Comparison DNA Databases: The Numbers Game

Here is the scenario: You take a DNA test, your results come in, and you have no matches! What? How could you not have a match? You are mtDNA H or Y-DNA R1b, so you should have LOTS of matches! The databases are overflowing with H and R1b...aren't they?

Commercial genetic testing for genealogy has been available for eight years now. In those eight years, over 800,000 people have DNA tested. While that may seem like a large number, I will go over how that number is arrived at and different perspectives for looking at it.

First, I e-mailed companies to inquire their database size if they do not list it on their websites and if it has not appeared in a recent media article. GeoGene replied that they had 1,000+ samples and GeneTrack stated that "Last year, our laboratory processed over 95,000 individual DNA tests for ancestry/genealogy". Family Tree DNA (211,943), Genographic (285,000), and Sorenson Molecular Genealogy Foundation (92,000) all have their numbers listed on their websites or in recent media articles which are hyperlinked to their names. I did not receive replies from Ethnoancestry, Oxford Ancestors, or GeneTree; and DNA Heritage and DNA-Ancestry (formerly Relative Genetics) would not disclose their numbers. But this is not going to thwart me in the numbers game as there is some "guesstimating" that can be done here.

In a November 2007 blog article, "How Big is the Genetic Genealogy Market?" Blaine Bettinger quoted an EMBO article which gave 300,000 attributed to the databases of Family Tree DNA, Oxford Ancestors, and DNA Print Genomics. Since we know that Family Tree DNA has tested over 200,000, then we can slice the last 100,000 in half for the other two companies. Bettinger's article also gave a number for Relative Genetics (19,000) in 2002. It should have at least doubled since then and the company which bought the database, DNA-Ancestry, says that they "shipped over 5,000 kits" in July. So my guesstimate is 43,000 for them.

DNA Heritage sponsors Y-Base, a public database where users can upload their results. The number of records in Y-Base is 12,993. However, this raises an important factor in database numbers - overlap. Y-Base not only contains records for DNA-Heritage clients, but for clients of other companies as well as they may manually add their results to the database. Another instance of overlap occurs with Family Tree DNA and Genographic's numbers as customers of either company can elect to upload their results to the other. For example, a recent Genographic transfer from August 28 had a kit number starting with N66,XXX so that means that over 66,000 people have transferred their results into Family Tree DNA's database from the Genographic Project.

Yet another case of overlap will occur with GeneTree and Sorensen Molecular Foundation (SMGF). For a period of time since GeneTree's re-launch last October 2007, they have allowed people who have tested with SMGF to transfer their results into GeneTree's database for a fee.

Obviously, database overlap will affect the true numbers of how many people have tested, and a small percentage of people test at multiple DNA companies. But there is also the factor that there are affiliate companies which may overlap and small DNA companies in other countries that might not be included in the numbers. One such company that I had never heard of until reading Bettinger's article is Genomac (5,000).

The grand total of numbers cited here comes to 795,936. Only Y-chromosome DNA and mtDNA genealogical DNA testing numbers were requested and there are amounts which are not included for aforementioned reasons which pushes the figure to over 800,000.

To put this number in perspective, 795,000 is the population of Oslo, Norway and Indianapolis, Indiana. Do you think that if everyone in Oslo or Indianapolis took a DNA test, that they would all have a match? Of course they wouldn't because not everyone in those cities are closely related. But more importantly, it shows just how small a number it really is. While Oslo and Indianapolis are major metropolitan cities, they do not seem very large when you compare them to the size of the countries or continents they are in.

This illustrates how someone can be Y-DNA R1b or mtDNA H and not have a match. They will need to sit tight and wait for a one, but it will happen. Oslo wasn't built in a day...nor in eight years.

-Katherine Borges
ISOGG Director
ISOGG Recognizes Ian Logan
If you do not know who Ian Logan is, you are missing out! Ian has been a consistent contributor to the genetic genealogy community for years now; especially in the field of mitochondrial DNA (mtDNA). A resident of Devon, England, Ian spends countless hours amassing data which he compiles on his helpful website. He has also written a script for the Greasemonkey utility which allows one to search GenBank for mtDNA matches.

The scientific community is now benefiting from Ian’s work as well. His websites were cited in two recently published studies: "Exaggerated status of "novel" and "pathogenic" mtDNA sequence variants due to inadequate database searches" and "Pseudo-mitochondrial genome haunts disease studies".

Thank you, Ian! Keep up the great work and know its appreciated!

Turner Surname DNA Project
For the first surname DNA project to be featured in the ISOGG newsletter, the question was asked of the ISOGG forum to nominate a, “surname project that is administered in an outstanding manner?” And the winner is.... Gail R. Blancett, Administrator of the Turner DNA Project!

The Turner DNA Project was founded in 2002 by Nancy Grogan and Gail came aboard as a co-administrator. In early 2005, Nancy passed away unexpectedly and Gail assumed full project administration duties.

For those who may not know, DNA project administration is a volunteer job which involves many countless hours of assembling data, recruiting participants, answering correspondence, etc.

Gail inherited a large project for a common surname and has done an outstanding job with it. Following is a description from one of her nominations which says it all:

"Gail is a researcher, problem-solver, and teacher in the finest sense of the word. She is constantly engaged in searching and analyzing all available records that may clarify genealogical relationships. She refuses to leave a stone
untouched as long as any question remains unanswered. Her first love is collecting all available information, piecing it all together in a logically unassailable fashion, and helping her project members to understand the process she has gone through. Perhaps the toughest part of the job for her to deal with is the people who refuse to abandon the family myths and lore in the face of clear and abundant documentation to the contrary.

She truly loves the search, the process of discovery and analysis, and the thrill that comes from helping her project members reconnect to their roots. She is truly awesome as a project administrator. Others may have fancier web sites or other terrific attributes, but I suspect that if put to a vote, many of her 300-plus members would speak up for her as their favorite."

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DNA in the News

* Cemetery found at Cupids archeological dig - The Telegram - 14 Sep 2008
* DNA testing helps connect the branches on family trees - Pittsburgh-Tribune Review - 10 Sep 2008
* Human geography is mapped in the genes - News Scientist - 31 Aug 2008
* Trying to Prove Family Link To a Noted Founding Father - Washingtonpost.com 24 Aug 2008
* Uncovering the ultimate family tree - BBC News - 21 Aug 2008

For more articles:
http://www.isogg.org/newsarchives.htm

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