# Clan Donnachaidh DNA report - extracts from newsletters in 2006

The Clan Donnachaidh DNA project was set up in December 2002. It now has 172 participants representing the most numerous clan surnames – Robertson, Reid and Duncan – with some associated surnames.

Most participants have been recruited through the Clan Donnachaidh Society but the results from a group taking part in the National Geographic Genographic Survey were incorporated in 2005 and some people have joined separately.

So far participation has been on the basis of personal interest and there has been no targeting of specific groups or locations. Perhaps because of this, it has taken some time for patterns to emerge.

### Assessing the results by name and place

Individual results provide a certain amount of information but they can be put into context by comparing them with other results – particularly those of people with the same surname – and in considering their historical location.

Many participants have been delighted to achieve genetic matches that establish links across the centuries. Some general patterns are beginning to emerge. There are some close matches between various groups of Duncans and some much looser matches between various Robertsons and Reids.

The reason for this may become apparent as more results come in. One possibility is that in 1881, according to the census index, there were approximately 40,900 Robertsons, 23,700 Reids and 18,800 Duncans living in Scotland, not to mention people who had emigrated. It may simply be a question of finding related families to test.

#### Results

Participants receive a list of 12, 25 or 37 values for their genetic markers (their haplotype) and in many cases an indication of their haplogroup and the names of genetic matches. In links on each personal page, Family Tree DNA explains its stringent standards for accepting genetic matches, pointing out that these are based on averages and probabilities and that the estimated number of generations to the most recent common ancestor has to be increased in the case of people who have different surnames.

#### **Haplogroups**

The first thing to consider when analysing results is each participant's haplogroup. People who belong to different haplogroups cannot be related in the male line within thousands of years.

Haplogroups may be described as the branches of the tree. They are identified by the letters from A to R, with some subdivisions, and reveal mankind's path round the world, since the first exodus from Africa. They split from each other thousands of years ago, hence the fact that people in different haplogroups cannot be closely related. For definitive results a different set of slow-moving markers should be tested but in many cases it is possible to make a reliable assessment on the basis of the haplotype (individual combination of marker values).

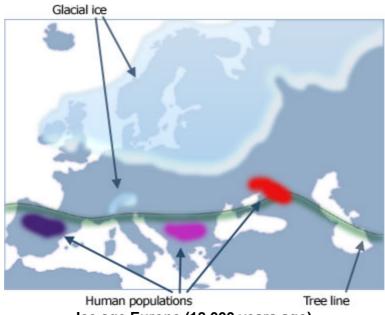
Most of the Clan Donnachaidh samples are assessed as Haplogroup R1b1 and 14 come into Haplogroup I. Two participants (Reids) come into Haplogroup R1 (the ancestral haplogroup of R1a and R1b). Haplogroup R1 is found only at very low frequencies in Europe, Central Asia, and South Asia. These two participants have a good match with each other and good matches with three other men called Reid or Reed who are recorded in the Reed project. The undifferentiated R1 lineage is quite rare. Some participants have requested specific tests but most of our haplogroup results are based on assessment of the haplotype. There are some that cannot be identified by the haplotype alone, thus specific testing is required.

Haplogroup R1b is the most common haplogroup in European populations. It is common on the west Atlantic coast up to Scotland and Ireland. It is believed to have expanded throughout western Europe as humans recolonized after the last Ice Age.

Haplogroup I is found across central Europe and up into Scandinavia; it is particularly common in north-west Europe.

The other major European haplogroup, R1a, is common in eastern Europe and has also spread across into central Asia and as far as India and Pakistan. Its arrival in Britain is associated with Viking Norse incomers. So far no Clan Donnachaidh participants come into this haplogroup.

These haplogroups are associated with population groups that were separated from each other during the last Ice Age, when thick glacial ice covered most of northern Europe. Sea levels were about 125 metres lower than today and Britain and Ireland were connected to continental Europe by land bridges. Isolated population groups took refuge in separate areas: the Iberian peninsula, the Balkans and Ukraine.



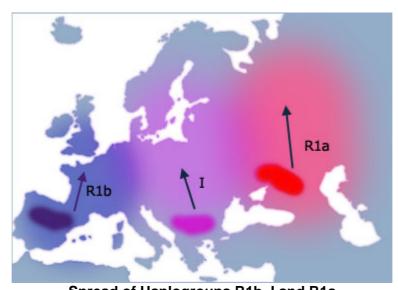
Ice age Europe (18,000 years ago) (Reproduced by permission of DNA Heritage)

The map shows the location of European populations during the last Ice Age, 18 000 years ago.

As the ice began to retreat and the land became more supportive to life, the populations began to move north again, following the migration of game north.

The last great Ice Age covered the period from around 70,000 to 12,000 years ago. There were times during this period when the climate improved sufficiently for hunting bands to follow mammoth, rhino, reindeer and wild horses into the southern part of England and Wales. But continuous colonization began only with the deglaciation.

These first resourceful Mesolithic settlers lived by hunting and fishing. Farming arrived in Britain by about 5000 BC. The theory is that it was introduced in Europe about 8000 years ago when Neolithic peoples from the Middle East (representing some other haplogroups) began moving into Europe. They tended to spread along the Mediterranean but, interestingly, agriculture spread much further than the races who developed it, probably by means of the formation of new farms every generation. There is some indication that the first farming communities in Britain, even if they were influenced by continental neighours, were formed by the resident hunter-gatherer communities who adapted farming techniques to their existing life styles.



Spread of Haplogroups R1b, I and R1a (12,000 years ago) (Reproduced by permission of DNA Heritage)

The main Clan Donnachaidh haplogroup is R1b. This was first brought into Britain by the hunting bands that moved from Spain through western Europe and across the Channel (still a land bridge) into Britain and on to Ireland, which was also connected to Britain by a land bridge.

The Anglo-Saxons and Danes also brought in descendants of the R1b haplogroup who had moved north through the eastern parts of Europe. Certain variants of the R1b haplotype are beginning to be associated with these later immigrants – it is not possible at present to distinguish genetically between Angles and Danes.

One indication of continental R1b ancestry may be values of 23 and 11 for DYS 390 and DYS 391 markers. These results are particularly frequent along the coastal areas of the Netherlands, Germany and Denmark, but very infrequent within the remoter Celtic areas of Britain and Ireland. (It should be noted that all assessments of results are based on averages and probabilities and it cannot be established from individual results which markers have mutated over a long period.)

There are some participants with this 23/11 result but it is not common among Clan Donnachaidh participants. It is not possible even to guess at present whether it represents ancestors who arrived in a longboat or an unusual native variant.

Haplogroup I, which moved up through central Europe, came into Britain with the Anglo-Saxons and Danes (though there is a possibility that a particular subgroup came earlier in Palaeolithic times). The home land of the Angles was very close to Denmark and genetically it is not yet possible to distinguish between them.

It seems most likely that the ancestors of the Haplogroup I participants arrived by sea, as invaders who stayed to farm. There is, however, a possibility that a particular I haplotype that is found in populations that have experienced little or no continental input may also represent an early population.

It is not possible to say at present how the R1 group arrived. Known ancestors lived in Northern Ireland.

The general picture will become clearer as more results become available for analysis.

### **Haplotypes**

Haplotypes are the individual combination of 12, 25 or 37 markers as set out in the test results.

Mutations in these markers occur but they are not common. Some markers are known to have a tendency to mutate more quickly than others. However, any marker can mutate at any time and there is no way of predicting this. Consequently, to provide an indication of the likely haplotype of a common ancestor, a picture of several branches of the same family has to be built up. A mutation in a particular branch (it is possible for two brothers to have a slightly different result) will identify the haplotype of that particular line as it will be perpetuated among the man's descendants.

Comparison of haplotypes with paper genealogy can confirm whether a family tree has been constructed correctly.

A match on 12 or 25 markers means the participants concerned share a common ancestor. If they have the surname the ancestor may be relatively recent. If they do not, the ancestor may be much more distant.

Some participants have requested to see results from all matches and may have received a list of a number of different surnames. This can be helpful in revealing how your haplotype is shared and where it can be found but it also shows that your link with the people concerned predates your family's surname. With certain 12- or even 25-marker R1b haplotypes, it may be an indication that your haplotype is fairly common.

One difficulty is that Haplogroup R1b is the commonest haplogroup in western Europe. One group of six markers known as the Atlantic Modal Haplotype, because it is particularly common along the Atlantic side of Europe, is found in a significant percentage of the west European population, including a number of Clan Donnachaidh participants.

Atlantic Modal Haplotype											
DYS 393	DYS 393   DYS 390   DYS 19   DYS 391   DYS 388   DYS 392										
13	24	14	11	12	13						

The similar haplotype below and all its one-step neighbours account for about 18% of the European population, and nearly 33% in Portugal.

DYS393	DYS390	DYS19	DYS391	DYS389	DYS389	DYS392
				i	ii	
13	24	14	11	13	29	13

(Note that these markers do not represent the first six or seven markers tested by Family Tree DNA. You will have to select the relevant markers if you want to compare your results with them.)

Perhaps Scottish families should not worry too much about men in Portugal. Nevertheless the Atlantic Modal Haplotype is the commonest haplotype in wide areas of Britain where later settlers made less impact. Thus many people with different surnames may share a high proportion of the same 25 markers. If you are interested in using DNA results for family research, you may need to increase the number of markers to 37 and you should approach families that you think are likely to be related. The very large number of Robertsons, Reids and Duncans in the world means that you may have to be selective within your surname.

All this having been said, there are several groups of good Duncan 37-marker matches and Duncan researchers have been using these results in conjunction with traditional research methods.

### Genealogy

DNA testing is not a substitute for genealogical research. It has to be used in combination with traditional research methods, to prove or disprove links, determine relationships and provide clues for further research.

Some very good matches among various Duncan participants have enabled researchers to identify related lines. In one case the common ancestor of two participants has been found, with the assessment that the group's common ancestor must have lived earlier and before a particular date.

In another instance, a theory that two Duncan families might be related was not borne out by testing, so the researchers had to think again.

It is not yet clear why there are so many closely matching Duncan results when other results are not so close. However, this should become clearer as more information comes in. We hope that information on participants' ancestral place of origin will provide background that will help identify families who might be related within a reasonable historical timeframe.

There has already been an encouraging 12-marker match (one half of the match was tested for only 12 markers) between two Robertson families who came from Aberdeenshire settlements that are not very far apart.

### The general pattern of results

There are some groups emerging that are not close enough to be a good genealogical match but which one day may perhaps be identified as significant groupings in a particular area. It is hoped that more information will emerge and we will be able to report on this in future newsletters.

So far there are very few close matches among the Robertsons and Reids. More comparisons of specifically chosen results are required.

The general trend so far is that there is no significant majority group of related participants within Clan Donnachaidh. Whether this would change if we obtained results from more people with origins in specific locations remains to be seen. We also still have to discover what this signifies in the formation of clan surnames.

However, a very interesting discovery about one particular group of participants emerged only recently.

## DNA in the news: a very successful Irishman

You may remember reading that genetic research has revealed that 16 million men in Central Asia appear to be descended from Genghis Khan.

Researchers at Trinity College, Dublin, have now identified an Irishman who has enjoyed similar dynastic success. A particular Y chromosome pattern was found among 8% of the general population with a strong cluster in the north west, where 21% of the population carried it. They calculated that the most recent common ancestor was likely to have lived about 1700 years ago. This, combined with the cluster in the north west, pointed to the Uí Néill dynasty. They checked the results against participants' surnames and found a high proportion were also traditionally linked to the Uí Néill clan.

They calculated that the common ancestor was likely to be the founder of the Uí Néill dynasty: Niall of the Nine Hostages, High King at Tara from 379 to 405. He was a successful warlord who led raids into Britain and France (capturing St Patrick on one such visit) and his sons also became powerful kings. His family retained power for many generations. It will come as no surprise to learn that rich and powerful men have no difficulty in attracting girls. One descendant, Lord Turlough O'Donnell (d. 1423), had 18 sons with 10 different women and 59 grandsons.

The researchers checked their results against international databases. Here they had to use a truncated result for purposes of comparison. They found a match among about 2% of European-American New Yorkers, which could be easily explained by large-scale emigration from Ireland. They used another truncated result to compare matches in Britain. They found this pattern was virtually absent from much of Britain but that it reached frequencies of up to 7.3% (16.7% including likely one-step variations) in western and central Scotland. They concluded that this could be explained by Scotland's substantial historical and pre-historical links with the northern part of Ireland.

They estimated that worldwide there could be perhaps two to three million males descended from Niall of the Nine Hostages.

This becomes of interest because some Clan Donnachaidh participants have a similar haplotype. In the 19th century, the Historiographer Royal, W.F. Skene, suggested that the Clan Donnachaidh chiefs might be descended from Crinan, Abbot of Dunkeld, presumed to be of the kindred of St Columba. St Columba was the great-grandson of King Niall, and the abbots of the abbeys founded by Columba were traditionally chosen from founder's kin. The Celtic Church allowed marriage of the clergy so the line of descent was able to continue.

So far we have only two results from people with an established line of descent from the chiefs of Clan Donnachaidh. These results support a descent from Niall of the Nine Hostages, which would also support Skene's theory. However, given the lack of information about the earls of Atholl in the 12th and 13th centuries and the very large number of King Niall's descendants, other possibilities should not be ruled out. In the last clan annual James Irvine Robertson argued for a return to traditional clan histories, which recalled a link with the Macdonalds, a link that was also recorded by the Macdonalds. A different explanation will have to found for any Macdonald connection – genetic testing has revealed that the Macdonald chiefs descended from Somerled are Norse in origin (R1a) and thus not even in the same haplogroup as King Niall (R1b). However, there may still be some link with the Macdonalds, combined with a later male-line descent from Niall than the descent from Crinan. Descent from Crinan is undoubtedly part of the chiefly-line genealogy, but this could also have passed through the female line.

There are other Clan Donnachaidh participants whose results match the Uí Néill haplotype. It should be made clear that this haplotype comprises 17 markers, only 11 of which are covered by Family Tree DNA tests. If you have a match on these 11 markers, it appears quite probable that you are descended from Niall of the Nine Hostages through Niall's descendants who came to Scotland.

At present it is not possible to assume this also means descent from any of the chiefs of Clan Donnachaidh unless you already know that you are descended from one of the chiefs. We have confirmed results from only two chiefly line descendants who are closely related and a much wider range of results is needed to identify the ancestral haplotype. Although many of the senior lines of the chiefly cadet houses have died out, there are still some descendants of younger sons. All those recorded bore the surname Robertson. The one exception is the Reids of Straloch, but they too eventually resumed the surname Robertson. It seems none of these younger sons and their descendants settled in Perthshire; they pursued careers in the army and the Church, and as merchants in places like Aberdeen and Edinburgh.

Also, given that there are an estimated two to three million descendants, there are probably a number of descendants who have closely matching marker values by coincidence.

There are 12 participants (with different surnames) who match on all the markers (though some of these do not have results that cover all 11). There are at least 19 (also with different surnames) who have a one-step variation. Matching participants tested in Ireland also have a wide range of surnames that have developed over the 1700 years separating them from Niall of the Nine Hostages.

The haplotype that indicates probable descent from Niall of the Nine Hostages as published in the original study

DYS19	DYS388	DYS390	DYS391	DYS392	DYS393	DYS434
14	12	25	11	14	13	9

DYS435	DYS436	DYS437	DYS438	DYS439	DYS389i	DYS389b
11	12	15	12	12	13	16

DYS460	DYS461	DYS462
11	10	11

#### N.B.

- DYS389b has been calculated by subtracting DYS389i from DYS389ii. This subtraction has
  not been carried out in the Family Tree DNA data. You will have to do the subtraction to
  make a direct comparison. In Family Tree DNA's presentation, these results will appear as
  something like 13-29.
- The markers are not arranged in the order used by Family Tree DNA. If you want to compare results you will have to make up a separate table, selecting your results in the order shown in the haplotype above.
- Family Tree DNA does not test for the markers highlighted in grey so you will have to omit them
- DYS390=25, DYS391=11, DYS392=14 should probably be considered defining values of certain distinctively Irish haplotypes. It is not possible to guess where a mutation might have occurred but if your results show DYS390=24 it is perhaps unlikely that you belong to this grouping.

Family Tree DNA has now produced a 12-marker version on their website (<a href="http://www.familytreedna.com/matchnialltest.html">http://www.familytreedna.com/matchnialltest.html</a>), using their marker values in the order in which they are tested. These have probably been compiled by comparing the Uí Néill results with results from customers with certain Irish surnames in the Family Tree DNA database. For more information about these results see the link above.

I	393	390	19	391	385a	385b	426	388	439	389-1	392	389-2
I	13	25	14	11	11	13	12	12	12	13	14	29

They have used these 12 markers to award Niall of the Nine Hostages badges to certain participants. The badge only appears on exact 12/12 matches. One of the team at Family Tree DNA has said: There are a few markers that characterize this haplotype and as long as you are not differing on these markers you can probably still consider a very near match as relevant. It is characterized by 11,13 at DYS 385a/b and 14 at DYS 392. Within our second panel of markers the most distinctive difference from the R1b Modal is the 15,16,16,17 at DYS 464.

As long as your participants match on the characteristic markers and are within one step of the modal haplotype I think you can consider them a 'match'.

Family Tree DNA has also produced a 25-marker version.

3 9 3	3 9 0	1 9	3 9 1	3 8 5 a	3 8 5 b	4 2 6	3 8 8	4 3 9	3 8 9 <b>-1</b>	3 9 2	3 8 9 -2	4 5 8	4 5 9 a	4 5 9 b	4 5 5	4 5 4	4 4 7	4 3 7	4 4 8	4 4 9	4 6 4 a	4 6 4 b	4 6 4 c	4 6 4 d
13	25	14	11	11	13	12	12	12	13	14	29	17	9	10	11	11	25	15	18	30	15	16	16	17

This site also provides a link to a 37-marker result proposed in the Ysearch database (follow the link on the site above). This was probably calculated by a similar assessment of results from certain surnames.

3 9 3	3 9 0	1 9	3 9 1	3 8 5 a	3 8 5 b	<b>4 2 6</b> 12	3 8 8	<b>4 3 9</b> 12	3 8 9 1 1	3 9 2	3 8 9 1 2	4 5 8	4 5 9 a	4 5 9 b	4 5 5	4 5 4	4 4 7 25	3 7	4	4 4 9	6 4 a	6	6 4 c	4 6 4 d
4		Y C A	Y C A	4	6	5	5 7	C	CD	4	4	4	4	4	A		1 B	4	4	4	4	4	4	
6	H 4 11	1 <b>a</b> 19	і <b>b</b> 23	5 6 17	<b>0</b> <b>7</b> 16	<b>7</b> <b>6</b> 18	0	Υ <b>a</b> 37	b	<b>4 2</b> 12	<b>3</b> <b>8</b> 12	<b>2</b> <b>5</b>	6 1 12	6 <b>2</b> 1 2	0	<b>C</b> 4 3 23	7	<b>4</b>   <b>1</b>   13	4 4 12	<b>4 5</b> 12	<b>4</b> <b>6</b>	5 2	6 3 22	

Over 1700 years there must have been some variations in descendants' results. Eventually it may be possible to identify haplotypes for particular branches and to get a clearer idea of which variations are most likely to indicate descent from King Niall.

You can read a press report on the Trinity College research on <a href="http://www.timesonline.co.uk/article/0,,2091-1986072,00.html">http://www.timesonline.co.uk/article/0,,2091-1986072,00.html</a>

### Genealogy database

We have finally taken the next logical step of incorporating a genealogy database into our DNA project, thereby allowing participants to share family histories with others in the project.

Clan Donnachaidh Society members will be allowed to enter family histories and photos through a GEDCOM format or manual input.

You will find the genealogy program on the DNA page of the Clan Donnachaidh International website. This link will take you straight to the DNA page: http://www.donnachaidhinternational.com/dnaproject.htm

You are first asked to register for a user account. Once you have submitted your request and verification has been made, you will receive instructions for entering the program.

### Importing your data

If you already have your genealogy in a desktop program (like PAF, Legacy, FamilyTreeMaker, Reunion, etc.), then the quickest and easiest way to enter your data is to export a GEDCOM file (standard method of genealogical data exchange) and then import it into the Donnachaidh program. The whole process takes only a few minutes (or less, depending on how big your file is). You can also enter your data manually. Once your data has been entered or imported, you can start linking in photos, histories and headstones.

## Questions that have arisen in relation to the project

### I don't understand my results

It is not always easy to understand a very new scientific method, which is in full evolution, with new discoveries being made all the time.

Family Tree DNA identifies your close matches on your home page and also provides explanations of how to interpret your results. Here is a very simplified explanation of things to look out for.

In studying your results and comparing them with those of others, you need to be aware of your haplogroup and haplotype. An explanation of haplogroups (the various branches into which the human race is divided) and haplotypes (individual combinations of markers) was given in the first newsletter.

*Haplogroup*. In many cases Family Tree DNA can predict the haplogroup without a special test. Sometimes this is not possible and for a definitive result you will need to order this test.

The haplogroup is the first thing to consider because you cannot be related to someone in a different haplogroup within thousands of years. If you are an R1b you need to compare your results with other R1bs; if you are an I, you need to compare your results with other Is and so on.

Haplotype. To identify a close family relationship with another participant, you need a good match between your set of marker numbers and those of the other participant. Family Tree DNA does this for you by indicating whether you have a perfect or close match on 12, 25, 37 and – most recently – 67 markers. Family Tree DNA strongly emphasizes the importance of comparing results from people with the same surname.

### How many markers?

Test results are becoming more refined all the time. As the number of people taking genetic tests has increased, certain combinations of markers representing particularly prolific ancient lines are being found in a number of different surnames. If you are interested in using your results for the purposes of genealogy rather than identifying your very remote origins, we recommend testing for at least 37 markers, particularly if you belong to one of the more common R1b groups. With some of the less common results it may be possible to draw conclusions on the basis of fewer markers.

Scottish surnames developed late and we are beginning to find approximate 37-marker matches between people with relatively common results and different surnames, which suggests that an increasing use will be made of 67 markers. Close 25-marker matches between different surnames are not unusual.

# Surnames

To help those interested in genealogy, we have divided the results by surname. For some names we do not have many results as yet. You might like to test your paper family tree by inviting male-line descendants of other branches to take part, so you can verify your results and help work out your ancestor's haplotype.

There has been at least one case where genetic testing has raised questions about a researched family tree.

Many participants will find that they have a number of 12-marker matches with people with different clan surnames. It is not possible at present to say what this means in terms of clan formation. Others who have chosen to see all possible matches will find they have 12-, 25- and possibly even approximate 37-marker matches with people with different surnames. Unless you can document a change in surname or have a close 37-marker match with someone with a different surname, it is probably better not to consider different-surname matches for the purposes of family research. However, we have had at least one inquiry about a possible link with a different family in an area where a number of closely associated families were settled.

## Finding out more

Several participants have come to us through the Genographic Project. The Genographic Project website (<a href="https://www3.nationalgeographic.com/genographic/">https://www3.nationalgeographic.com/genographic/</a>) has a nice interactive atlas that provides a visual picture of the human journey out of Africa and round the world.

There are various sites that explain the science and how to understand your results. The website of DNA Heritage (another testing company – <a href="http://www.dnaheritage.com/default.asp">http://www.dnaheritage.com/default.asp</a>) has some clear, well illustrated explanations.

If you really want to dig deep, including academic research, try: <a href="http://www.ethnoancestry.com/info.html">http://www.ethnoancestry.com/info.html</a>. There are also various online discussion forums.

#### Am I a real Robertson, Reid, Duncan, ...?

Yes, if you have the surname Robertson, Reid or Duncan. The results have been quite varied and no dominant group has emerged so far (see below for the most common haplotypes). There have been some excellent Duncan matches among participants who have been working to verify documented research. Robertson and Reid matches are just starting to emerge as participation has been on a more ad hoc basis.

Known chiefly-line descendants come into the first group in the table below. At present we can conclude only that the people in this group share their results because they are descended or likely to be descended from Niall of the Nine Hostages or other people in his family.

The administrators have been looking for other families in the DNA database who are likely to be descended from Crinan of Dunkeld, who is traditionally supposed to be the ancestor of the Robertson chiefs and also a descendant of Niall of the Nine Hostages. (The chiefly-line descendants' results are close to but not a perfect match with the Family Tree DNA Niall results.) Nothing conclusive has been found so far but there have been some interesting Washington results. The Washington family that took its name in the Middle Ages from Washington, County Durham, is also descended from Crinan of Dunkeld. (President George Washington was descended from this family.) A couple of participants in the Washington DNA project have results that show some interesting similarities to (and differences from) the chiefly line group but the people concerned do not know their more distant ancestry so it is not possible to draw any definite conclusions.

# Is it possible to prove that I am a Scot from my results?

Unfortunately no, not from your individual haplotype because haplotypes cannot be tied exclusively to a particular area. There is some information as to how frequently certain results occur in certain areas. In 2003 a research team from University College London, and universities in Norway, Denmark, California, Italy and elswhere in the UK published 'A Y Chromosome Census of the British Isles'<sup>1</sup>. They took samples from men in 24 places representing points on a grid laid across Great Britain and then compared the results with samples taken from men in Ireland and the Basque country (chosen as likely to closely match the indigenous inhabitants) and Germany, Denmark and Norway (chosen as likely to be similar to the Anglo-Saxons and Vikings who arrived later). They chose men whose paternal grandfather's birthplace was within a 20-mile radius of the selected centre. These survey results have been used by other academic researchers, including the Dublin team when calculating the possible number of descents from Niall of the Nine Hostages.

<sup>&</sup>lt;sup>1</sup> Published in Current Biology, Vol. 13, 979-984, May 27 2003. It may be available on the Internet.

So far the three most common six-marker haplotypes among Donnachaidh participants are:

	393	390	19	391	388	392
1.	13	25	14	11	12	14
2.	13	24	14	11	12	13
3.	13	24	14	10	12	13

They belong to Haplogroup R1b and probably largely represent the people who first populated the British Isles after the Ice Ages. It must, however, be emphasized that we do not have any kind of estimate of the number of common lines of descent and that the first group comprises a number of people who are known or suspected to be descended from a recent common ancestor.

The first group includes those who match the haplotype established for Niall of the Nine Hostages, High King of Ireland, and others who are a fairly close match. Unsurprisingly the highest number are found at locations in Ireland but a reasonable number in the Western Isles, Pitlochry, Oban, Morpeth, Haverfordwest in Wales, and the Isle of Man. This group is relatively infrequent in England and in some areas is not found at all.

The next two groups are by far the most frequent in the British Isles. The second group represents the Atlantic Modal Haplotype and is common throughout the western part of Europe, representing the migration north from Spain after the Ice Age. Several participants have an Atlantic Modal Haplotype badge representing descent from a man who lived in ancient times who was the most prolific progenitor in Europe. It is found in all parts of Britain, the Basque country and occurs in quite high levels in the samples taken in Germany, Denmark and Norway. The only place where it appeared to be relatively rare was York, which came under Scandinavian rule in the Viking period. It peaks in Scotland in outlying areas, such as Orkney and Shetland (despite their Scandinavian input) and the Western Isles.

The third group is found more frequently in places in Scotland than in places in England and Wales, but it is found throughout Britain. It appears more frequently in the central parts of Scotland than the second group, including in the area around Pitlochry, which is in clan country.

This by no means represents all the participants. There are also a number of R1b variants, several people in Haplogroup I, which tends to be associated with Danish or Anglo-Saxon ancestry, and one or two less common groups: such as R1a, which is usually assumed to be Viking, E3b, and J2. The Kingdom of Scotland came very late in the genetic timeline. The Romans moved all sorts of people round their empire and some of the smaller and more exotic groups may also have come in with the Vikings.

Bloodlines can end up in unexpected places. There are a few instances of the I haplogroup around Pitlochry, a long way from where Danes and Anglo-Saxons might be expected to be living. There are various possiblities as to how these lineages arrived but they may even have arrived early. Some of the Pictish princesses are known to have married Saxon princes. It might be speculated that Saxon princes who inherited the throne or their followers could have brought Saxon bloodlines into the area. However, descendants would in due course become Scots. (It should be noted that Haplogroup I is found elsewhere is Scotland; in the south of Scotland it derives from settlers of Anglian or Danish origin.)

This is a very rough calculation of how the 2003 results compare with the Donnachaidh results and we will aim to provide a more detailed account in due course.

As more research is done there will certainly be new patterns of results and interpretations.

My results do not quite match Family Tree DNA's Niall of the Nine Hostages results
The original research team from Trinity College Dublin tested a set of 17 markers, some of which are not used by Family Tree DNA (they may be in the new 67 marker test) and made assessments of other possible matches on the basis of surveys such as the 2003 data. Family Tree DNA came

up with a 12-marker profile presumably on the basis of results in their database from people with certain Irish surnames. They have not suggested the possibility of an 11/12 match and a direct inquiry to Family Tree DNA produced no information that was not on their website.

Despite this, after 1700 years some mutation would seem to be feasible and an 11/12 match is accepted for surname matches. It is to be hoped that more research may establish results for different branches of Niall's descendants. Some participants who do not exactly match FTDNA's Niall profile match on the FTDNA markers that were included in the Dublin survey.

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**The Western Atlantic Modal Haplotype** (derived from the FTDNA website)
Family Tree DNA awards a WAMH badge to participants whose first 12 markers match the sequence below or who match it 11/12.

Western Atlantic (Modal) Haplotype 13 24 14 11 11 14 12 12 12 13 13 29

The Western Atlantic Modal Haplotype is the most common Y-DNA signature of Europe's most common Haplogroup, R1b. There has been a dramatic population explosion among this group over the past 10,000 years, probably since the end of the last Ice Age.

R1b, and its most common haplotype, exists in high or very high frequencies throughout western Europe from Spain in the south to the British Isles and western Scandinavia in the north. It appears that approximately 2.5% of Western European males share this most common genetic 12 marker signature. Because of its very high frequency FTDNA always suggests that for genealogy purposes people in this group should only use the 25- or 37-marker test.

Anthropologists have been saying for many years that only a select percentage of males in past societies did most of the fathering, while other males lost the opportunity to pass on their Y-chromosomal genes. Professor Brian Sykes of Oxford University has commented that most people will have had a warlord in their ancestry in the past 10 000 years.

#### The Reids write about crookit crannies

As Sir lain Moncreiffe commented in his little book 'The Robertsons': *Many Robertsons and Reids* are born with the characteristic crooked little fingers or 'crookit crannies' that so often occur among the clan.

One of the Reids would like us to ask who has this characteristic in the family. We already have some information on this subject from the Reids and can say that the characteristic crosses haplogroups. Obviously this is something that can be inherited from either parent and some people associate it with Atholl more than a particular name.

We should be interested to know whether you or family members share this characteristic. We are talking about little fingers that have a pronounced inward curve towards the next finger -- the nail may press into the next finger if you straighten your fingers.

### A case of proven identity (Kit number 43851)

We have had our first success in using DNA results to prove a suspected affiliation for someone with a different surname.

Participant number 43851 has achieved a perfect or very close 37-marker match with the Duncans in Duncan Subgroup F – see a selection of results from this group below.

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20692 Duncan 13 26 14 10 11 14 12 12 12 14 13 31 16 38001 Duncan 13 26 14 10 11 14 12 12 12 14 13 31 16 43851 Woodall 13 26 14 10 11 14 12 12 12 14 13 31 16 28358 Duncan 13 26 14 10 11 14 12 12 12 14 13 31 16 9 9 11 11 25 15 19 28 15 15 17 17 11 11 19 23 15 15 19 17 36 37 12 12 9 9 11 11 25 15 19 28 15 15 17 17 11 11 19 23 16 15 19 17 36 37 12 12 9 9 11 11 25 15 19 28 15 15 17 17 11 11 19 23 16 15 19 17 36 37 12 12 9 9 11 11 25 15 19 28 15 15 17 17 11 11 19 23 16 15 19 17 36 37 12 12 9 9 11 11 25 15 19 28 15 15 17 17 11 11 19 23 16 15 19 17 37 37 12 12
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However, the participant's surname is Woodall and he came across the Duncan connection when researching his family's history.

According to bastardy bonds in Granville Co, NC, Diana Woodall and Seamore Duncan had a child together, who was given the name of James Duncan Woodall. Seamore paid Diana for maintenance of the child in February 1791.

The DNA testing strongly supports the affiliation to Seamore Duncan. This is an excellent example of how genetic testing can be used to assess and in this case confirm a specific point of documented research. The slight variations in these sets of results can be compared with documented records as the participants work to construct a family tree of the Duncans in this group. It also shows what sort of matches can be expected between families related perhaps within 300 years, though precise details of possible relationships are not available at the time of writing.