | 8 | 4 | 10 |
| I2.0110* | | 45 | | 22 | | | | | | | | 8 | | | | 42 | | 56 | | 3 | | | | 12 | | | | | 46 | | 1 | 4 | | | | |
| I2.0101* | 41 | 1 | | 13 | | | | | | | | 13 | | 1 | | | | 4 | | | | | | | | | | | | | | | 16 | | | |
| I2.010011* | 55 | | 27 | 1 | 29 | 15 | | 4 | | 8 | | 5 | | 2 | | | | 13 | | | | | | 1 | | | | | | | | | | 1 | | |
| I2.010010* | 17 | | 9 | | 8 | | 3 | 1 | 4 | 4 | | 3 | | 1 | | | | 3 | | | | | | | | | | | | | | | | | | |
| I2.01000* | 54 | | | 24 | | 1 | | | | | 25 | | 25 | | | | | 18 | | | | | | | | | | | | | | | | | | |
| I2.00* | 74 | | | 25 | | | | | | | 50 | | | 20 | | | | 13 | | | | | | | | | | | | | | | | 2 | | |

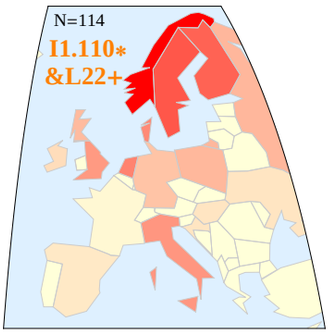
# y-Haplogroup I1

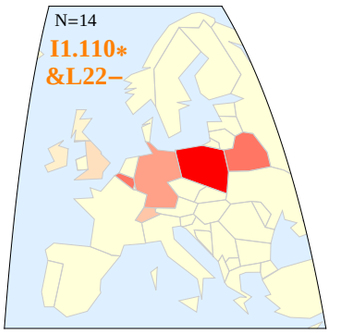
## Geographic Frequency Distribution

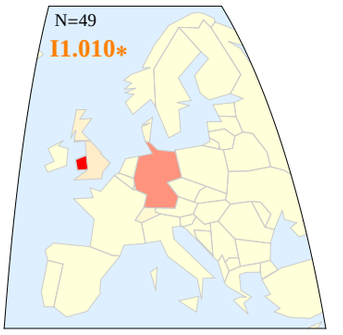


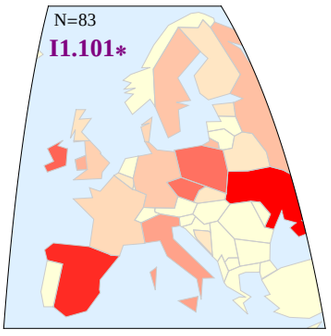



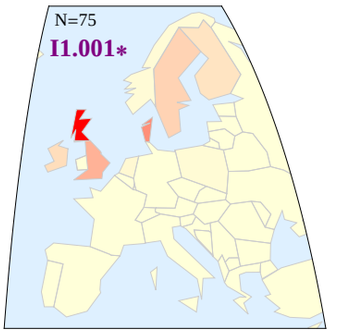



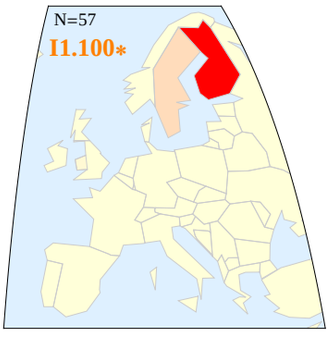



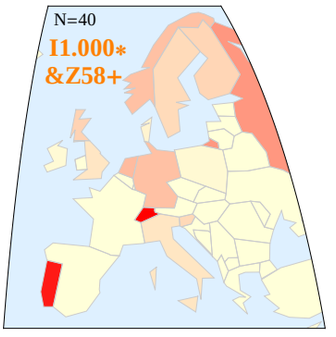



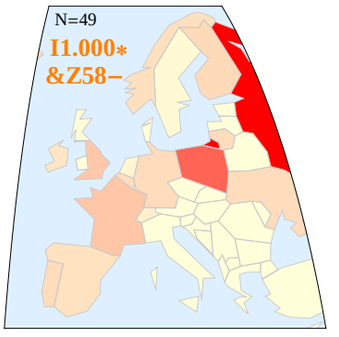



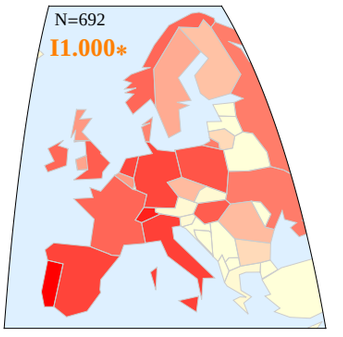




## SNP Counts for each I1 STR Branch

| | M227 | | L22 | | P109 | | L205 | | L287 | | L258 | | L300 | | L813 | | Z58 | | Z59 | | Z60 | | Z140 | | L338 | | L592 | | L803 | | L802 | | Z139 | | Z138 | | Z63 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − | + | − |
| I1.111* | 40 | | 27 | 7 | 6 | 32 | 14 | | 11 | | 12 | | 11 | | 1 | | 1 | 1 | 1 | | 1 | | 1 | | 3 | | 1 | | 1 | | 1 | | 1 | | | | 2 | |
| I1.110* | 1140 | | 118 | 15 | 52 | 104 | 12 | 42 | 4 | 41 | 4 | 44 | 3 | 40 | 4 | 6 | 1 | 9 | 1 | | | 1 | | 1 | 15 | | | | | | | | 1 | | | 1 | 6 |
| I1.101* | 40 | | 1 | 25 | | 28 | | 5 | | 1 | | 2 | | 2 | | 1 | | 11 | | | | | | | 11 | | 1 | | 1 | | | | | | 16 | |
| I1.100* | 14 | | 12 | | 1 | 13 | | 3 | 13 | 1 | 19 | 1 | | 8 | | | | | | | | | | | 2 | | | | | | | | | | | |
| I1.011* | 40 | | 26 | | 25 | | 1 | | 1 | | 1 | | 1 | | 1 | | 5 | | 2 | | 3 | | 2 | | 18 | | 1 | | 1 | | | | 1 | | 1 | | 5 |
| I1.010* | 20 | | 10 | | 16 | | 2 | | 2 | | 2 | | 2 | | 1 | | 4 | | 1 | 2 | 1 | 1 | 1 | 2 | 6 | | 3 | 1 | | 2 | | 1 | 4 | 1 | 3 | 1 | | 2 |
| I1.001* | 31 | | 18 | | 21 | | 2 | | 1 | | 2 | | 1 | | 1 | | 4 | 1 | 2 | | 1 | 1 | | 2 | 9 | | 1 | | 6 | 1 | 7 | 13 | | 2 | | 2 | | 5 |
| I1.000* | 8426 | | 14277 | | 4264 | | 27 | | 1 | 9 | 1 | 19 | 1 | 13 | | | 55 | 38 | 21 | 7 | 12 | 5 | 8 | 11 | 2 | 78 | | 10 | 1 | 11 | | 6 | 6 | 13 | 5 | 11 | 9 | 66 |

# Summary

## Methodology

The methodology used here is quite simple. First, collect as much STR haplotype data as reasonably practical (I got over eight thousand I1 and I2 samples from various FTDNA Projects and from the Ysearch database). Next, organise that large set of STR data into "hierarchical clusters" using a standard mathematical technique. Finally, count up the number of SNP alleles (either positive or negative) that occur within each cluster, now called an STR "Branch", and display the results; and also draw maps of the frequency distribution of each STR Branch across all regions of Europe.

## Results

The results are twofold. Firstly, the STR Branches do correlate very well, in many cases, with specific SNP alleles. Secondly, the geographic distribution of the STR Branches are, in many cases, quite specific.

Branch "**I2.1111***" is M223+, which is I2a2a (ISOGG Feb 2012); This branch is found in Portugal, Ireland, England, and Germany. But see the map.
Branch "**I2.11101***" is M223+ P78+, which is I2a2a3 (ISOGG Feb 2012); This branch is found in Turkey, Russia, and France. But see the map.
Branch "**I2.11100***" is M223+, which is I2a2a (ISOGG Feb 2012); This branch is mainly found in Germany, the Netherlands, England, and Scotland. But see the map.
Branch "**I2.110***" is M223+ L801+, which is I2a2a+L801 (ISOGG Feb 2012); This branch is mainly found in Norway and Denmark. But see the map.

Branch "**I2.101***" is M223+ M284+, which is I2a2a1 (ISOGG Feb 2012); This branch is almost exclusively found in British Isles. But see the map.
Branch "**I2.100***" is M223+ M284+ L126+ L369+, which is I2a2a1a1 (ISOGG Feb 2012); This branch is mainly found in Ireland and Scotland. But see the map.

Branch "**I2.0111***" includes some L415+ or L596+, which is I2b or I2c (ISOGG Feb 2012); This branch is mainly found in Turkey, Italy, and Ukraine. See the map.
Branch "**I2.0110***" is P217+ L39+, which is I2a2b (ISOGG Feb 2012); This branch is mainly found in Norway, France, and England. But see the map.
Branch "**I2.0101***" is P37.2+ L233+, which is I2a1c (ISOGG Feb 2012); This branch is mainly found in England and some in France. But see the map.

Branch "**I2.010011***" is P37.2+ M26+ and some L160+, which is I2a1a (ISOGG Feb 2012); This branch is found in France, Spain, and Italy. But see the map.
Branch "**I2.010010***" is P37.2+ M26+ L160+ and some Z118+ and Z106+, which is I2a1a1+Z118 (ISOGG Feb 2012); This branch is found in Wales and Spain.
Branch "**I2.01000***" is P37.2+ M423+ L161.1+, which is I2a1b2 (ISOGG Feb 2012); This branch is found in Ireland and some in England, and Scotland.
Branch "**I2.00***" is P37.2+ M423+, which is I2a1b (ISOGG Feb 2012); This branch is mainly found in Eastern Europe. But see the map.

Branch "**I1.111***" is mainly L22+, which is I1d (ISOGG Feb 2012); This branch is mainly found in France, with others in Northern Europe. But see the map.
Branch "**I1.110***" is mainly L22+, which is I1d (ISOGG Feb 2012); This branch is found in Norway, and Sweden. But see the map.
Branch "**I1.101***" is Z63+, which is I1g (ISOGG Feb 2012); This branch is found in Poland, Ukraine, Spain, and Ireland. But see the map.
Branch "**I1.100***" is L22+ L287+ L258+, which is I1d3a (ISOGG Feb 2012); This branch is almost exclusively found in Finland, but with some in Sweden.

Branch "**I1.011***" is Z58+ Z59+ L140+ L338+, which is I1f1a1a1 (ISOGG Feb 2012); This branch is mainly found in the Netherlands/Belgium, Ireland, and Scotland.
Branch "**I1.010***" is mostly Z58+ Z139+ Z138+, which is I1f2 (ISOGG Feb 2012); This branch is found in Wales and also Germany. But see the map.
Branch "**I1.001***" is mostly Z58+ Z59+ L802+, which is I1f1+L802 (ISOGG Feb 2012); This branch is mainly found in Scotland, and Denmark. But see the map.
Branch "**I1.000***" is half Z58+ Z59- while others are Z58- etc., which is I1f2 and other I1 (ISOGG Feb 2012); This branch is found all over Europe.

Note
Branch "**I1.0101***" is Z58+ Z139+ Z138+, which is I1f2 (ISOGG Feb 2012); This branch is found exclusively in Wales.

## How can I use these results?

To start, you will need to determine your STR "Branch Code". For instance, your STR Branch Code, relative to the large sample of 67-marker STR haplotypes, might be say "I1.11011011111010". You can visit the website http://www.goggo.com/terry/HaplogroupI1/ to determine your Branch Code by entering either your FTDNA Kit Number or your Ysearch ID. You can also estimate, in some cases, your Branch Code by applying the STR Decision Tree method. Although the STR Decision Tree method is quick and anyone can apply it, it is not as complete as the full Branch Code, which is a much harder thing to determine. Note that the full STR "Branch Code" is essentially a way of labelling the STR branches in the computed tree, and it is very similar to the "Henry System" used in genealogy for numbering the descendants of an ancestor.

Once you have your own "Branch Code", there are three main things you can do with it:
1) you can look up the Geographic Frequency Distribution maps to see what other people in your Branch have reported as the location of their most-distant male-line ancestor;
2) you can see what SNP allele (either positive or negative) results that other people have reported in your Branch;
3) and if you know someone else's Branch Code, then the more 0 or 1 matches that your have (reading from left-to-right), then the more closely related you are in an STR sense. And the TMRCA can be inferred by reading the timescale from the tree where the two branches join.

Remember that the tree represents the hierarchical clustering of the STR markers for the given population. The tree is therefore not the same as the genealogy of the given population. So using the STR tree as if it were a genealogy is an approximation. One would like the STR branches to follow genealogy in all cases, but that is clearly not the case for some branches when we consider the placement of SNP's in the tree. The tree is still nevertheless very useful in predicting SNP status, and for predicting the geographic origin of the most distant known male-line ancestor.

Terry,
February 2012

# SNP Testing Pathways for y-Haplogroups I1 and I2

Mark the SNP values that you have tested positive for in the following pathways. Consider taking further tests as indicated by the right arrows.

**I2-M438**
**I2-M438 → L460**
**I2-M438 → L460 → P37.2**
**I2-M438 → L460 → P37.2 → M26**
**I2-M438 → L460 → P37.2 → M26 → L160**
**I2-M438 → L460 → P37.2 → M26 → L160 → Z118**
**I2-M438 → L460 → P37.2 → M26 → L160 → Z118 → Z106**
**I2-M438 → L460 → P37.2 → M423**
**I2-M438 → L460 → P37.2 → M423 → L161.1**
**I2-M438 → L460 → P37.2 → L233**
**I2-M438 → L460 → P217**
**I2-M438 → L460 → P217 → M223**
**I2-M438 → L460 → P217 → M223 → M284**
**I2-M438 → L460 → P217 → M223 → M284 → L126**
**I2-M438 → L460 → P217 → M223 → M284 → L126 → L369**
**I2-M438 → L460 → P217 → M223 → M379**
**I2-M438 → L460 → P217 → M223 → P78**
**I2-M438 → L460 → P217 → M223 → L801**
**I2-M438 → L460 → P217 → L39**
**I2-M438 → L460 → P217 → L39 → L533**
**I2-M438 → L415**
**I2-M438 → L596**

**I1-M253**
**I1-M253 → DF29**
**I1-M253 → DF29 → M227**
**I1-M253 → DF29 → M227 → M72**
**I1-M253 → DF29 → L22**
**I1-M253 → DF29 → L22 → P109**
**I1-M253 → DF29 → L22 → L205**
**I1-M253 → DF29 → L22 → L287**
**I1-M253 → DF29 → L22 → L287 → L258**
**I1-M253 → DF29 → L22 → L287 → L258 → Z133**
**I1-M253 → DF29 → L22 → L300**
**I1-M253 → DF29 → L22 → L813**
**I1-M253 → DF29 → Z58**
**I1-M253 → DF29 → Z58 → Z59**
**I1-M253 → DF29 → Z58 → Z59 → Z60**
**I1-M253 → DF29 → Z58 → Z59 → Z60 → Z140**
**I1-M253 → DF29 → Z58 → Z59 → Z60 → Z140 → L338**
**I1-M253 → DF29 → Z58 → Z59 → Z60 → Z140 → L592**
**I1-M253 → DF29 → Z58 → Z59 → Z60 → Z73**
**I1-M253 → DF29 → Z58 → Z59 → Z60 → L803**
**I1-M253 → DF29 → Z58 → Z59 → Z60 → L803 → L802**
**I1-M253 → DF29 → Z58 → Z59 → Z60 → L573**
**I1-M253 → DF29 → Z58 → Z59 → Z382**
**I1-M253 → DF29 → Z58 → Z139,Z138**
**I1-M253 → DF29 → Z58 → Z139,Z138 → L211**
**I1-M253 → DF29 → Z63**
**I1-M253 → Z131**