



## Pathology Biology Section – 2006

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### G36 Was the Shawnee War Chief Blue Jacket a Caucasian?

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After attending this presentation, attendees will gain an appreciation for the mutation rate of the paternally inherited Y chromosome with regards to inquiries of male lineage.

This presentation will impact the forensic community and/or humanity by demonstrating the confidence by which male line descent can be ascertained by performing a direct comparison of the Y-STR haplotypes back eight generations.

The paternally inherited Y chromosome contains the largest nonrecombining block of nucleotides in the human genome (approximately 50 million base pairs) and has much lower levels of polymorphism than any other region of the human genome (International SNP Map Working Group 2001). It has become an extremely important tool in a variety of areas including forensics (Jobling et al. 1997), genealogical reconstruction (Jobling 2001), molecular archaeology (Stone et al. 1996), nonhuman primate genetics (Stone et al. 2002) and human evolutionary studies (Hammer and Zegura 1996; Underhill et al. 2000, 2001; Hammer et al. 2001). As a direct result of the relatively low mutation rate, 0.23%/STR locus/generation in human pedigrees, concordance of male-line relation can be deduced via direct comparison Y-STRs. This direct comparison of paternally inherited Y-STRs was utilized to explore a centuries old controversial legend that contends that the legendary Shawnee War Chief, Blue Jacket, was not of American Indian descent, however, was a white man of Dutch descent, known as Marmaduke Swearingen. The comparison of twelve Y-chromosome polymorphic markers in six purported male-line descendants of Chief Blue Jacket and four purported male-line descendants of Marmaduke Swearingen, eight generations removed in both families, revealed that male line descendants in each of the families shared the same 12 locus Y-STR haplotype. However, the Swearingen haplotype was distinctly different from that of the Blue Jacket male-line descendants, with consistency at only five of the 12 tested loci therefore, excluding them from an ancestry linked to Chief Blue Jacket.

**Y-STRs, Genealogical Reconstruction, Mutation Rates**