

DNA could reveal your surname

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(PhysOrg.com) -- Scientists at the world-leading Department of Genetics at the University of Leicester – where the revolutionary technique of genetic fingerprinting was invented by Professor Sir Alec Jeffreys- are developing techniques which may one day allow police to work out someone's surname from the DNA alone.

Doctoral research by Turi King has shown that men with the same British surname are highly likely to be genetically linked. The results of her research have implications in the fields of forensics, genealogy, epidemiology and the history of surnames.

On Wednesday 8th October Dr King will present the key findings of her Ph.D. research in which she recruited over two and a half thousand men bearing over 500 different surnames to take part in the study. Carried out in Professor Mark Jobling's lab, Dr Turi King's research involved exploring this potential link between surname and Y chromosome type.

Dr King said: "In Britain, surnames are passed down from father to son. A piece of our DNA, the Y chromosome, is the one part of our genetic material that confers maleness and is passed, like surnames, from father to son. Therefore, a link could exist between a man's surname and the type of Y chromosome he carries. A simple link between name and Y chromosome could in principle connect all men sharing a surname into one large family tree.

"However, in reality the link may not be so clear cut. Hereditary surnames in Britain are many hundreds of years old and each name may

have had several founders. Events such as adoptions, name-changes and non-paternities would confuse any simple genetic link.

"These days, using genetic techniques, it is possible to tell Y chromosomes apart from one another so we wondered if you might find that a particular surname was associated with a particular Y chromosome type."

Dr King said there were a number of factors which could break the link between surnames and Y chromosome type: for example, there could have been more than one person, known as a surname founder, who took on a surname at the time of surname formation around 700 years ago.

She said: "The surname Smith is a good example of this as it derives from the occupation of blacksmith so many men could have taken on the surname Smith. This means that instead of just one type of Y chromosome being associated with a surname, many different types of Y chromosomes would be associated with this single surname. On the other hand, for rarer names, there may have been just one founder for the name and potentially all men who bear that surname today would be descended from him and could be connected into one large family tree."

"The link between surname and Y chromosome type could also be broken through events such as adoption or illegitimacy: in this instance, a male child would have one man's surname but another man's Y chromosome type. Given all this, we really didn't know if a link would exist."

Dr King's research showed that between two men who share the same surname there is a 24% chance of sharing a common ancestor through that name but that this increases to nearly 50% if the surname they have is rare.

She said: The fact that such a strong link exists between surname and Y chromosome type has a potential use in forensic science, since it suggests that, given large databases of names and Y chromosome profiles, surname prediction from DNA alone may be feasible.

Dr King then went on to look at 40 surnames in depth by recruiting many different men all bearing the same surname, making sure that she excluded known relatives. Surnames such as Attenborough and Swindlehurst showed that over 70% of the men shared the same or near identical Y chromosome types whereas surnames such as Revis, Wadsworth and Jefferson show more than one group of men sharing common ancestry but unrelated to other groups.

These results have a potential use in forensic science, since it suggests that, given large databases of names and Y chromosome profiles, surname prediction from DNA alone may be feasible.

Provided by University of Leicester

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