

The DNA Partial Match and Familial Search Policy of the California Department of Justice

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In April 2008, the California Department of Justice (CA DOJ) announced that it would use familial searching procedures to help local law enforcement agencies catch violent criminals in serious unsolved crimes. In order to strike an effective balance between privacy concerns and the need to provide information that may solve a violent crime, or series of crimes, CA DOJ has imposed multiple conditions that must be met before it will release the identity of an offender in the DNA Data Bank who may be the relative of the actual perpetrator. Furthermore, familial searching will only be used in major violent crimes where there is a serious risk to public safety and all other investigative leads have been exhausted.

Through the routine use of the existing CODIS software, “partial matches” between crime scene evidence profiles and offenders are occasionally observed. For these situations, CA DOJ has implemented a procedure for pursuing potential leads based on the possibility that the offender with a partially matching profile is a relative of the actual perpetrator. However, the current CODIS software, which looks at patterns of allele sharing with matches defined under different levels of stringency, was not designed as a tool for familial searching.

As a better approach to familial searching, CA DOJ has developed a software tool (the “Ratiometer”) to compare an evidence profile against the approximately one million offenders in the Data Bank using kinship indices for parent-child and full sibling relationships. Information about the evidence Y-STR profile and the offender database size are factored into the calculations. The output of this large set of comparisons is ranked so as to increase the probability that a relative of the true perpetrator, if present in the Data Bank, will be in the upper rankings, while minimizing the number of false relatives subject to further testing. The potentially related offenders in the upper rankings are then tested using Y-STRs to look for concordance with the Y-STR profile of the evidence sample. As part of the evaluation of this approach to familial searching, 100 artificial “families” with known parent-child and full sibling relationships were created and compared against the backdrop of all the offenders in the CA DOJ Data Bank.

This presentation will discuss the evaluation of our approach to familial searching based on kinship indices with newly developed software. CA DOJ’s procedure for investigating routine partial matches and the limitations of the current CODIS software as a familial search tool will also be addressed.