Facts & Genes from Family Tree DNA
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In This Issue
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Editor's Corner
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Welcome to this issue of Facts & Genes, the only publication devoted to Genetic Genealogy.

Since 2002, Facts & Genes has been published every month, and provides valuable information about utilizing Genetic Genealogy testing for your genealogy, and keeps you informed about the latest advancements in the field.

Facts & Genes covers information for everyone, regardless of your level of experience with Genetic Genealogy, whether you are just beginning to learn about this new tool for genealogy research, or have been managing a Surname Project for some time. If you are just starting to learn about Genetic Genealogy, you will probably encounter articles that are difficult to understand. As with learning any new subject matter, it will take a little time. You can save these articles for the future, or download them later from our web site, where all issues of the newsletter are available.
Regardless of your background, everyone can learn about Genetic Genealogy and be able to use this new tool. A science background is not required.

In each issue of the newsletter, our objective is to have articles for all experience levels. If you have a suggestion for a topic, feedback, or comments, contact the editor at: editor@familytreeDNA.com

Each month we cover one Surname Project in the Spotlight section. We receive many submissions of Surname Projects for consideration, and it is quite difficult to chose just one. Many items are reviewed during the selection process, such as the Project Profile, the web site, the participant mix, the objectives, the results achieved, etc. It is also important for the Surname Project to complement or illustrate a topic addressed in the newsletter. Since the readers of the newsletter will often visit the Surname Project web site, it is important that there aren't any errors in the web site regarding Genetic Genealogy or errors in interpretation of results. The amount of space needed to cover the Surname Project is also a factor. If you run across a Surname Project that was interesting or informative, be sure to tell the editor: editor@familytreeDNA.com

Last month, we suggested that Group Administrators start this new year with a review and update of their Project Profile. This issue of Facts & Genes has an article to help you insure that your Project Profile motivates potential participants to learn more, and visit your web site.

Family Tree DNA now has close to 20,000 records in our database of Y DNA results. We also have over 800 Surname Projects which include over 7,000 surnames.

We at Family Tree DNA would like to thank everyone for his or her suggestions, comments, and submissions. Your input is appreciated. Send your comments, suggestions, tips, questions, and tell us about your Surname Project to: editor@FamilyTreeDNA.com. We hope you enjoy this issue.
Dexter

==========***** Important Links *****==========

Tell a Friend
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If you have fellow genealogists, friends, family members, or participants in a Surname Project who you think would enjoy receiving our monthly newsletter, Facts & Genes, send them the link below, where they can get a free subscription:

http://www.familytreeDNA.com/fgregister.asp

Past Issues
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If you missed any of the past issues, they can be found online at FamilyTreeDNA.com. Click on the link below for the past issues of Facts +
Genes:

http://www.familytreeDNA.com/facts_genes.asp?act=past

Printing Problems
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Any issue of the newsletter can be printed or downloaded from our site. If your email program causes you problems when you try to print the current issue of the newsletter, try the issue at our web site. The issue at our web site will usually print on the minimum amount of paper without any problems. Click on the link below to print or download the current issue of the newsletter:

http://www.familytreeDNA.com/facts_genes.asp

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In the News: Family Tree DNA Announcements
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Family Tree DNA is pleased to announce that we have begun delivering 37 Marker results. These additional Markers may help resolve situations which are not clear at 25 Markers, and will provide additional information.

If you are in a Surname Project, the test could help identify branches, or resolve situations where the genetic distance is unclear. If you have matches with other Surnames, the 37 Marker test is recommended. To order an upgrade to 37 Markers, log into FamilyTreeDNA.com with your kit and password, and click on the selection at the top of your Personal Page labeled "Order Tests".

Family Tree DNA was on the road again in January, at the Gentech 2004 show in St. Louis. We enjoyed the opportunity to meet many of our customers who stopped by our booth, as well as those interested in DNA testing for genealogy.

If you want to find out if a Surname Project has been established for your Surname, you can search at:

http://www.familytreeDNA.com/surname.asp

If a Surname Project hasn't been established yet, consider becoming a Group Administrator yourself. Family Tree DNA provides a suite of Group Administrator Tools to assist you, as well as email and telephone assistance.

Haplogroups: What Are They And Why Are They Important?

By now we know that a 12 or 25 marker Y-DNA signature is called a Haplotype, and when we add other closely linked haplotypes together they ultimately form a Haplogroup…but what is a Haplogroup and why is it important?

Haplogroups represent the branches of the tree of Homo Sapiens. The branches of the tree of Homo Sapiens stitch together and every male in the world can be located on one branch or another by a test that looks for a rare mutation on the Y chromosome. The nickname for the testing procedure is SNP and it is pronounced as it appears.

Anthropologists follow SNP’s to determine ancient migratory patterns and deep ancestral dating when trying to establish when, for example, Western Europe was first settled, generally in conjunction with other disciplines, like field Archeology.

I know many of you who have corresponded with me think I only answer emails and don’t have time to read…well my book reading level isn’t at an all time high, but recently I had the opportunity to view the video and read the book: The Journey of Man by Spencer Wells.

Frankly the video was very good and the book was even better. In the book Wells does a nice job explaining concepts such as genetic drift and Ockham ’s Razor (from William of Ockham in the fourteenth century). His explanations of how mutations develop and are then passed on to

subsequent generations were very easy to follow, and in fact I would have been quite satisfied had he not taken this one step further and explained this all by following SNP's around the globe as Homo Sapiens emerged from Africa. By providing an estimate of the most likely time (and ranges) for the splits in the tree of Homo Sapien he's helped colorize pre-history for us non-science majors.

It you want to know more about our 'deep ancestry' view the video , but if you want to gain a good appreciation for the splitting into branches of the tree of Homo Sapiens, (seen here: http://www.ftdna.com/haplotree.html) read the book! Both can be found at http://www.familytreedna.com/books.html.

Bennett Greenspan CEO and Founder, Family Tree DNA

Understanding Your Results: The Value of Multi-Copy Markers

Several of the markers used in the Y DNA tests at Family Tree DNA are called 'multi-copy' markers. A multi-copy marker is one where 2 or more copies of the marker exists at different locations on the Y chromosome.
The names of a multi-copy markers include small letters, such as a or b, following the marker's DYS name.

When selecting the markers for our various tests, Family Tree DNA included
1 or 2 multi-copy markers in each set of markers, corresponding to the three Y DNA tests currently available. The 12 marker Y DNA test has 1 multi-copy marker. The upgrade to 25 Markers has 2 multi-copy markers, and the upgrade to 37 markers also has 2 multi-copy markers. Inclusion of these multi-copy markers was very important, based on both scientific attributes of the Marker as well as the genealogical utility.

Test	Multi-Copy Markers
12 Marker	385a, 385b
25 Marker Upgrade	459a, 459b and 464a, 464b, 464c, 464d
37 Marker Upgrade	YCA II a, YCA II b and CDY a, CDY b

For markers to have value to genealogical research, they must change slowly, but not so slowly that they can't differentiate lineage, but not change so quickly that closely related persons don't match. This criteria for markers for genealogical purposes is difficult to fulfil. Multi-copy markers meet this selection criteria and are excellent for genealogical purposes. If you are an you'll not want to use multi-copy markers because you don't actually know which copy is "a" and which is "b" but this is far less important for shallow time depth studies used by genealogists.

Multi-copy markers appear to change more rapidly because with 2 copies (for example) you have twice the opportunity to see a change, which we genealogists see as a break in a lineage. Markers which change more rapidly are valuable to genealogical applications of DNA testing, to differentiate lines or branches. Markers are valuable in differentiating unrelated individuals and should show the same signs of a much older split in the lineage, but the use of multi-copy markers is especially helpful for identifying breaks within families.

Marker DYS464 appears to be a rapidly changing Y chromosome marker and is a multi-copy marker. DYS464 occurs at least four times near the center of the Y-chromosome. The first four copies are called: DYS464a, DYS464b, DYS464c, DYS464d. Marker DYS464 is also known to occur more than four times, generally in African lineages of Haplogroup E. Additional copies of DYS464 are called: DYS464e, DYS464f, and so forth. When more than four copies of DYS464 are found in a DNA sample, the results for all the copies are provided on your personal page at the Family Tree DNA web site.
DYS464 has an observed range between 9 to 20 inclusive.

When testing a random sample of 679 males for DYS464, scientists have found that the result 15,15,17,17 occurred in 10.6% of those tested, 15,15,16,17 occurred in 7.5% of the samples, and all the other results occurred less than 5% of the time, with over half these results only occurring once. This illustrates that Marker DYS464 is valuable in differentiating unrelated persons or splits in branches that have failed to show variation with other markers in the panel. In fact DYS 464 alone has a greater ability to split then the first 12 markers combined.

The results for a multi-copy marker are reported in ascending order. For example, here are some results for DYS464:
11 11 14 16
12 14 15 16

Since the results are reported in ascending order for multi-copy markers, this must be taken into account when comparing the results of the Markers between individuals. For example, consider the following results:

Person 1: 15 15 17 17
Person 2: 13 13 15 17

At a glance, you may interpret these results has having 3 differences. The correct interpretation is 2 differences. To correctly interpret the results for this multi-copy marker, the results that match are not counted as differences. The 15 in the first person above matches a 15 in the second person, so the 15 is not counted as a difference, even though the two 15's do not line up in the display of the results. A 17 from the first example matches the 17 in the second person. The two 13's in the second person do not have a match in the first example, so in comparing these two results, the differences are 2.

Since multi-copy markers change more rapidly, these markers are an excellent tool to identify branches or lines.

>From a genealogical perspective, markers must change, but not too
>rapidly,
as well as be stable, but not too stable. Multi-copy markers are very valuable, since they change more rapidly. By selecting a mix of markers that change slowly and therefore are relatively stable, as well as more rapidly changing single and multi-copy markers, Family Tree DNA has attempted to provide the best selection of markers for genealogical purposes. Multi-copy markers are a very important component of the m marker mix, they do require some understanding, but our clients have consistently demonstrated themselves able to understand concepts that the Anthropological community doubted a few years ago!

Understanding Your Results: mtDNA Matches

Both males and females inherit mtDNA, and only females pass on mtDNA. Your mtDNA represents your direct female line, which would be your mother, her mother, and so forth. Therefore, both males and females can take the mtDNA test, to learn about their direct female line. Your mtDNA can be traced back thousands or 10's of thousands of years to a specific Haplogroup.
Your mtDNA Haplogroup defines which of these females was your very distant ancestor, popularly known as Daughter of Eve or Clan Mother.

There are two mtDNA tests available from Family Tree DNA:
mtDNA
mtDNA Plus

The test called mtDNA will test one region of mtDNA providing the results for this region, and identifying your Haplogroup. The mtDNA Plus test includes the mtDNA test, and also tests a second region of mtDNA. These regions of mtDNA tested are called HVR-1 and HVR-2. HVR stands for Hyper Variable Region, and is known interchangeable as Hyper Variable Segment, or HVS.

HRV1 and HVR2 are known as the 'control region' are areas of mtDNA that contain no personal information (i.e. HVR-1 and 2 are not part of the 'coding region') and have the fastest rate of change, or mutation, of any region in mtDNA. That is why the Anthropological community has focused on them for population genetics.

Even though HRV1 and HVR2 provide the fastest mutation rates for mtDNA, the rate of change is much slower than the Markers tested on Y DNA. The mtDNA test is often called an anthropology test, since mtDNA mutates very slowly, much more slowly than the locations tested on the Y chromosome.
For this reason, only exact matches are provided when you click the "mtDNA Matches" selection on your Personal Pages at Family Tree DNA. Simple put miss matches on mtDNA have no potential for genealogical value.

Since mtDNA mutates very slowly, if you are interested in finding matches to others, or using mtDNA for genealogy purposes, it is important to take the mtDNAPlus test. If you have already taken the

mtDNA test (formerly known as Maternal Match), you can upgrade to the mtDNA Plus test. The addition of testing the second mtDNA region, HVR-2, will shorten the lengthy time frame of any matches. If you have taken the mtDNA test, you can easily upgrade to the DNAPlus test. On your Personal Page at Family Tree DNA, click on the link 'Order Tests'.

If you only take the mtDNA test, those who you match randomly are most likely not related in any genealogical time frame. If you are looking to find others who are related in a genealogical time frame, then it is essential to take the mtDNA Plus test.

The chart below shows the time frame of the common ancestor for a random match.

Test	Time frame of common ancestor for a match
mtDNA	50% of the time, 52 generations or less
mtDNAPlus	50% of the time, 28 generations or less

These time frames are for random matches. When you are utilizing mtDNA testing for genealogical purposes, you have identified the ancestors or potential ancestors, so the time frames shown above are not relevant.

The results for a mtDNA test tell you about your most distant female ancestor, who might be popularly known as a Clan Mother. You can take a mtDNA test to learn about your direct female line. If you are at all interested in finding genealogically relevant mtDNA matches, it is important to take the mtDNA Plus test.

For more information about mtDNA testing, see the last issue of Facts & Genes:

http://www.familytreeDNA.com/facts_genes.asp?act=show&nk=3.1

To order a mtDNA test, click on the link below:

http://www.familytreeDNA.com/products.html

Understanding Your Results: Y DNA

If you are among the first persons to take a Y DNA test for your surname, often you will not have any matches. This may be disappointing, though it is only a matter of time until you have a match. When you don't have any matches, the best approach is to find some other males with your surname to test. To validate your lineage, it is recommended that you test the most distant cousin in your family tree. His result should match, or be an extremely close match, to your result. This step of testing another male in your family tree will scientifically validate your result.

On the other hand, you may have a lot of matches with other surnames, especially if you are Haplogroup R1b, and you are testing only 12 Markers.

It is very tempting to pursue these matches with other surnames, in the hope of finding a lost relative from the family tree. Matches with other surnames are most likely not relevant in a genealogical time frame.

If we consider for a moment: how many males had your Y chromosome result, or a close result, in the 1300's, when surnames were being adopted. This figure could be in the hundreds, if not in the thousands. Each of these males, or small groups of males in a family unit at the time, probably adopted a different surname. These males were probably also spread out geographically.

If we take this group of males who adopted hundreds of surnames in the 1300's, and then consider that each surname probably took on multiple forms through the centuries until the 1900's, plus factor in the number of possible male descendents today - we have a very large number of surnames that could share a Y DNA result.

Most people in England adopted surnames by 1400, which is a little over 600 years ago. In a time frame of 600 years, depending on the figure used for years per generation, we would expect between 20 to 24 generations to have occurred, at 30 years per generation or at 25 years per generation.
The current mutation rate estimated for the Y DNA Markers by the scientists is 1 mutation every 500 generations per Marker. For a 25 Marker test, we would expect 1 or maybe 2 mutations if two people were related in the 1400's, in the time since surnames were adopted.

Most likely a match with another surname is the result of being related before a genealogical time frame, or as a result of convergence. Convergence is where Y DNA results mutate over time, and as a result of changes, these two results now overlap.

Depending on your ancestral country, and the surviving records, your family tree may be traced back to the 1800's, 1700's, or 1600's, and for a few rare family trees, to a time well before then. If a 25/25 match with another surname is a result of a family taking in an orphan in 1425 - you will probably never find the paper record, if a paper record ever existed, and pursuing the match takes valuable time away from traditional family history research.

As more people take a Y DNA test, you will eventually have matches with other surnames. For a 12 Marker test, the total range of generations for relatedness is 76.9, which is almost 2000 years, and well before the
adoption of surnames. Those who belong to Haplogroup R1b will have many
matches with other surnames, in fact dramatic population expansion within Haplogroup R1b lead our science team to clearly see the need to expand our original test from 12 to 25 markers.

We recommend not pursuing matches with other surnames, unless there is some genealogical evidence to support such a match. For those

interested in pursing the match, an upgrade to 37 Markers is recommended. Even at 37 Markers, you may have matches with other surnames, especially for Haplogroup R1b, and as a result of convergence. In rare cases, the match could indicate an unknown variant of the surname.

DNA testing is a tool to be used with your family history research. DNA testing provides additional information which is evaluated in conjunction with your family history research. If you have researched your family tree to the mid 1800's, pursuing a match with another surname that might have occurred from 1400 to 1800 is probably not the best investment of time.

Matches with other surnames can have value for those who are not R1b, and whose ancestors have migrated and they are trying to identify the county of origin in the ancestral homeland. People frequently moved in the past, though often the distances were not very far per generation. Therefore, a cluster of your Y Chromosome and close matches would exist in the ancestral county. For those whom you match with another surname, these matches can often be used to identify the ancestral county. If you are able to find enough matches who know their ancestral county, and one county is reported by a high percentage of matches or close matches with other surnames, you would have a clue as to the ancestral county.

It is very tempting to pursue matches with other surnames, in the hope of finding a lost relative from the family tree. Matches with other surnames are most likely not relevant in a genealogical time frame.

Y DNA Surname Projects: Public or Private

Only customers who have signed a Release Form participate in matching at Family Tree DNA. For those who belong to a Surname Project, the Public/Private setting is very important. The Public/Private setting only applies to Y DNA Surname Projects, and does not apply to those who do "not" belong to a Surname Project.

The Public/Private setting determines whether the search for Y DNA matches will only look for matches within the Surname Project or will look for matches in the whole Family Tree DNA customer database of those set to Public.

For those who have matches with other surnames, a setting of Private will eliminate these matches, since the Y DNA match selection will only look in the Surname Project for matches.

The default setting for Surname Project members is Private. A setting of Private is recommended for participants with a 12 marker result and those who belong to the Haplogroup R1b. Haplogroup R1b is the most common Haplogroup in European populations. Therefore, those participants who belong to Haplogroup R1b and those who have tested only 12 markers will tend to get many matches with other surnames, which are not relevant. For this reason, it is recommended that the

participants be set to Private until they upgrade to 25 Markers or 37 Markers.

The Public/Private setting is set for each participant. A Surname Project could have multiple Lines of a surname, who are in different Haplogroups, and some have matches with other surnames and some don't. Some members of the Surname Project could be set to Private, and others to Public.

For a detailed explanation of the Public/Private setting, please see the following issues of Facts & Genes:

http://www.familytreeDNA.com/facts_genes.asp?act=show&nk=2.3

http://www.familytreedna.com/facts_genes.asp?act=show&nk=2.1

Recruiting Participants: The 3rd Time

Have you ever wondered why you get the same junk mail over and over, even though you haven't bought anything. Or why you get junk mail addressed to occupant?

The organizations that send this postal junk mail to you rely on direct mail marketing statistics. These statistics show that the highest response rate and highest purchase rate occur on the 3 mailing, followed by the 4th mailing. In addition, 1-4% of those mailings addressed to Occupant will result in a purchase.

Other factors are also important, and influence the response rate, such as the presentation of the material, and even the colors used. In addition, there should also be a gap of time between the mailings.

If you have contacted potential participants only once, you are missing an
opportunity to recruit participants. The email addresses of the potential participants can be put into a list, and these potential participants contacted on multiple occasions with news about the Surname Project and the results achieved, as well as a request to participate.
You could consider contacting these potential participants quarterly, and sending the same material to all those on the list. Your third or fourth mailing should yield additional participants for your Surname Project.

The email you prepare to send to your potential participants should be easy to understand, and nontechnical. Your potential participants are interested in how they will benefit from participating, not a lesson on population genetics. Be sure to cover the benefits for potential participants.

End your email with a "call to action": ask the potential participant to participate.

A balance must be found between communicating to potential participants about the benefits of your Surname Project, and what could be perceived as harrassment. It is critical that your email contains information that might be of interest to the recipient, and that your frequency is no more than quarterly. One format to consider is a newsletter about your Surname Project. Regardless of the format you use, the communication should provide an opportunity for the recipient to discontinue receipt.

Managing a Surname Project: The Project Profile

If you are a Group Administrator and it has been a while since you established or reviewed your Project Profile, why not start the year with a review. Your project description in the Project Profile provides 1000 characters for a description. Perhaps you can make your Project Profile more interesting and more inviting. FamilyTreeDNA.com gets a high volume of visitors each day, who search on their surname and view Project Descriptions. Does your description encourage them to learn more by visiting your web site?

The Project Profile can be accessed from your Group Administrator Page. To review or update the Project Profile, click the first link on the Group Administrator Page, labeled "Project Profile Page".

The first line item on this page is: Show group in Surname Project list?

Be sure there is a check mark in the box. A check mark is required so that your Surname Project will appear when a Surname Project search is done at FamilyTreeDNA.com.

The next item is the Group Name. Your Surname Project should have a one word name, such as the most frequent surname in your project.

If your Surname Project has a web site, be sure to enter the complete web site address, starting with www. If your Surname Project does not have a web site, leave this item blank, and consider creating a web site. A web site is important to tell potential participants additional information about your project. The web site can be simple, and will take only a small investment of time.

The Surname Project Description is the most important part of your Project Profile. You can use up to 1000 characters. You might want to prepare your description, and then paste it into the Description box provided. It would be easier to work on your Project Description in a tool such as Word or Wordpad.

Your Surname Project Description should be interesting and inviting. The description is for potential participants. What are the objectives for the Surname Project? What is the scope of the project? What could a potential participant hope to achieve from participating? How will they benefit?

One suggestion is to read the Project Descriptions of other Surname Projects, until you find a description that you think is interesting, and then use this Project Description as a guide to write your Surname Project Description.

The next item in the Project Profile is where you define the Surnames included in your Surname Project. This list should contain the variant surnames included in your project.

Once you have your Project Description ready, click on the selection "view" at the top of the Project Profile page, to preview your Project Profile. You can then continue editing, and clicking view, until your Surname Project Profile is completed.

Your Project Profile is viewed by those who visit familytreeDNA.com, and search on surnames. The Project Profile needs to interest and motivate the potential participant to learn more. If you are not getting many participants for your Surname Project, it is very important to review your Project Profile.

Case Studies in Genetic Genealogy

In each issue of the Newsletter, we look at what Genetic Genealogy will do for your Family History research. This article is a continuation of the topic, with situations, called "Case Studies", followed by a recommendation. The objective of the case studies is to present different situations you may encounter in your family history research, and how DNA testing can be applied.

Case Study

I recently had my Y DNA testing done. Is it possible to use those results to determine if my DNA is Native American?

Recommendation

Your Y DNA test results tell you about your direct male ancestor, which would be your father, his father, and so forth. If your direct male ancestor was Native American, then his Haplogroup would show that he was Native American. The Haplogroup is estimated from the first 12 Markers from the Y DNA test. Click on the selection Haplogroup, on your Personal Page at Family Tree DNA. If your estimated Haplogroup is Q or especially Q3, your direct male ancestor was Native American. Haplogroup C3 is also found in Native American populations but at lower frequencies. A Haplogroup test can be taken to confirm the Haplogroup prediction.

Spot Light: Braswell Surname Project

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The Braswell Surname Project was started a year ago, in January 2003, and includes the variants Bracewell, and any surname starting with Brac, Bras, or Braz, which rhymes with "dazzle". Examples of these variants are:
Brassil, Brazil, and Brazel. The variants can also be described as any Soundex B-624 that rhymes with "dazzle".

The Braswell Surname Project now has 42 members. Most of the participants have selected the 25 Marker test, and some participants have begun receiving their 37 Marker upgrades.

Several objectives have been achieved by the Surname Project, including confirming variant surnames and identifying DNA Lines. One group of 16 participants with the surnames Bracewell, Brazil, Brazell, Braswell all match or are a close match, and these results form one DNA Line. This group claims descent from a Virginia vicar, Rev. Robert Bracewell (1611-1668). Another group of 4 Braswell participants had a different result, and all match each other 25/25, to form another DNA Line. To date,
five(5) DNA Lines have been identified, leaving a group of participants who don't have any matches yet.

The Surname Project is actively recruiting participants.

In the Next Issue

We hope you have enjoyed this issue of Facts & Genes. Please feel free to contact the editor with your comments, feedback, questions to be addressed, as well as suggestions for future articles. If you would like your Surname Project featured in our Spotlight column in a future issue, please send an email telling us about your project. Contact: editor@FamilyTreeDNA.com