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## **Case Study**

# **Pinpointing the Donnelly Irish Paternal Ancestral Genetic Homeland**

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[www.irishorigenes.com](http://www.irishorigenes.com)



A handwritten signature in black ink, appearing to read 'Tyrone Bowes'.

**Dr Tyrone Bowes**

## INTRODUCTION

A simple painless commercial ancestral Y chromosome DNA test will potentially provide one with the names of many hundreds of individuals with whom one shares a common male ancestor, but what often perplexes people is how one can match lots of individuals with many different surnames? The answer is quite simple. Approximately 1,000 years ago, one's direct medieval male ancestor, the first for example to name himself 'Ó Donnghaile' was living near others with whom he was related but who inherited other surnames like Ó Luinigh, and Mac Giolla Dhuibh. Given that 1,000 years have passed since paternally inherited surnames were first adopted, there will be many descendants of those individuals some of whom will today undergo commercial ancestral Y-DNA testing. Hence the surnames of one's medieval ancestor's neighbours will be revealed in today's Y-DNA test results.

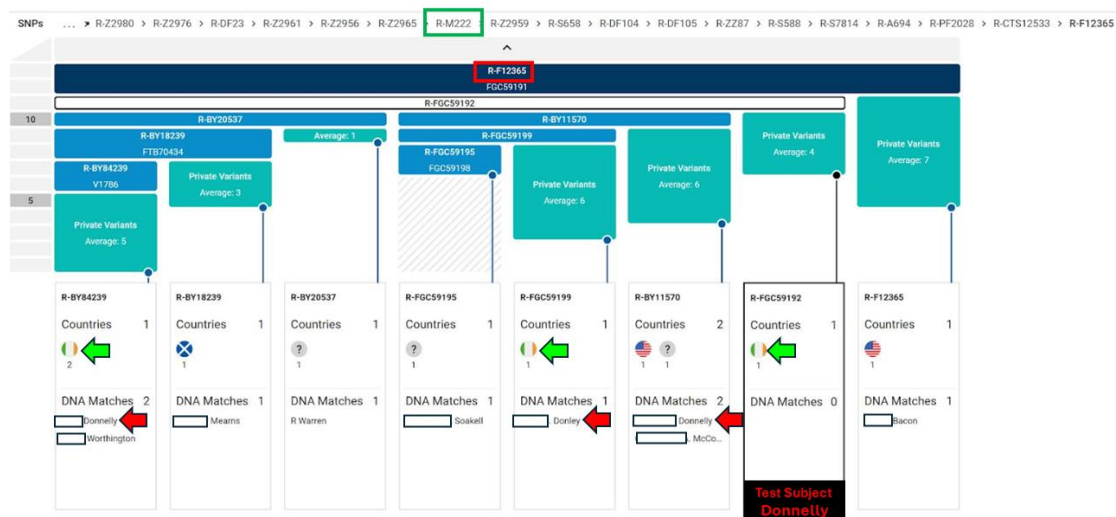
Surnames in Ireland can still be found concentrated in the areas where they first appeared or in the area where one's ancestors first settled. One can therefore use census data to determine the origin of the surnames that appear in one's Y-DNA results, identifying an area common to all, and reveal one's '**Paternal Ancestral Genetic Homeland**.' The paternal ancestral genetic homeland is the small area (usually within a 5-mile radius) where one's ancestors lived for hundreds if not thousands of years. It is the area where one's ancestor first inherited his surname, surrounded by relatives who inherited others. It is the area where one's ancestors left their mark in its placenames, its history, and in the DNA of its current inhabitants. Since modern science can pinpoint a paternal ancestral genetic homeland, it can also be used to confirm it by DNA testing individuals from the pinpointed area.

### Notes of caution!

1. Each of the estimated 1,500 unique Irish surnames had a single founding ancestor, which is an estimated 1,500 'Adams' from whom anyone with Irish paternal ancestry (and with one of those unique surnames) can trace direct descent. But science has demonstrated that only 50% of individuals with a unique Irish surname will be related to their surnames founding ancestor (*the surname-Adam*), the other 50% of males will have an association that has arisen due to 'non-paternal events,' usually a result of adoptions or maternal transfer of the surname.
2. Often people are looking for their DNA results to trace back to a specific area. One must remember that the results typically reflect one's ancestor's neighbours from around 1,000 years ago. As a result, if one's Irish paternal ancestor was descended from a Viking raider, Norman, or Plantation settler, then one's Y-DNA results may reflect earlier English, Welsh, French, and possibly Scandinavian origin. One must approach this process with an open mind!

### Interpreting the Y-DNA test results

To pinpoint a paternal ancestral genetic homeland, one must first use commercial ancestral Y-DNA testing to identify the surnames that appear as one’s closest genetic matches or reveal one’s terminal Y-DNA SNP mutation. Mr Donnelly’s closest genetic surname matches and terminal SNP mutation as revealed by commercial ancestral Y-DNA testing are detailed in **Figure 1**.



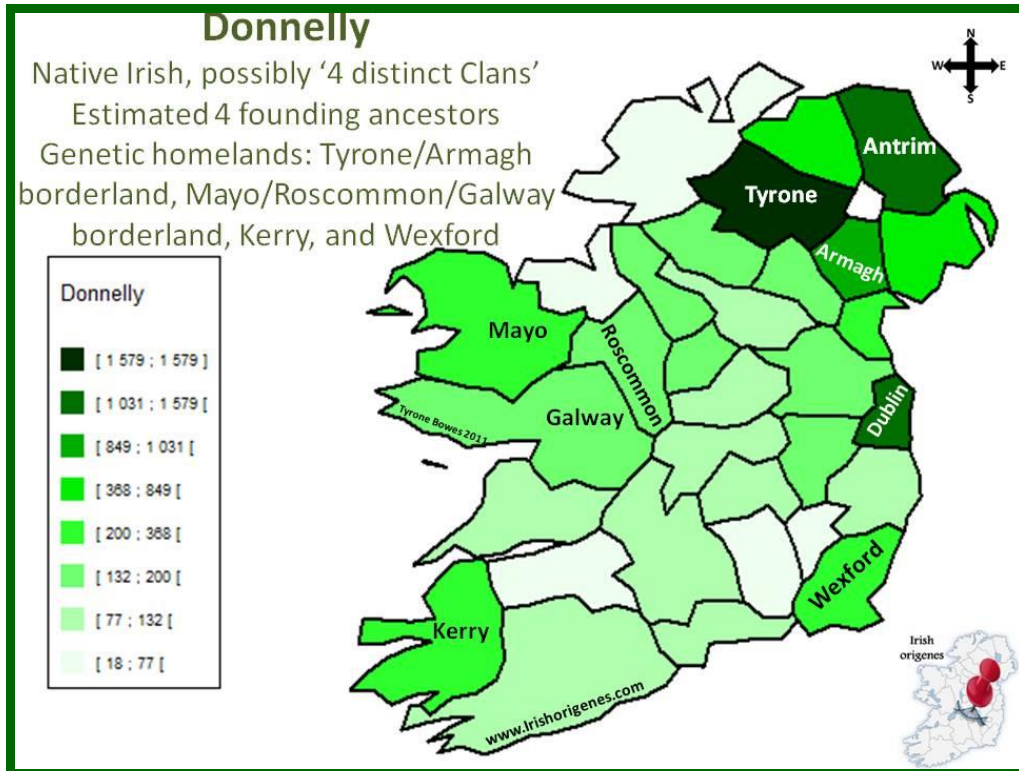
**Figure 1:** Block display of Mr Donnelly’s closest Y-DNA SNP matches. Block display of the test subject’s closest Y-DNA SNP results reveals that he matches others named Donnelly (red arrows), some of whom also record paternal ancestral links with Ireland (green arrows). These Y-DNA matching Donnellys all share the R-F12365 Y-DNA mutation (red box) which lies downstream of the prominent Irish-associated R-M222 Y-DNA mutation (green box).

Upon commercial ancestral Y-DNA testing the test subject matched others named Donnelly who tested independently, see **Figure 1**. This indicates that the test subject is directly descended from his surnames founding ancestor; a Donnelly-Adam. Donnelly is an exclusively Irish surname, and the Y-DNA matches to others with earliest recorded ancestral links with Ireland together with the prominent Irish-associated R-M222 paternal marker, confirms a paternal origin within Ireland, see **Figure 1**.

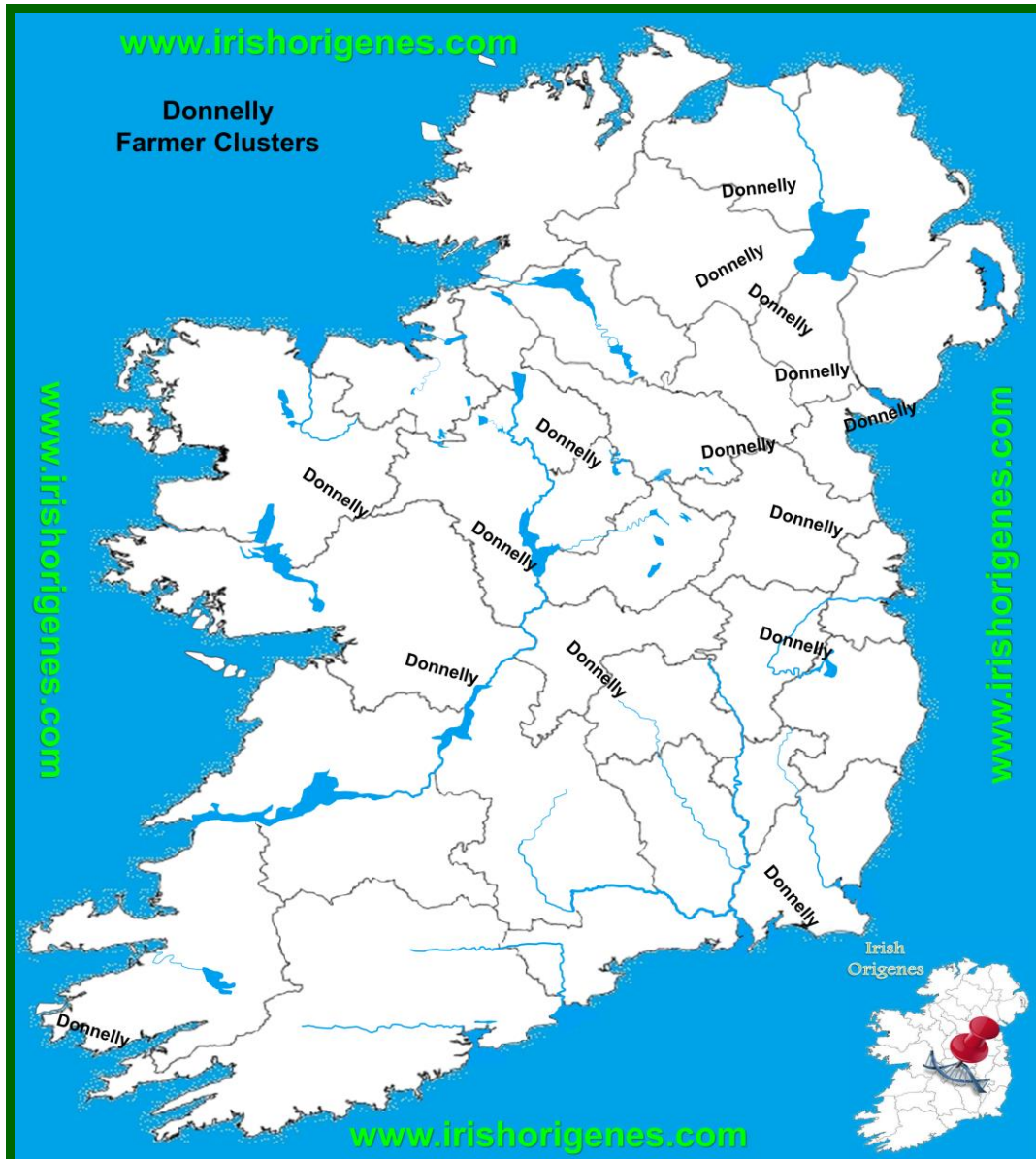
### The Donnelly Surname in Ireland

The 1911 census of Ireland revealed 8,649 individuals named Donnelly. Those individuals were not scattered uniformly throughout Ireland but concentrated within specific counties, see **Figure 2**. Irish surnames arose in an agricultural society, and as a result, farmers in early census data still concentrated in the area where their surname first appeared or in an area where one’s ancestors first settled. An examination of the distribution of Irish farmers named ‘Donnelly’ reveals at least 15 distinct groups spread throughout Ireland, see **Figure 3**. Since the test subject’s Y-DNA results reveals that he is descended from an Irish Donnelly-Adam, his paternal ancestry is linked with 1 of 15 locations within Ireland.

## Donnelly – An Irish Origenes Y-DNA Case Study



**Figure 2:** Distribution mapping of the Donnelly surname in Ireland. Distribution mapping reveals that the Donnelly surname was not distributed evenly throughout Ireland but concentrated in specific Irish counties. Image taken from the Irish Surnames database, free to view [www.irishorigenes.com/surnames-database](http://www.irishorigenes.com/surnames-database)



**Figure 3:** The Donnelly farming community in Ireland. Census data reveals that individuals with Gaelic Irish, Norman, or Scottish Gallowglass surnames were overwhelmingly Catholic, while those with 16<sup>th</sup> and 17<sup>th</sup> Century Plantation Scottish or English surnames were overwhelmingly Protestant. The Donnelly surname is associated with Pre-Plantation Gaelic Ireland. An analysis of the distribution of Irish farmers named Donnelly in 1901 reveals 15 geographically distinct groups indicating the existence of potentially 15 genetically distinct Donnelly clans. Y-DNA testing reveals that the test subject's paternal ancestry is linked to 1 of these 15 locations within Ireland. Each surname is positioned in the location where farmers (Catholic, male, heads of household) with that surname concentrated in early census data. The most common spelling is detailed in each location. Surnames are positioned as they appear on the Irish Origenes Surname maps, free to view online [www.origenesmaps.com](http://www.origenesmaps.com) a surname search function is available at <https://analysis.irishorigenes.com/surnames>

### A Paternal Ancestral Origin within Mid Ulster

The Y-DNA Haplotree traces and tracks all the mutations on the Y chromosome back to the earliest known male ancestor. The Y-DNA Haplotree consists of branches, each defined by a specific single nucleotide polymorphism (SNP). These SNPs represent genetic markers that help us understand the evolutionary history of the Y

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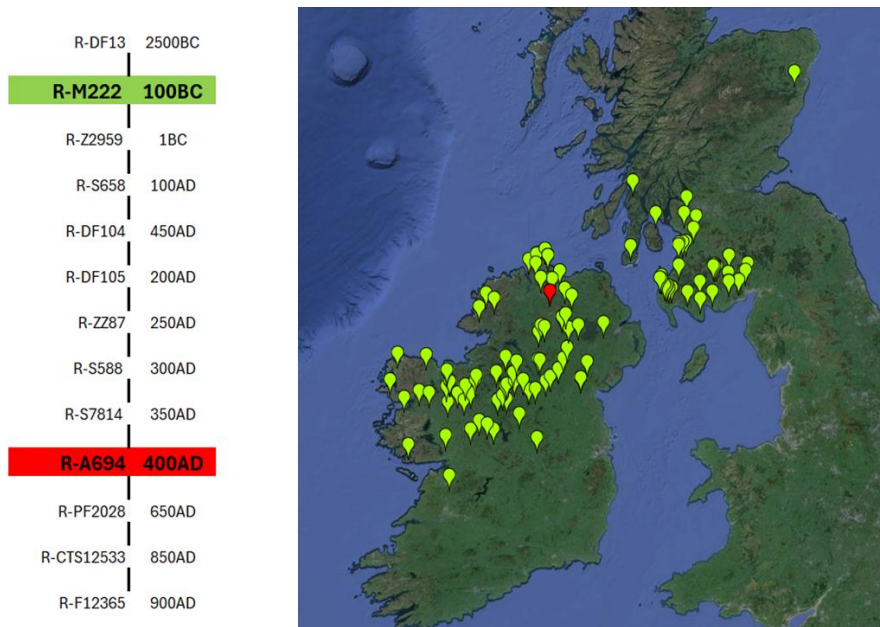
chromosome. The Y Chromosome Consortium began producing and maintaining the first Y-DNA Haplotree in 2002 and it now comprises more than 40,000 branches, 400,000 variants, and over 200,000 confirmed SNPs. The haplogroups within the tree are identified by letters (from A to T). Each haplogroup is further subdivided into one or more levels called subclades, forming a hierarchical tree structure. To determine an individual's Y-chromosome haplogroup, commercial ancestral DNA testing companies perform a Y-DNA SNP test. If a sample tests positive for any SNP associated with a particular subclade, it belongs to that subclade and its parent haplogroup. The Y-DNA Haplotree provides valuable insights into human migration patterns, historical population movements, and the deep ancestry of paternal lineages.

Each of the thousands of Irish and Scottish Origenes commercial Y-DNA Case Studies produced over the past decade has a pinpointed origin within Ireland or Scotland based on their closest Y-DNA surname matches. Hundreds of those case studies have an associated terminal Y-DNA SNP which has facilitated the production of a Y-DNA SNP map of both Ireland and Scotland. One can now simply submit a terminal Y-DNA SNP to Irish/Scottish Origenes and reveal one's Irish or Scottish paternal origin.

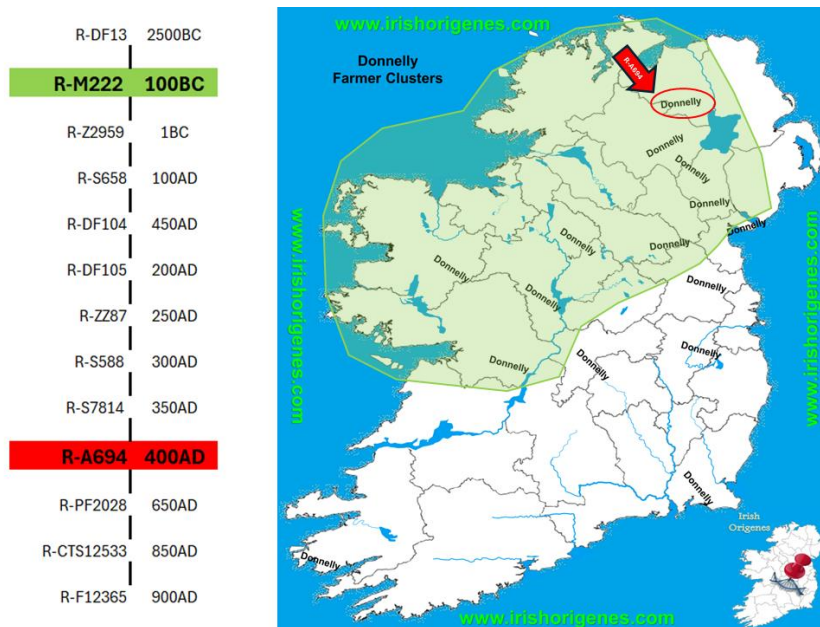
The test subject's R-F12365 SNP lies downstream of R-M222 which research at Irish and Scottish Origenes is associated with both Ireland and Scotland, see **Figure 4**. A comparison of the test subject's SNP branch reveals that he also tests positive for R-A694 which research at Irish Origenes reveals has a pinpointed origin within County Derry in Mid Ulster in Northern Ireland, see **Figure 4**. By overlay mapping the distribution of farmers named Donnelly together with the distribution of R-M222 and the location of SNP R-A694 it reveals a paternal ancestral link with the Donnellys that span the Derry and Tyrone Borderlands, see **Figure 5**.

An examination of the surnames associated with the Derry and Tyrone borderlands as they appear on the Irish Origenes Medieval and Plantation Surnames of Ireland maps reveals the test subject's Donnelly surname close to the 17<sup>th</sup> Century Plantation town of 'Cookstown,' and in an area that was heavily colonised by a mix of Scottish and English settlers, see **Figures 6** and **7**. The test subject's Y-DNA SNP results reveal that some native Gaelic Irish 'Donnellys' living in the Derry and Tyrone borderlands acquired new 'English' surnames like Worthington, Soakell, and Bacon during the turbulent 1640's, see **Figures 1** and **7**.

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**Figure 4:** Test subject Donnelly’s closest SNP match in the Irish Origenes database is to R-A694 which has a pinpointed origin within Mid Ulster. By comparing the test subject’s Y-DNA SNP branch to the Irish and Scottish Origenes Y-DNA SNP map it reveals that he matches R-A694 which lies down stream of R-M222 and has a pinpointed origin within Mid-Ulster (red pin). Each pin is placed in the origin of an R-M222 Irish or Scottish Origenes test subject.

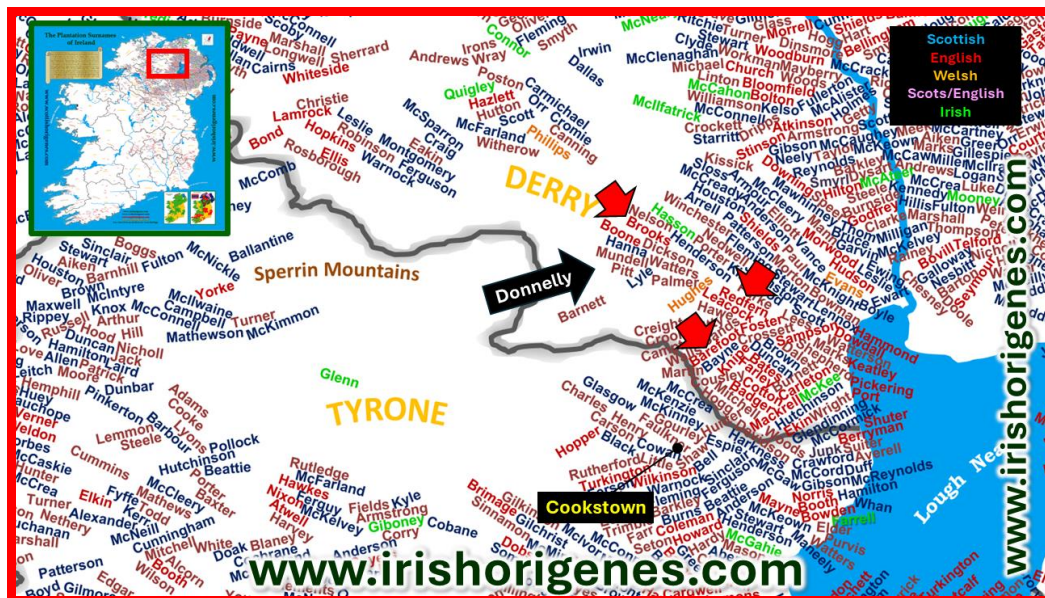


**Figure 5:** Overlay mapping of the R-A694 SNP and Donnelly farming communities reveals a paternal link with the Derry/Tyrone borderlands. By overlay mapping the distribution of farmers named Donnelly together with the distribution of R-M222 and the location of SNP R-A694, it reveals a paternal ancestral link with the Donnellys (red circle) that span the Derry and Tyrone Borderlands.

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**Figure 6:** The Medieval Surnames of the Derry and Tyrone borderlands in Ulster. An examination of the eastern borderlands of counties Derry and Tyrone as it appears on the Irish Origenes Medieval Surnames of Ireland map reveals the test subject's Donnellys (**black arrow**) near the Plantation town of Cookstown. The map reveals 'blank spaces' on the map (most notable surrounding Cookstown) which denote areas that were successfully colonised by Scots and English settlers in the early 17<sup>th</sup> Century. Each surname is positioned in the location where farmers (Catholic/male/heads of household) with each surname concentrated in early census data. The most common spelling is detailed in each location. Detail taken from the Irish Origenes Medieval Surnames map, free to view at [www.origenesmaps.com](http://www.origenesmaps.com) Surname search tool available at <https://analysis.irishorigenes.com/surnames>



**Figure 7:** The Plantation Surnames of the Derry and Tyrone Borderlands in Ulster. An examination of the eastern borderlands of counties Derry and Tyrone as it appears on the Irish Origenes Plantation Surnames of Ireland map reveals that the Donnellys (**black arrow**) lived in an area that experienced significant upheaval and displacement of the Gaelic Native Irish with the arrival of Scottish and English (**red arrows**) settlers. Each surname is positioned in the location where farmers (Protestant, male, heads of household) with each surname concentrated in early census data. The most common spelling is detailed in each location. Detail taken from the Irish Origenes Plantation Surnames map, free to view at [www.origenesmaps.com](http://www.origenesmaps.com)



### The Clan Territories of Mid Ulster

By the 14<sup>th</sup> and 15<sup>th</sup> Centuries Ireland was a patchwork of territories which were dominated by over 400 of the most notable Irish clans and Norman families. The Irish Origenes Clan Territories of Ireland Map was reconstructed based on the location of castles and towerhouses and their known historical link to a particular clan or family. Commercial ancestral Y-DNA testing and research at Irish Origenes has revealed that one will often exhibit shared paternal ancestry with one or more of the prominent clans or families that once ruled over one's paternal ancestral genetic homeland. An examination of Mid Ulster as it appears on the clan map, reveals an area completely dominated by the Gaelic Irish clans, see **Figure 8**. The clan map reveals that the test subject's O'Donnelly ancestors were a prominent Gaelic Irish clan in Mid Ulster and ruled lands that lay close to Cookstown, see **Figure 8**. All these Gaelic Irish clans would forfeit their lands for subsequent settlement by a mix of Scots and English who arrived over 400 years ago, see **Figure 8**.



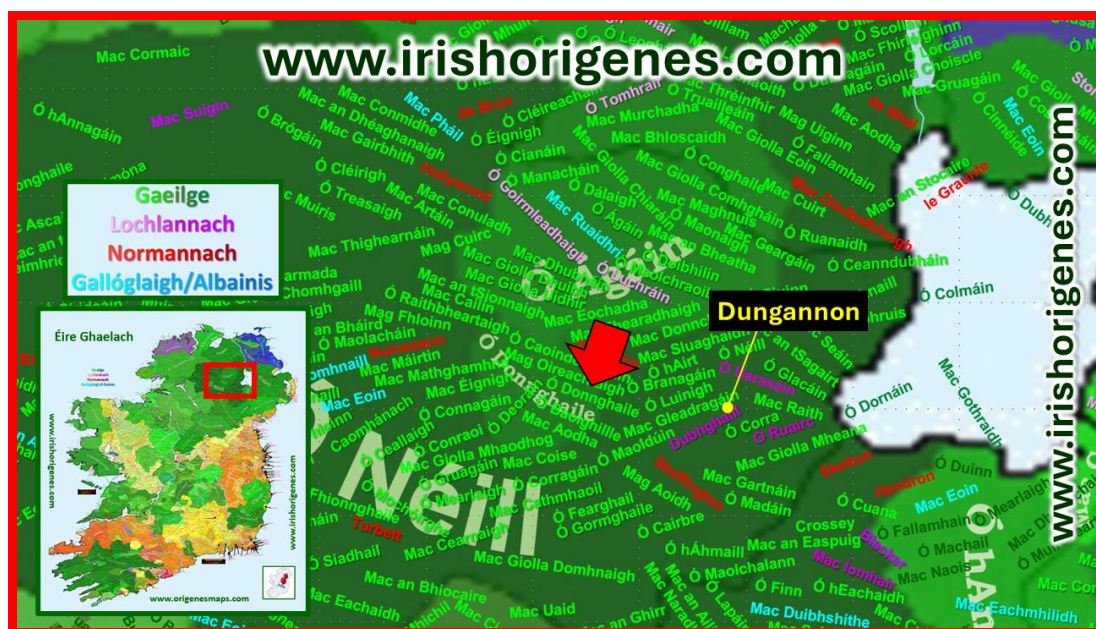
**Figure 8:** The Clan territories of Mid Ulster. An examination of Mid Ulster as revealed by the Irish Origenes Clan Territories map reveals an area dominated by Gaelic Irish clans. The map reveals that the test subject's Donnelly ancestors (red arrow) lived near lands dominated by the O'Neill, McGuire, O'Hagan, and O'Hanlon clans, all of whom would forfeit their lands for subsequent settlement by a mix of Scots and English who arrived approximately 400 years ago. The clan territories map was reconstructed based on castle locations and their historically associated clans and families, free to view at [www.origenesmaps.com](http://www.origenesmaps.com)

### Mr Donnelly's Irish Paternal Ancestral Genetic Homeland

The Plantation of Ulster was a highly organised affair that led to tens of thousands of overwhelmingly Protestant English speaking Scots and English colonising Ulster from around 1610AD onwards. Over time, this resulted in significant displacement of Gaelic Irish clans/surnames, see **Figures 6** and **7**. The NEW Irish Origenes 'Gaelic Surnames map set out to rectify the displacement that occurred the 16<sup>th</sup> and 17<sup>th</sup> centuries, see **Figure 9**. Research at Irish Origenes reveals that the test subject's Gaelic Irish 'Ó Donnghaile' paternal ancestors were centred upon Castle Caulfield which is a Plantation Bawn built on the lands of Clan Ó Donnghaile which lies to the

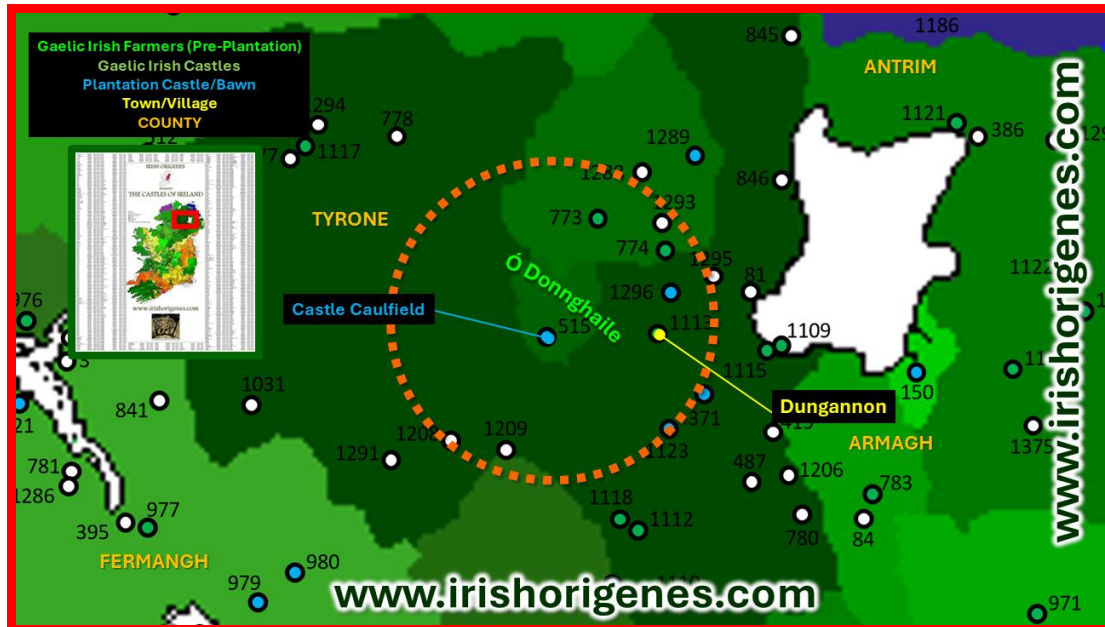
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west of Dungannon town in County Tyrone, and it is there that the test subject's Irish Paternal Ancestral Genetic Homeland is to be found, see **Figure 10**. It was there that the test subject's paternal ancestor lived when he first took the 'Ó Donnghaile' (*Grandson of the Courageous Brown Haired One*) surname when paternally inherited surnames first appeared in Ireland approximately 1,000 years ago, see **Figures 10** and **11**. His paternal ancestor lived surrounded by paternal genetic relatives who took other surnames like Ó Luinigh and Mac Giolla Dhuibh among many others. With the destruction of Gaelic Ireland in the turbulent 17<sup>th</sup> Century, the test subject's Ó Donnghaile ancestors were scattered throughout Tyrone and neighbouring Derry and Armagh, where a subsequent number of non-paternal events occurred that resulted in some Ó Donnghaile relatives acquiring NEW Planter English surnames like Worthington, Soakell, and Bacon, see **Figures 1, 10** and **11**.



**Figure 9:** The Pre-Plantation Gaelic Surnames of Mid Ulster. Research at Irish Origenes has facilitated the reconstruction of the Pre-Plantation Gaelic surnames of Ulster. An examination of East Tyrone as it appears on the NEW Irish Origenes Gaelic Ireland map reveals that the test subject's 'Ó Donnghaile' ancestors (**red arrow**) originated in the farmland that lay to the west of Dungannon town. Detail taken from the Irish Origenes 'Gaelic Irish Surnames map, free to view at [www.origenesmaps.com](http://www.origenesmaps.com)

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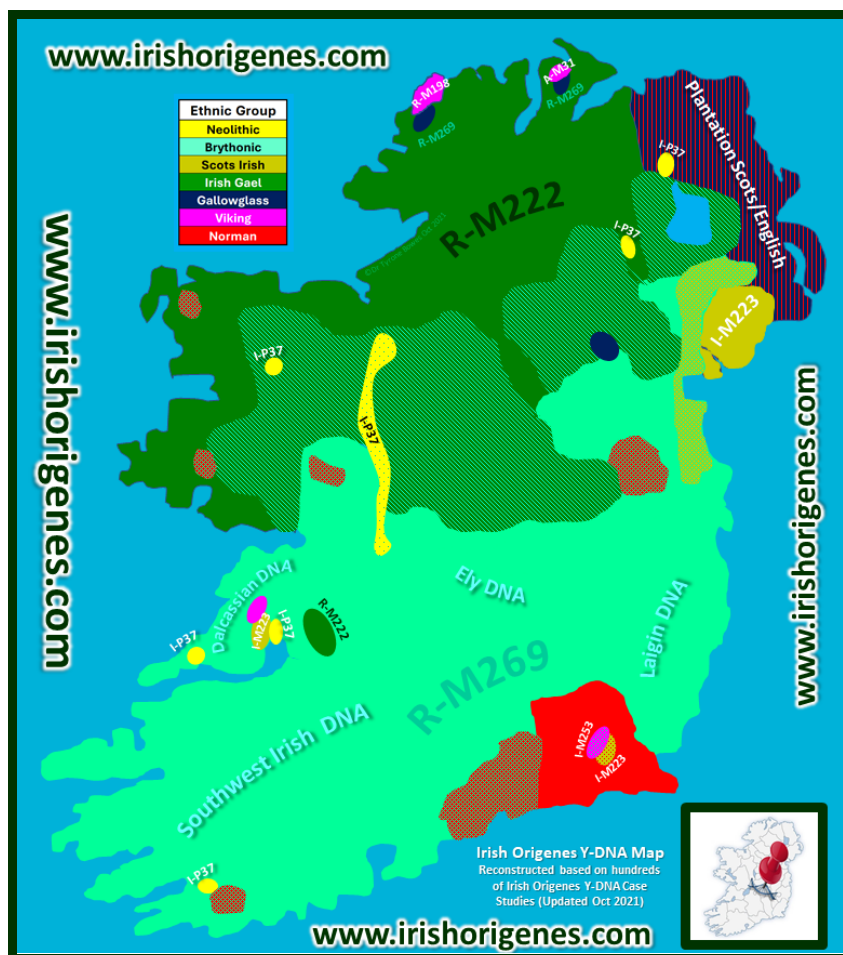
**Figure 10:** Mr Donnelly's Irish Paternal Ancestral Genetic Homeland. Research at Irish Origenes reveals that the test subject's 'Ó Donnghaile' paternal ancestors originated in the area surrounding Castle Caulfield, and it is there that the test subject's Irish paternal ancestral genetic homeland is to be found (orange broken circle). It was there that his paternal ancestor lived when paternally inherited surnames became common in Ireland approximately 1,000 years ago. His 'Ó Donnghaile' ancestors lived surrounded by genetic relatives who would acquire other surnames like Ó Luinigh and Mac Giolla Dhuibh among many others. With the Plantation of Ulster that began over 400 years ago, the test subject's Ó Donnghaile ancestors were scattered throughout Tyrone and bordering Derry and Armagh. Over time, the 'Ó Donnghaile' surname was anglicized as 'Donnelly.' Image taken from the Irish Origenes Castles of Ireland Map. free to view online [www.origenesmaps.com](http://www.origenesmaps.com)



**Figure 11:** What's in a Name? Surnames were earned in Medieval Ireland, and those surnames denote a notable trait of a founding ancestor. An examination of the meaning of each surname in the East County Tyrone as it appears on the NEW Irish Origenes 'What's in a Name' map reveals that the test subject's founding paternal ancestor was known as the 'Grandson of the Courageous Brown Haired One' (red arrow). Detail taken from the Irish Origenes What's in a Name map, free to view at [www.origenesmaps.com](http://www.origenesmaps.com) Surname search function available at <https://analysis.irishorigenes.com/surnames>

### Indo European Irish Gaels

Commercial ancestral Y-DNA testing and research at Irish Origenes has revealed that the modern Irish males are a mixed bunch descended from Neolithic farmers, Indo Europeans (Ancient Britons and Gaels), Vikings, Normans, and 17<sup>th</sup> Century Plantation settlers, see **Figure 12**. The test subject's R-M222 Haplogroup indicates that his paternal ancestors were the Indo-European Gaels whose Y-DNA genetic signature dominates the northern half of Ireland and Western Scotland. The test subject is descended from the Indo-European Gaels who began arriving in Ireland from Scotland in around the 1<sup>st</sup> Century AD.



**Figure 12:** The Irish Origenes Y-DNA Map of Ireland. Y-DNA Case Studies at Irish Origenes reveals an ethnicity map of Ireland. The test subject's paternal ancestors were descended from Indo European Gaels whose Y-DNA signature dominates the northern half of Ireland.

### How to confirm the Donnelly Paternal Genetic Homeland

One must keep in mind that this is a scientific 'DNA' approach. The DNA does not lie, and the paternal origin within East County Tyrone can be confirmed by Y-DNA testing of males named 'Donnelly' who farm the lands that surround Castle Caulfield.

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