

## THE POWER OF SNP' S - EVEN WITHOUT POPULATION DATA

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Single nucleotide polymorphisms (SNP) have the potential to be equally discriminating as loci of high polymorphism such as VNTR-RFLP or MVR systems, you just need more of them. This is obviously true for forensic identification, and it is also true for more complex problems such as deciding sibship or obtaining evidence from mixed stains.

How many weak systems are necessary to equal the discriminating potential of a strong system depends on several things. First, it depends on the problem: For forensic identity, one RFLP is worth about 2½ STR's or 6 SNP's; whereas for paternity testing the corresponding ratio is 1:3:12, and for a typical mixed stain situation, 1:4:27. SNP's are relatively clumsy (but not hopeless) for mixed stain cases. Second, the tradeoff ratio varies depending on whether the relationship being investigated is true or false. The nature of the tradeoffs will be discussed, and results presented.

Finally, it will be shown how a large panel of SNP's can be effective for forensic identification even when no population data is available for the relevant population. The ability to squeeze out information despite a database of size zero somewhat flies in the face of common wisdom on recommended database size, but it is possible and it can be a distinct advantage for the odd case involving an unusual human population, or a non-human population.

