

# COLD CASE FORENSIC:ID



In many municipalities across the United States, thousands of pieces of evidence languish in evidence lockers while criminals roam the streets. DNA has proven to produce significant results in a high percentage of cold cases tested.

## Orchid Cellmark Cold Case Service

With Orchid Cellmark's Cold Case service, we test evidence waiting in the property locker room to help you solve old crimes. The benefits are many. Cold cases are solved, victim's families receive closure, serial crimes might be pieced together and Cold Case hits on CODIS databases also create public awareness that will ultimately lead to a higher degree of government funding to resolve such cases

## About the Biology

- DNA is a highly stable molecule which is generally unaffected by normal property room storage conditions
- Many cold cases have biological evidence which might not have yielded results using older DNA technologies but have a higher chance of success using PCR-DNA technology
- Vaginal swab shafts and the interior of the test tubes or boxes which contained the original swabs can often provide very good quality DNA samples
- Hair samples with or without the root can be tested using a highly sophisticated DNA technology called mitochondrial DNA analysis
- In certain cases involving violent aggravated assault, sampling the victim's fingernails can produce a DNA profile of the attacker.
- Fingerprints may yield contact DNA evidence from the suspect

## The Statistics

- Evidence in more than 500,000 untested DNA cases languishes in police property rooms nationwide
- More than 220,000 rape kits remain untested
- More than 60,000 homicide and violent crime cases are currently backlogged in the US
- Orchid Cellmark has obtained DNA results in approximately 50% of their sexual assault cold cases

## Typical Cold Case Specimens

- Sexual Assault Kits with or without vaginal swabs
- Stained microscope slides with sperm heads
- Bindings, ligatures and even garments worn by victims and suspects may contain their skin cells from abrasion
- Hair samples taken from garments

## Technologies Used for Cold Case Resolution

### Autosomal PCR-DNA technology

- Involves the amplification of DNA
- Even very small samples can yield results
- Male and female DNA can be separated from seminal stains to yield DNA results for the suspect and victim respectively
- Even if mixtures of male and female DNA result, the male DNA can be ascertained using known DNA from the victim

### Y-STR technology

- Involves the amplification of male-specific DNA
- Eliminates complications from mixtures of male and female DNA in sexual assault cases
- Orchid Cellmark has validated three different Y-STR kits for use on forensic cases, enabling us to choose the kit with the best chance for success on your cold case.

### Mitochondrial DNA technology

- Highly sensitive
- Works on highly degraded and/or very old samples.
- Works on hairs with or without roots
- Maternally inherited and thus the suspect or his mother or his siblings can be tested in lieu of a sample from the suspect.

## What Orchid Can Offer

- Assistance in evaluating the success rate of various pieces of evidence
- DNA analysis of any evidence
- Expert Witness Services to support our DNA results
- The provision of statistics on your cases (e.g. success of different types and ages of evidence)
- Results will be in a format uploadable to CODIS

For more information, contact Orchid Cellmark at: 1-800-USA-LABS (872-5227) in the US and 1-866-TEST-DNA (837-8362) in Canada or visit us online at [www.orchidcellmark.com](http://www.orchidcellmark.com)