ORCHID CELLMARK

COMPANY OVERVIEW

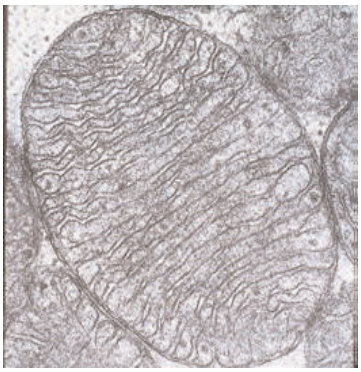
GeneScreen began offering DNA testing services to state and local crime laboratories in 1989 through its laboratory in Dallas, Texas, making it the third oldest company in the field of forensic DNA analysis in the United States. Orchid BioSciences (NASDAQ: ORCH) acquired GeneScreen in 1999. In 2001, Orchid BioSciences acquired LifeCodes Inc. and with it, the forensic operations of Cellmark Diagnostics in Germantown, Maryland and Microdiagnostics in Nashville, Tennessee.

All three forensic facilities are now integrated into the largest commercial forensic laboratory system in the United States under the banner *Orchid Cellmark Forensics*. Orchid Cellmark Forensics is accredited by the American Society of Crime Laboratory Directors-Laboratory Accreditation Board (ASCLD-LAB).

MITOCHONDRIAL ANALYSIS

Since 1999, Orchid Cellmark Forensics has performed Mitochondrial DNA analysis at its Dallas, TX facility. Mitochondrial sequencing has proven to be a valuable tool for generating genetic information from samples which are not amenable to STR typing. Some of the characteristics of mtDNA which make it useful for forensic casework include:

- Highly degraded samples often contain insufficient quantities of DNA suitable for conventional STR analysis, yet may contain considerable quantities of mtDNA.
- Degraded samples may thus yield mtDNA sequencing data decades or even centuries after the samples were produced, far after the possibility for generating useful STR testing results has passed.
- Samples which yield good mitochondrial sequences are often those which yield poor results with more conventional approaches. These include shed hair (no follicle available), aged bone or teeth, aged or degraded tissue, and minute quantities of blood or other bodily fluids.
- Samples which have been subjected to environmental extremes of heat, humidity, or burning may be successfully sequenced using mtDNA.
- The mitochondrial genome is maternally inherited so every individual of the same maternal lineage will share the same mtDNA. This is useful when comparing probative samples where a known reference specimen from a victim or immediate family member is not available for comparison. A distant maternally related relative can serve the same purpose.
- Mitochondrial DNA mutates at a relatively rapid pace (on the order of 1 mutation in 50 generations). This improves the likelihood that two unrelated individuals will have different mtDNA sequences.



Mitochondrion magnifed 100,000X

Mitochondrial sequence analysis, while not suitable to every casework circumstance, is a proven technology useful to forensic analysis when other methods are not effective. Orchid-Cellmark Forensics is committed to providing accurate and timely mitochondrial data of the very highest quality. Please feel free to contact one of our forensic staff members for a private consultation or to discuss testing options.

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