Biology/DNA Laboratory and the DNA Investigative Support Database

DNA analysis, a powerful tool used to convict criminals or exonerate suspects.

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Casework in the forensic laboratory consists of identifying biological stains such as blood, semen, and saliva on pieces of evidence submitted by law enforcement agencies throughout the state. Typical items of evidence include clothing, sexual assault evidence kits, liquid blood samples, dried blood stains, knives, guns, bed linens, etc.

Once a stain is identified, STR (short tandem repeats) DNA (deoxyribonucleic acid) testing is performed both on the questioned item and on standard samples from persons that may be involved in the case (typically suspects and victims). The results from the questioned stains are compared to the results of the standard samples to determine who could, or could not, be the donor of those stains.

DNA results can be used in a trial where the analyst will testify regarding the DNA match and its statistical significance. The results of a stain from a case may be submitted to the CODIS (Combined DNA Index System) to be searched against local, state, and national casework index files and convicted offender profiles in the state and national databases.

DNA (deoxyribonucleic acid) is the “building blocks of life.” It contains the coding information for the formation and function of an organism. In humans, over 95% of DNA is the same - coding for common characteristics such as two arms, two legs, etc. The remaining regions of DNA vary from person to person. Some of these regions code for physical characteristics such as eye and hair color. There are also areas of extreme variations between individuals that do not code for physical characteristics. These highly variable regions are of specific interest to the forensic community because they are used to distinguish between individuals.

STR (short tandem repeats) DNA testing examines thirteen different areas (markers) of DNA that have been found to be highly variable. These thirteen markers have been standardized in the United States to allow the comparison of testing results from one state to another.