

**A CASE OF BURGLARY AND ANIMAL ABUSE: PHYLOGENETIC ASSIGNMENT
ADDS POWER TO DOG MITOCHONDRIAL DNA ANALYSIS**

Elizabeth Wictum, Jeffrey Evans, Teri Kun

UC Davis Veterinary Genetics Forensic Laboratory, One Shields Ave., Davis, CA 95616-8744, USA

Just as mitochondrial DNA (mtDNA) is used in the molecular phylogenetic analysis of human ancestry, the hypervariable or control region of canids can be a signpost to their genetic heritage. The ancestors of modern dogs (*Canis familiaris*) were domesticated from wolves (*Canis lupus*) about 130,000 years ago and have co-migrated with man. Most dog breeds have originated in the last 200 years, but their founding stocks have roots that extend deeply into time. However, due to large litter size and selective breeding, approximately 50 % of purebred dogs share three common haplotypes. During the course of a break-in and burglary, a man removed two Pekingese dogs from their crates, placed them in an oven, and turned it on "Broil". The larger of the two dogs managed to escape, leaving traces of blood throughout the home. Amplification of a 403 bp region of mtDNA from a small spot of blood on the perpetrator's shorts yielded an mtDNA haplotype that matched the escaped dog. We queried our database of over 700 purebred AKC-registered dogs and found that the haplotype was comparatively rare and had only been observed in breeds of Asian origin. No other dogs with which the suspect would have come in contact possessed this distinctive haplotype.