

Background and significance of the FTDNA SNP pack results for 'OA' (our Australian rep for the GREY line of Adamthwaites)

These notes about the various DNA tests taken and the significance of the results were prepared by Mark Mitchell in November 2016

In an effort to learn more about his paternal line, in early 2007 AG (Alex Guess of North Carolina, USA), received the results of his 37 marker short tandem repeat (STR) y-dna test from Family Tree DNA (FTDNA) testing company. In December 2008, AG got a 37 marker y-dna match to DA (our 1st GREY line Adamthwaite tester from the Canadian branch). This was his only 37 marker match. In June of 2009, OA (our 2nd GREY line Adamthwaite tester from the Australian branch) became his second 37 marker match. Seven years later DA and OA are still his only two 37 marker matches. As a result, AG made contact with Sue Mastel, administrator of the Adamthwaite and Ravenstondale DNA projects and joined the FTDNA Adamthwaite project. In 2010 AG upgraded to the 67 marker test, but he didn't have any 67 marker matches. (The two GREY line Adamthwaite testers have only tested at 37 markers).

STR matches can be valid, but they are often a random coincidence, especially if different surnames are involved. In order to determine if a STR match is valid and different type of y-dna test is needed...a SNP test. SNP stands for Single Nucleotide Polymorphism and is pronounced 'snip'. SNP mutations happen randomly as men pass their y-dna to their sons during conception. Not every conception results in a SNP mutation. While random, on average a SNP mutation happens about every 3 to 5 generations.

In the summer of 2012, Mark Mitchell, also of North Carolina, USA submitted a 67 marker FTDNA test for his father Rintoul Edward Mitchell (REM). They hoped it would help solve the mystery of the identity of REM's paternal great grandfather. REM's paternal grandfather, Edward Leopold Mitchell (ELM) was born illegitimately in London, England in 1893, and nothing was known about the identity of ELM's father. When the results came back, REM had no 67 or 37 marker matches. Even after upgrading to 111 marker test he still had no matches. Using ysearch.com, Mark was able to find that AG was his father's closest match at 67 markers. However, if valid, it wouldn't be a recent match. Based on the genetic distance, Mark estimated AG and REM's shared paternal line ancestor may have lived between 200 and 1200 AD. AG was able to trace his paternal line back to a Joseph Guess who was born around 1785 in Orange Co., NC.

In March 2014, Mark got the results for his father's FTDNA BigY test. The BigY test identifies SNP mutations, some of which REM shared with no other men who had tested so far. These are known as "private" SNPs. REM started out with 28 private SNPs as a result of his BigY test. Mark submitted his father's BigY results to a y-dna analysis company called Y-full. One of Y-full's analysis products is an estimated age for when a particular SNP occurred.

Later in 2014 REM got a BigY match to an Australian man who shared 6 private SNPs (FGC12401, FGC12402, FGC12403, FGC12404, FGC12405, and Y9080), leaving REM with 22 private SNPs (once a SNP is shared it's no longer considered private). Yfull estimated the shared paternal ancestor for both men lived around 1000 BC.

During the summer of 2015 Mark Mitchell made contact with AG, and AG agreed to take a \$17.50 SNP test from yseq.net to see if he was positive for SNP FGC12401 to determine if their distant STR match was indeed valid. A month later the result came back and AG was positive for FGC12401.

So Mark and AG now knew they shared a common paternal line ancestor that lived around 1000 BC, but additional testing would be required to find their most recent common ancestor (TMRCA). After discussions with Mark, in September 2015, AG ordered the Full Genome Corporation (FGC) Y Elite test. The Y Elite test is similar to FTDNA's BigY test, but has greater coverage and would identify additional SNPs that the BigY test would have missed. Because of this greater coverage, in November 2015, Mark submitted a Y Elite test for his father.

In January 2016, AG introduced Mark to Sue Mastel via email. Sue was very helpful and invited Mark to join the Ravenstondale DNA project.

In June/July 2016, the Y Elite SNP test results for AG and REM came in. AG and REM ended up sharing 43 additional SNPs that no other men shared. After both test results were submitted, Yfull estimated AG and REM's shared paternal ancestor lived around 1000 AD, plus or minus 400 years.

The Y Elite test identified 10 private SNPs that REM didn't share with AG, and 9 private SNPs that AG didn't share with REM; meaning these SNPs occurred after approximately 1000 AD. By comparison FTDNA's BigY test would have identified 4 private SNPs for REM and 5 private SNPs for AG.

Also during the summer of 2016, FTDNA was coming out with a new y-dna test product called SNP Pack test. The SNP Packs include 100-200 SNPs for a particular y-dna branch. The SNPs in these packs are the results of discoveries made by men who have ordered either the BigY or Y Elite tests. Mark was able to get two of the SNPs that only REM and AG shared into the new Z49 SNP Pack test before the deadline for submissions (SNPs FGC12384 and FGC12385).

In addition, during the summer of 2016, AG ordered FTDNA's family finder test. When the results came back, DA was a match. The family finder test reveals matches on all your ancestral lines, but it typically isn't going to detect matches earlier than 1500 AD. So this was a strong indication that AG's match to DA and OA may indeed be valid. Sue Mastel contacted OA and he agreed to order the Z49 SNP pack in August 2016.

On 29 September 2016, the Z49 SNP pack results came in for OA and he was positive for both FGC12384 and FGC12385, meaning he joined REM and AG as the 3rd member of this y-dna branch. This combined with the family finder match with DA, points to a recent paternal line common ancestor for both men...most likely in the late 1500s, 1600s or early 1700s.

Thanks to the Z49 SNP Pack test results OA (and DA) know much more about their ancient paternal line as OA tested positive for the following SNPs in the Z49 SNP pack (going from most ancient to most recent):

U152: Discovered in 2005, the man who first had this SNP is estimated to have lived between 3000 and 2500 BC. It is believed he was part of a group from present day Eastern Europe that may have been part of the Yamna/Yamnaya culture that entered Western Europe during this period. A couple of thousand men have tested positive for U152 and it is very common in Northern Italy, Switzerland, Eastern France and Belgium. Areas in Britain that are above average for U152 include East Anglia and Cumbria which is where Adamthwaite farm, and Ravenstondale are located. Mark has hypothesized that U152 in East Anglia may be part of an Iron Age arrival in Britain as part of the Celtic Hallstatt and/or Le Tene culture, or the Belgic tribes that arrived circa 200 BC. While the U152 in Northwest England may be more associated with Roman occupation along Hadrian's Wall. During their occupation the Romans brought in many auxiliary forces from areas in Belgium and Gaul where U152 is very common today.

L2: This SNP is the largest branch (descendant group) of U152. It was discovered around 2007. At least 1000 men have tested positive for this SNP and it is found in most places where U152 is found and is slightly younger.

Z49/Z68 is the largest branch of L2. It was discovered around 2011. Close to 300 men have tested positive for this SNP. Yfull estimates this SNP came into being around 2500 BC. It is found mostly in Western and Central Europe.

Z142 is the largest branch of Z49/Z68. It was also discovered around 2011. Over 100 men have tested positive for this SNP so far and Yfull estimates it age at around 2200 BC. Z142 is found mostly in Western Europe.

Z150/Z12222 is one of the 3 main branches of Z142 and age is 2100 BC. About 50 men have tested positive for this SNP. This branch was discovered around 2012. Again it is found mostly in Western Europe.

FGC12378/FGC12379/FGC12380/FGC12381/FGC12382/FGC12383 is a block of SNPs with an estimated age of 2100 to 1800 BC. There are 17 men currently known to be positive for this block of SNPs. REM and a Spaniard were the first two members of this branch in the first half of 2014.

FGC12401/FGC12402/FGC12403/FGC12404/FGC12405 is a block SNPs with an estimated age of 1800 to 1400 BC. Only 7 men have tested positive for this block of SNPs. A Hungarian, an Italian, and 5 men of British origin including OA and AG. REM was the first member of this branch which was discovered in late 2014.

FGC12384/FGC12385: Only 3 men have tested positive for this SNP, OA, AG, and Mark's father REM. As mentioned earlier FGC12384 and FGC12385 are only 2 of the +40 SNPs that AG and REM share via their FGC Y Elite 2.1 t test results. The rest were not included on the Z49 SNP pack. Of these +40 SNPs, around 17 would be detected by FTDNA's BigY test coverage. This branch was discovered in the summer of 2016.

As mentioned before, AG has an additional 9 private SNPs that REM doesn't have. These are the SNPs which occurred between ~1000 AD and AG's birth. Mark estimates DA and OA share approximately 6 of these 9 SNPs. Additional testing could determine the actual number shared and provide an estimated date when their shared paternal common ancestor may have lived.