

DNA Testing 101:

Sexual Assault Kits

Screening

Biological Fluid Screening: Use of physical methods, biochemical assays, or microscopy to detect, characterize, or identify biological fluids or tissues. In sexual assault cases, biological fluid screening can be helpful in identifying semen, seminal fluid, spermatozoa, saliva, and blood.

Male DNA Screening: Use of a quantification assay that detects human and male DNA to screen cases using a step already present in the DNA workflow. This method can determine if enough male DNA is present to proceed with short tandem repeat (STR) testing, Y-STR testing, or both.

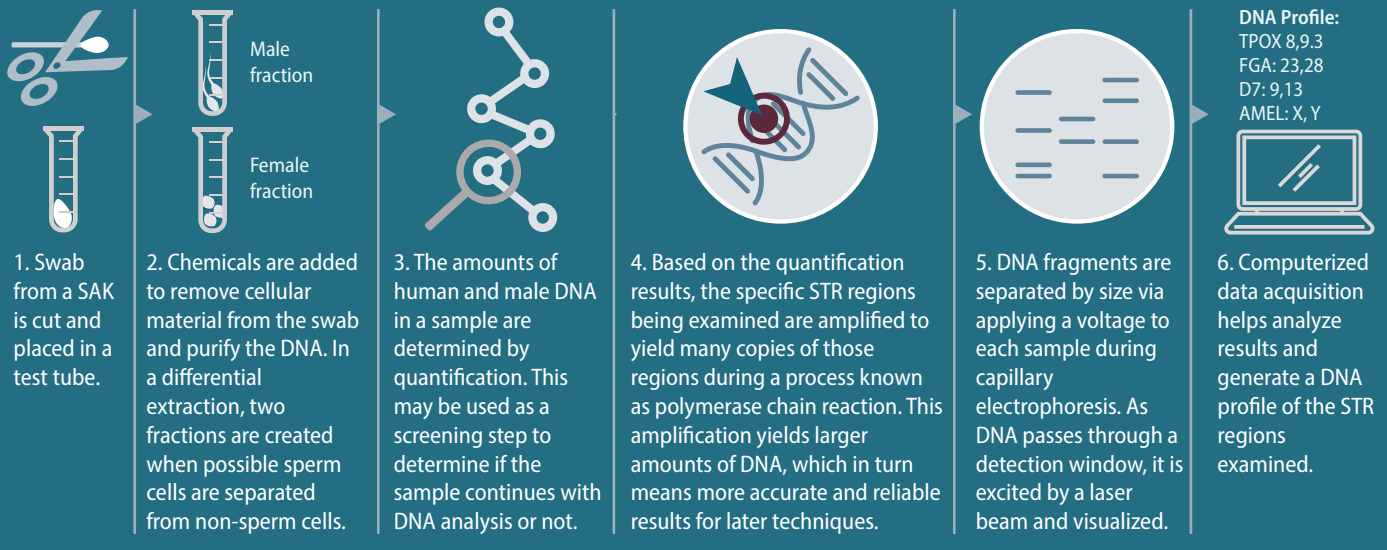
Testing

STR Testing: Commonly used nuclear forensic DNA test that targets areas in the DNA that are short, tandem, and repeated. It is the difference in the number of repeats at each location that differ among individuals; this information is compiled to create a DNA profile.

Y-STR Testing: Targets STR regions only on the Y-chromosome found in males. This test generates a Y-STR profile. Y-STR testing can be useful in cases with high levels of female DNA, male-to-male mixtures, and when a known male sample is available for comparison.

Crime analysts complete the following steps to test biological evidence from a victim's sexual assault kit (SAK).

Workflow



Reporting

DNA Testing Results

- **No further testing:** Insufficient biological fluid or male DNA exists to warrant DNA testing.
- **No results:** Insufficient biological material exists to generate DNA profile.
- **Partial profile:** Genetic information was obtained from some of the STR regions tested.
- **Full profile:** Genetic information was obtained from all STR regions tested.
- **Mixture profile:** Sample contains DNA from more than one contributor.
- **CODIS eligible:** DNA profile meets the quality requirements for entry and search in CODIS.

A hit occurs when a DNA profile matches another profile in CODIS.

Offender Hit: Known DNA profiles from individuals associated with arrestee or offender profiles match against a profile entered from a crime scene, identifying a possible perpetrator.

CODIS: The Combined DNA Index System, or CODIS, blends forensic science and computer technology into a tool for linking violent crimes. It enables federal, state, and local forensic laboratories to exchange and compare DNA profiles electronically, thereby linking serial violent crimes to each other and to known offenders. (Definition taken from the FBI's Combined DNA Index System website.)

Forensic Hit: Foreign DNA profiles from two or more crime scenes are matched together, but the source of the DNA profile remains unknown.