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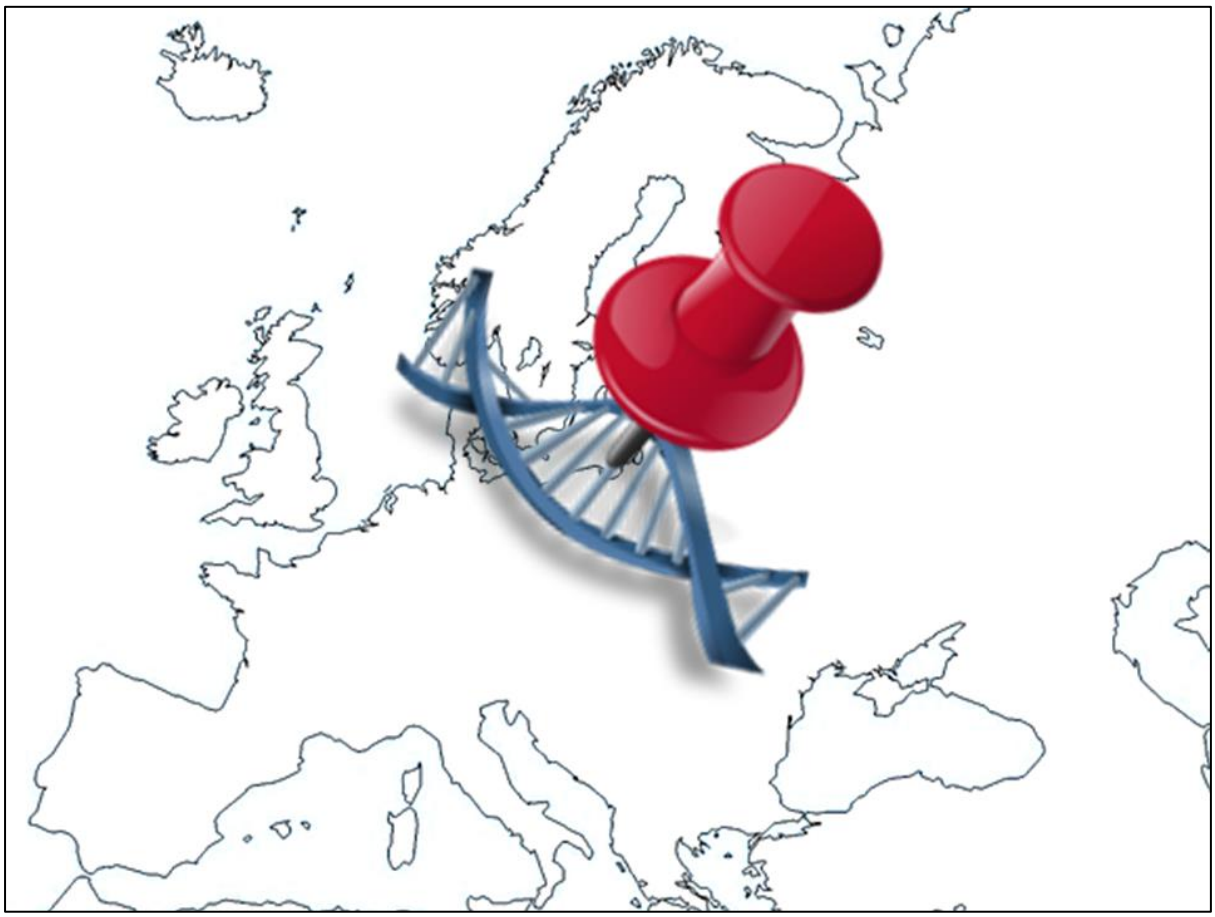
PART II

Pinpointing Mr Barr's Ancient Paternal Ancestral Origin



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INTRODUCTION

The surnames of the people with whom one shares a common male ancestor as revealed by a commercial ancestral Y-DNA test are a snapshot of one's ancestral neighbours in multiple locations over many thousands of years. The more markers or mutations that two people share, the more recent their common male ancestor lived. In this manner the genetically recurring surnames that appear at the 67 and 37 marker levels will reflect ones ancestral neighbours from the time when paternally inherited surnames became common, which was roughly 1000 years ago in the UK and Ireland. The Y-DNA test also reveals many surnames that appear as genetically recurring matches at the 25 and 12 marker levels, these surnames reflect shared ancestry prior to the appearance of surnames and they may reveal clues as to one's ancient paternal ancestral journey.

INTERPRETING MR BARR'S DISTANT GENETIC MATCHES

To reveal ones ancient paternal ancestral journey one must first identify the surnames that reappear as distant genetic matches. These recurring surnames will help reveal a distant ancestral link with specific geographical areas. Results for test subject 'Barr' are shown in **Figure 1**.

Test Subject	Y-DNA results				
	25 marker			12 marker	
	exact	-1	-2	0	-1
Barr	-	**Clark(x12)** **Donahue(x3)** **Enright(x3)** **Henry(x3)** Enderton(x2) Jones(x2) Millikin(x2)	Anglin(x14)[1] Ruddy(x7)[1] **Gallagher(x6)** **Nichol(x6)** **Moore(x5)** **Coggins/Cogan(x4)** Gollehon(x4)[1] **Hillman(x4)** **Ashmore(x3)** **Brown(x3)** **Willett(x3)** Arney(x2) Campbell(x2) Coker(x2) Denson(x2) Edison(x2) Fisher(x2) Gannon(x2) Hite(x2) Horth(x2) Mabrey(x2)	Bowman(x12)[1] **Greagrey/Gregory(x7)** **Wilson(x5)** **Allen(x4)** **Allison(x4)** **Downie(x4)** **Horn(x4)** **Long(x4)** Low/Lowe(x4)[1] **Matthews(x4)** **Smith(x4)** **Ward(x4)** **Emerson(x3)**	**Cloud(x3)**

Figure 1: Mr Barr's distant genetically recurring surname matches. Surnames appear at the point at which they first occur as a genetic match e.g. the first match to an individual called Clark occurs at 24/25 markers, although not all Clarks may match at that level. Figures in brackets represent the number of individuals with a particular surname who appear as a genetic match. Coloured font denotes the ethnicity associated with each surname; Scottish, Irish, English, black font indicates surnames with multiple ethnic origins. Surnames in bold occur 3 times or more. [1]Members of the same close family recruited for Y-DNA testing and excluded from further analysis.

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Mr Barr's distant recurring genetic matches are to surnames that are associated with either Britain or Ireland. Many of these surnames can be associated with multiple locations within the British Isles but some like Donohue, Enright, and Gallagher are exclusive to Ireland, while others are exclusively English in origin, including Hillman, Willett, Ashmore, and Gregory, see **Figure 1**. Surname distribution mapping reveals that Mr Barr's most numerous English surnames are associated with the English Midlands (data not shown), while his Irish genetic matches are associated with the west of Ireland, see **Figure 2**.

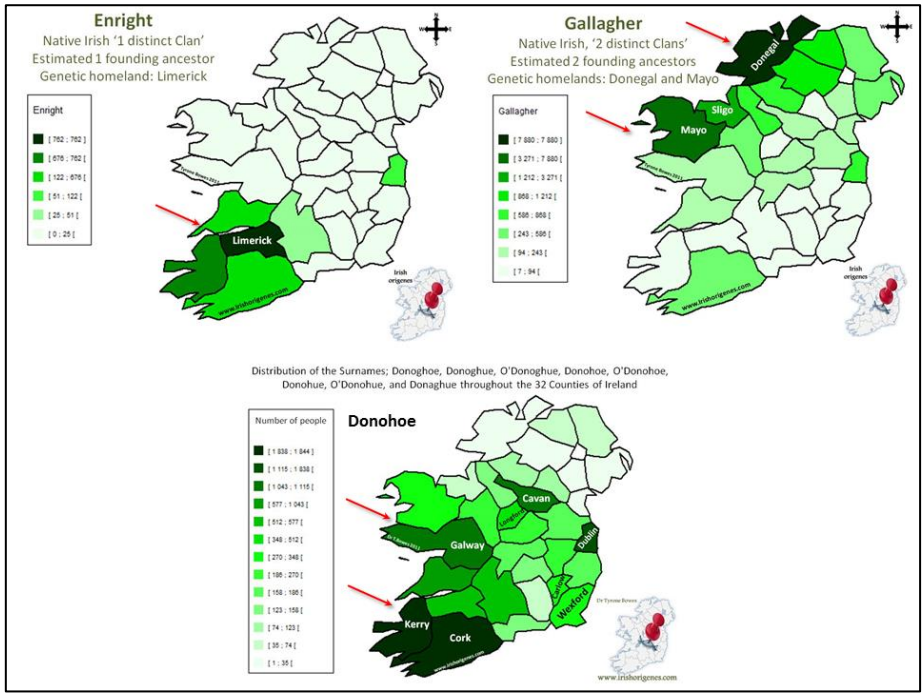

Figure 2: Surname distribution mapping of Mr Barr's most frequent distant Irish genetically recurring surname matches. Mr Barr's most frequent distant genetic matches are to both English and Irish surnames. Within Ireland they cluster along the Irish west coast (red arrows). As a rule the further west in Ireland that one's paternal ancestral genetic homeland is to be found the more ancient the association with Ireland.

Tracking one's paternal ancestral journey prior to the appearance of surnames can be tricky as multiple geographical associations are typically revealed (as in Figure 2). Another approach is simple to plot the location of the most distant known paternal ancestor for ***all*** of Mr Barr's genetic matches. This information together with all the identified genetically recurring surname matches can allow one to reconstruct a paternal ancestral journey over many millennia. By far the greatest number of known ancestral locations as detailed by Mr Barr's genetic relatives are recorded in Britain and Ireland, see **Figure 3**. Some of these recorded ancestors are the result of relatively recent migrations, for example the Duncans and Lyles recorded in Antrim and Dublin respectively, are Scottish surnames that arrived in Ireland during the 17th Century Plantations. While the surnames like Bourke in Dublin, and St Clair in the south of Ireland arrived during the 12th Century Norman Conquest, see **Figure 3**. Even when one excludes these recent migrations, the majority of Mr Barr's 12 maker

matches still list ancestors in the west of Ireland and the British midlands. This indicates that Mr Barr's paternal ancestral link with Britain precedes the appearance of surnames by many hundreds if not thousands of years! An examination of all of the most distant known paternal ancestors recorded by Mr Barr's Y-DNA matches reveals a distribution pattern that typifies his R1b (M343) haplogroup, see **Figure 4**. This haplogroup appeared perhaps 20,000 years ago in Anatolia and spread west where today it reaches its highest concentration in the British Isles, see **Figure 4**.

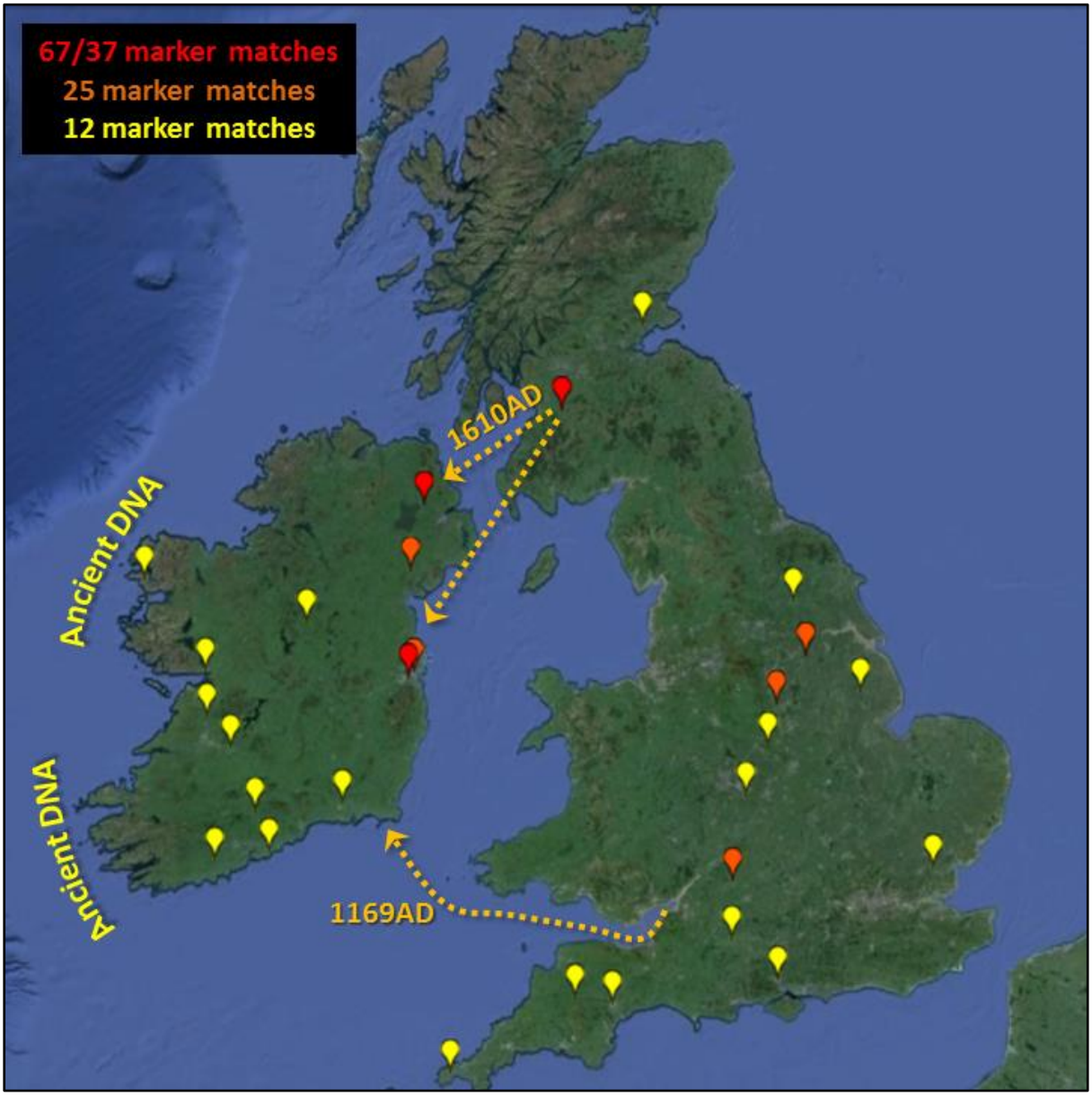

Figure 3: Ancestral location within Britain and Ireland recorded by Mr Barr's genetic matches. Most of the known ancestral locations occur within Britain and Ireland. However, some of these locations within in Ireland are a result of relatively recent human migrations (broken yellow arrows) that occurred during the 12th Century Norman Conquest and 16th and 17th Century plantations.

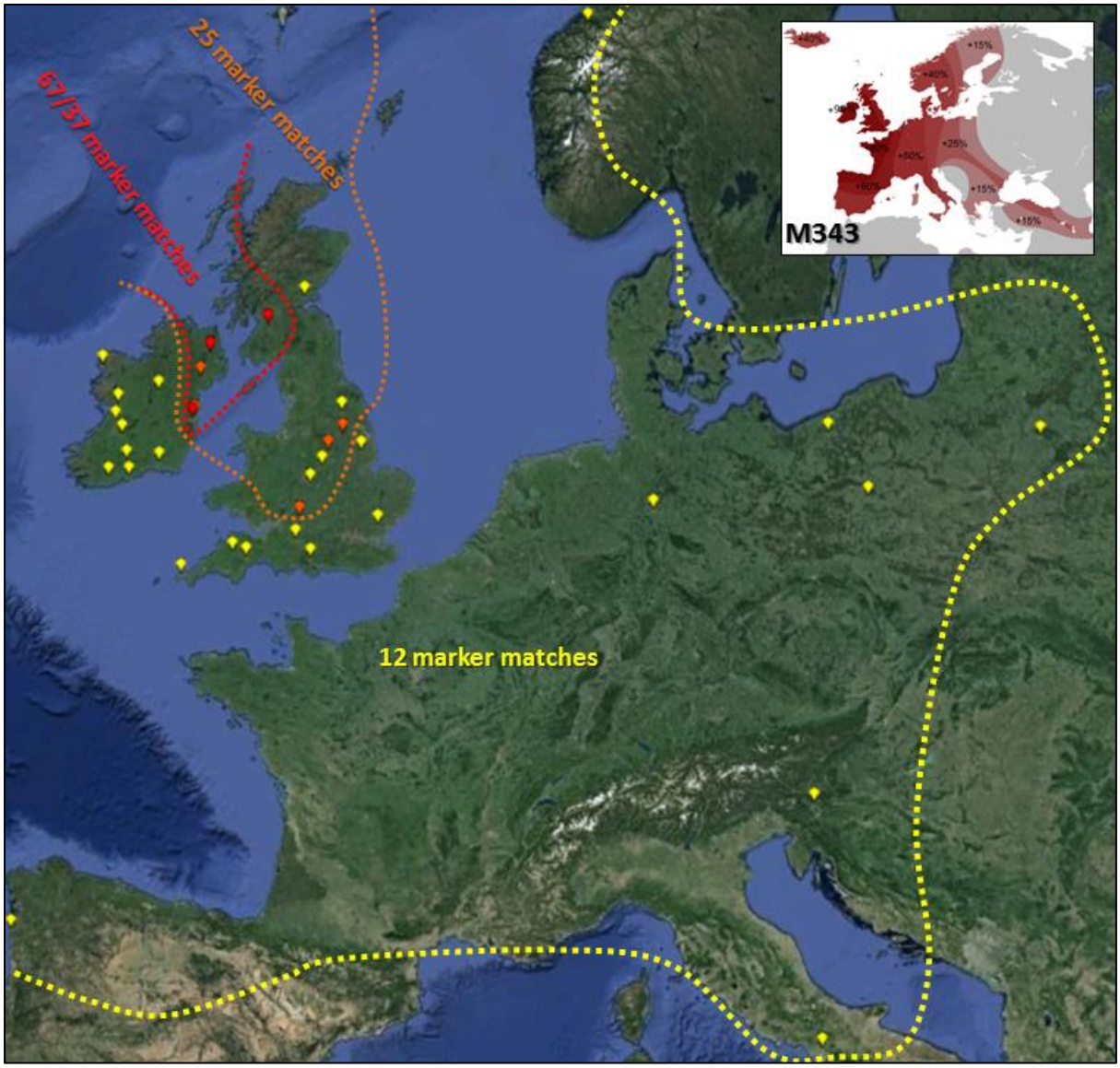

Figure 4: Ancestral locations revealed by Mr Barr's genetic matches. Mr Barr's closet genetic matches record ancestral locations within the northeast of Ireland and southwest Scotland. His 25 marker matches reveal ancestral locations restricted to Britain and Ireland, while his distant 12 marker matches record locations that are primarily located in Britain and Ireland with a scattering throughout mainland Europe. This overwhelming association of distant genetic matches reveal an ancient ancestral link with Britain. The scattering of some of his distant matches reflect the frequency of R1b (M343) throughout Europe (inset).

ANCIENT BRITISH PATERNAL ANCESTRY

Mr Barr's paternal ancestral links with Britain are thousands of years old. It is possible that his ancestors were some of the first people to colonise Britain after the last Ice Age. His distant genetic matches to a scattering of people with links throughout Europe are that last remnants of his paternal ancestral journey from Anatolia to Britain. Mr Barr's genetic matches have revealed shared ancestry prior to the appearance of paternally inherited surnames with populations within the midlands of England and in the west of Ireland.

Analysis of Britain's DNA conducted at the Wellcome Trust has revealed ancient distinct genetic groups throughout Britain; one of which localises in the English Midlands, see **Figure 5**. In addition, extensive Irish Y-DNA Case Studies conducted at Irish Origenes have revealed a tentative Y-DNA map of Ireland, which shows that the descendants of the pre-historic settlers in Ireland cluster in the west of the island where one finds many of the Irish surnames that appear as Mr Barr's distant genetic matches, see **Figure 5**.

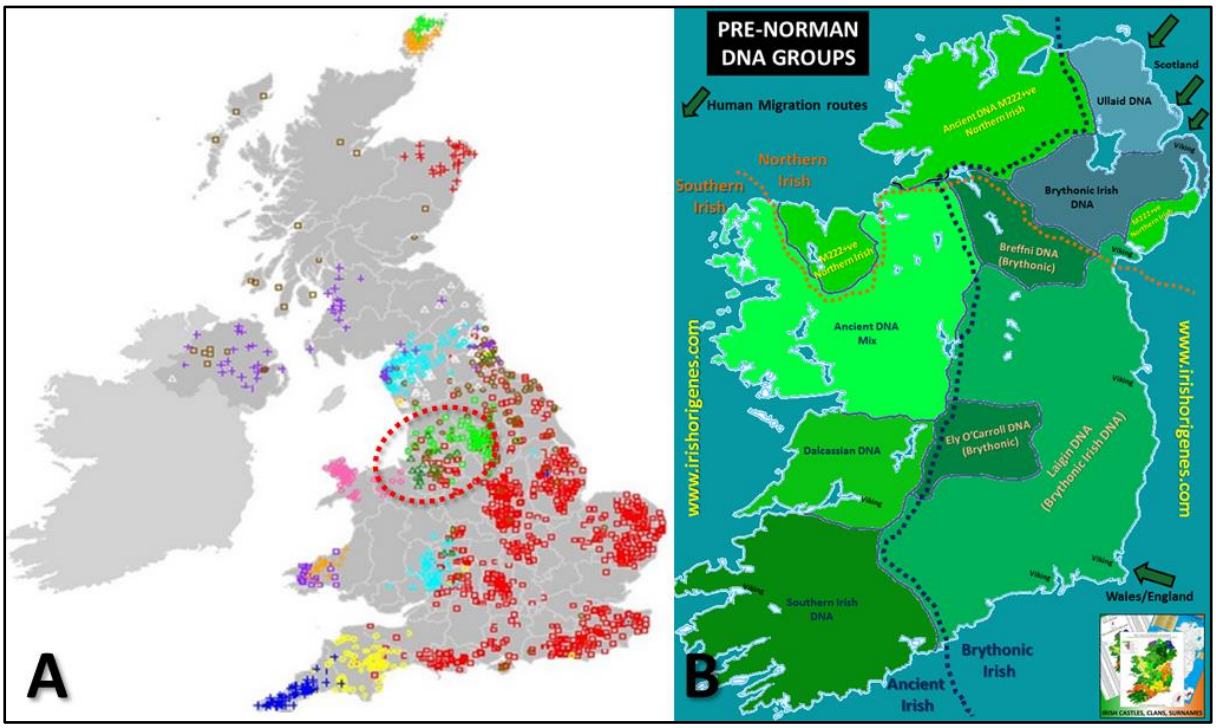

Figure 5: The ancient genetic groups of Britain and Ireland. The Wellcome Trust Centre for Human Genetics created a map of the ancient genetic make-up of Britain (**Panel A**). Mr Barr's distant genetically recurring English surname matches cluster in the English Midlands which corresponds to one of these identified ancient DNA signatures (red broken circle). Mr Barr's distant Irish matches cluster in the west of Ireland in the area which the Irish Origenes Y-DNA map of Ireland (**Panel B**) reveals is dominated by ancient DNA signatures.

SUMMARY

About 20,000 years ago Mr Barr's direct male ancestor was living in Anatolia in what is today modern Turkey. It was there that a unique mutation occurred in his Y-DNA, which today is classified as haplogroup R1b. His descendants spread throughout Europe, reaching Britain some point after the last Ice which ended in about 8,000BC. Given the shared ancestry with human populations in the west of Ireland it is highly likely that Mr Barr's ancestors were some of the earliest settlers in Britain. His paternal ancestors appear to have lived in the midlands of England prior to migrating north and settling in the Scottish southwest in an area that history records was dominated in about 600AD by the Welsh speaking ancient Britons, who have left evidence of their presence in the Y-DNA of that areas male population, see **Figure 6**.

Figure 6: The Genetic Diversity of the Scots. Extensive Y-DNA Case Studies conducted at Scottish Origenes have revealed a tentative Y-DNA map of Scotland. Mr Barr's paternal ancestors were ancient Briton's, and his identified paternal ancestral genetic homeland (red arrow) lies within Ayrshire in southwest Scotland in an area where the ancient British Y-DNA predominates.

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