

Genetic discovery helps explain Irish giant folklore

October 17 2016



The study may give a scientific explanation for the numerous Gaelic myths of giants in Ireland, such as the Giant causeway. Credit: University of Exeter

Scientists at the University of Exeter Medical School were part of genetics research which could help explain the legend of giants in Irish folklore.

The study, led by Barts and the London School of Medicine and Dentistry, Queen Mary University of London, in collaboration with the universities of Exeter, Belfast and Dublin and University College London as well as 17 other Institutions, studied patients with the [hormonal disorder](#) acromegaly and tested DNA samples from the general public to identify carriers of a gene predisposing to childhood-onset acromegaly often leading to gigantism.

They undertook an ambitious and widely collaborative study, enlisting the invaluable help of patients and the general public to set the study up

in Northern Ireland and Republic of Ireland. They identified a particular mutation in Irish patients and now searched for carriers of this gene in Ireland. The frequency of the AIP mutation (R304*) was found to be surprisingly high in Mid-Ulster, Northern Ireland. The data suggest that all Irish patients with this particular mutations (18 families and 81 carriers) are descendants from the same ancestor, who lived in the area 2,500 years ago. Out of the identified 81 carriers 31 had developed acromegaly and over half of these had gigantism (18 patients, 58%). The clinical importance of this study is that we can now screen family members and carriers can be followed to pick disease up early. Our larger study has showed that 24% of seemingly unaffected gene carriers in fact have early signs of acromegaly, and some were immediately operated as a result of the genetic screening process.

This study may also give a scientific explanation for the numerous Gaelic myth of giants in Ireland, where the Giant causeway and the legend of the creation of a lake is strongly linked to giants. In modern history, famous Irish giants include Charles Byrne whose skeleton in the Hunterian Museum, London was studied and DNA sample showed he also carries the same mutation. There is data available of numerous giants living in this area over the last centuries such as Mary Murphy (the 'Portrush Giantess') and James Kirkland (one of the 'Potsdam Giants') making this data support a colourful story.

Professor Sian Ellard, of the University of Exeter Medical School, who collaborated on the research said: "Irish folklore has numerous stories regarding Irish giants and the remains of some of these giants have been studied in the past. Our data provides an explanation for the observation made by the pioneering anthropologist James C. Prichard in 1826."

Prichard wrote: "In Ireland men of uncommon stature are often seen, and even a gigantic form and stature occur there much more frequently than in this island [Britain] . . . We can hardly avoid the conclusion that

there must be some peculiarity in Ireland which gives rise to these phenomena."

Importantly, the prediction that 436 carriers and 86 affected individuals may be undiagnosed and alive today in Ireland (or elsewhere among people with Irish ancestors), mean that we may be able in many patients to prevent the onset of gigantism and prevent the premature mortality associated with this potentially severely disfiguring condition.

More information: Serban Radian et al. Increased Population Risk of-Related Acromegaly and Gigantism in Ireland, *Human Mutation* (2016). [DOI: 10.1002/humu.23121](https://doi.org/10.1002/humu.23121)

Provided by University of Exeter

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