



Biological Evidence and Its Contribution

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DESCRIPTION

Biological evidence consists of body fluids and tissues. Biological evidence is especially important because DNA analysis can often be done. This DNA analysis can identify the donor. Examples of biological evidence containing DNA are blood and saliva, Sheds sperm and skin cells. Hair, urine, faces. The DNA profile can also be obtained with a cotton swab taken from an item suspected of being handled by a criminal. This type of evidence is sometimes referred to as “touch DNA.” The power of DNA testing is such that examining biological objects can provide very compelling evidence. However, safety, pollution, and degradation issues need to be considered.

Biological evidence can be detected in one of the following ways: Visual examination. Alternative light source, Chemical enhancers such as luminol, Investigators collect items that may have been touched or worn by those involved in the crime. The following items may contain DNA material: masks, hats, gloves, clothing, tools, weapons, evidence of sexual assault, underwear, bedding, dirty laundry, frayed finger claws, Cups/bottles, cigarettes, toothpicks, toothbrushes, tissue paper, hairbrushes, glasses, condoms, tapes, ligatures (ropes, wires, strings), stamps, or envelopes

Forensic scientists are becoming smaller and smaller as technology advances. You will be able to analyze a target sample and create a DNA profile. For example, if a person touches an object or weapon, skin cells may be left behind. This low level of DNA is sometimes referred to as “touch DNA.” It can also be collected from the victim’s skin and bruises. Low-level DNA samples are useful when looking for evidence that is difficult to find with fingerprints such as textured surface of gun handle or car dashboard. However, not all jurisdictions can handle this evidence.

The risk of contamination of any crime scene can be reduced by limiting incidental activity. It is important for all law enforcement personnel at the crime scene to make a conscious effort to refrain from smoking, eating, drinking, littering or any other actions which could compromise the crime scene. Because DNA evidence is more sensitive than other types of evidence, law enforcement personnel should be especially aware of their actions at the scene to prevent inadvertent contamination of evidence.

STEPS TO PROCESS

DNA samples sent to the laboratory go through the following

process.

Extraction: It is the process of releasing DNA from cells.

Quantification: It is the process of determining the amount of DNA you have.

Amplification: It is the process of making multiple copies of DNA to characterize it.

Separation: It is the process of separating amplified DNA products for subsequent identification.

Analysis and interpretation: It is the process of quantitatively and qualitatively comparing a DNA trace sample with a known DNA profile.

Quality Assurance: it is the process of checking the technical accuracy of analyst reports.

CONCLUSION

For all forensic methods of personalization (fingerprints, tooth impressions, bullet strips, hair and fiber comparisons, voice spectrograms, neutron activation analysis, blood group analysis, serum protein and enzyme classification, and DNA profiling) , Need the ability to match samples with reasonable accuracy. Helps distinguish one source from another in terms of matching characteristics. In order for such evidence to be acceptable in court, scientifically acceptable methods must allow the physical properties to be reliably measured and compared. Similarly, there must be scientific evidence to conclude that well-performed and comparable sources can be distinguished. With respect to the latter issue (the ability to distinguish sources), courts provide a more compelling proof of the degree of accurate personalization obtained from DNA testing than other commonly used forensic methods. Some courts have in-disputed quantitative estimates of how rare discriminant traits are within a particular group and subgroup, as well as experts show that DNA profiles usually vary from person to person. It is doubtful that many other forms of identification can withstand equivalent requirements. Lawyers and legal scholars are discussing whether DNA evidence justifies this special treatment. The laboratory method of comparing samples is different from the idea that the properties examined in the laboratory are evidence of identity. Therefore, this chapter describes the implications of scientific state conclusions, both for the degree to which DNA samples match and for the probability of such a match.

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