Y chromosome and surname study challenges infidelity 'myth'

February 11 2009

Our surnames and genetic information are often strongly connected, according to a study funded by the Wellcome Trust. The research, published this week in the journal *Molecular Biology and Evolution*, may help genealogists create more accurate family trees even when records are missing. It also suggests that the often quoted "one in ten" figure for children born through infidelity is unlikely to be true.

Dr Turi King and Professor Mark Jobling from the University of Leicester examined the Y chromosomes of over 1,600 unrelated men with forty surnames (including variations in spelling). Sons inherit both the Y chromosome and - generally - the surname from their fathers, unlike daughters, who do not carry this sex-specific chromosome and usually change their surname through marriage.

Hereditary surnames were introduced to Britain by the Normans at the time of the conquest. The practice of using hereditary surnames filtered down from Norman noble families to all classes of society so that by the fourteenth century people in many classes had surnames and by the sixteenth century it was rare not to have one.

Dr King and Professor Jobling found that men with rare surnames - such as Grewcock, Wadsworth, Ketley and Ravenscroft - tended to share Y chromosomes that were very similar, suggesting a common ancestor within the past 700 years. However, men with common surnames, such as Smith, were no more likely to have such a common ancestor than men chosen at random from the general population.

"Surnames such as Smith come from a person's trade and would have been adopted many times by unrelated people," explains Dr King. "Less common names, such as Swindlehurst, were more geographically-specific and possibly adopted by only one or two men, so we would expect people with these surnames to be more closely related."

One of the most familiar of the rarer names in the study was Attenborough. A random sample of Attenboroughs - including derivations such as Attenborrow - found that almost nine out of ten of these men share the same Y chromosome type.

"Attenboroughs essentially form one big family of distant relatives," says Dr King. "The Y chromosome type was the same even across spelling variants, which confirms that the spellings of names were formalised only relatively recently."

Dr King believes that these findings will help genealogists in their efforts to populate their family trees, particularly when parish records and other documents are incomplete. A genetic test of two people with a common surname would show whether they share a paternal ancestor.

The researchers also looked at whether the Y chromosome-surname link could provide information about historical rates of children born illegitimately. People with a rare surname are very likely to be related as the surname is likely to have been adopted by only one or two men initially, so anyone now sharing this surname but with a different Y chromosome to the majority is likely to have an ancestor born illegitimately.

"People often quote a figure of one in ten for the number of people born illegitimately," says Professor Jobling. "Our study shows that this is likely to be an exaggeration. The real figure is more likely to be less that one in twenty-five."

The study follows on from previous research from the two researchers into the link between surnames and the Y chromosome. A previous study showed that it may be possible to apply the research to forensic science, extrapolating from a DNA sample to identify likely surnames of suspects.

Source: Wellcome Trust