

DNA identification

Procedures can put investigators 'at the scene' in murder cases, says Texas A&M geneticist

By Ellie Hudson
THE BATTALION

DNA testing allows prosecutors to positively identify or exclude murder suspects, says Dr. Jim Womack, a mammalian geneticist with the Texas A&M Veterinary School.

"The technique is powerful enough to put them (suspects) at the scene," he said. "I firmly believe that."

Womack is currently working on a project to map the genome, or set of chromosomes, of domestic cattle and has served as an expert witness in court to the validity of DNA testing.

"The test relies on not any of us having the same DNA makeup, except for identical twins," he said.

There are two types of DNA testing, called Restriction Fragment Length Polymorphism (RFLP) and Polymerase Chain Reaction (PCR).

A lab technician for the Travis County Medical Examiner's office said RFLP is used for large quantity samples and gives the best statistics for determining the frequency of alleles (the units that carry a gene's traits) in a population. Once it is known how frequently a certain trait occurs in a given population, the likelihood of that trait appearing in both samples can be calculated.

She said PCR is used for smaller samples. This process works like a photocopier, making multiple gene copies from the given sample.

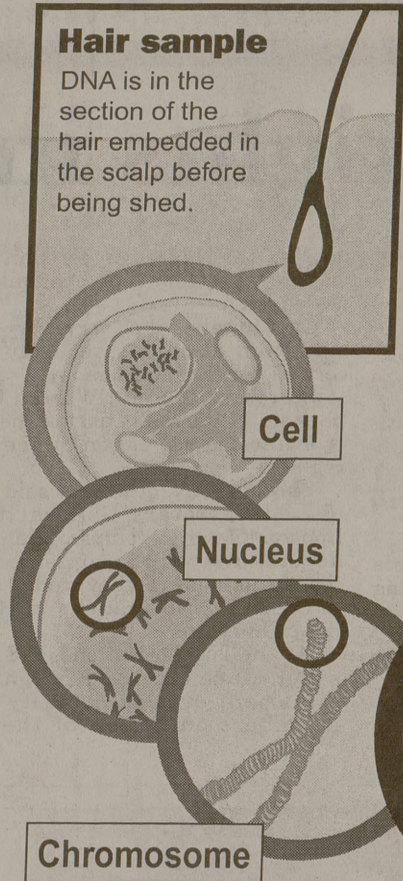
However, if the sample has any contaminants, these get amplified as well, which can skew the results.

"The best results occur when several systems are used together," the technician said. "The easiest (sample) to get DNA from is straight liquid blood."

Womack said, "Its (DNA's) value as evidence depends on the quality of the sample."

Norm Carmack, administrative assistant to the Travis County chief medical examiner, said DNA samples can be obtained from blood, semen, hair, skin or saliva. The structure of the DNA is obtained from these samples and then compared to the DNA structure of a known suspect.

Barry Wilkerson, crime scene technician for the College Station Police Department, said the chances of someone's DNA match-



Samples of hair or blood from a crime scene can be processed to extract the DNA (deoxyribonucleic acid). Each human cell contains about five feet of coiled DNA strands.

Simpson defense faces DNA testing

LOS ANGELES (AP) - A fierce battle to block DNA evidence, efforts to explain away a trail of blood and a search for new alibi witnesses face O.J. Simpson's defense team as it plots strategy for his murder trial.

With a preliminary hearing offering a hint of the evidence, it's clear that the murder case against the famous defendant is far from open and shut.

In the end, Simpson's guilt or innocence may be decided by scientists who analyze the murder scene's gore - blood, hair, fingernail scrapings and wound patterns.

"There's a lot of hard work ahead for the defense," said criminal defense attorney Barry Tarlow.

DNA matching takes 10 to 12 weeks to complete and is said by forensic experts to be 99.99 percent accurate.

"They're dealing with the awesome resources of the district attorney's office."

Boston attorney J. Albert Johnson, who practices with a member of Simpson's legal team, F. Lee Bailey, said Simpson's lead attorney, Robert Shapiro, must become an expert in DNA fingerprinting and prepare to fight the admission of such genetic evidence at the trial.

Based on an individual's unique genetic makeup, DNA matching takes 10 to 12 weeks to complete and is said by forensic experts to be 99.99 percent accurate.

Nonetheless, Johnson said, DNA evidence is inadmissible in some states, and Peter Arenella, a law professor at the University of California, Los Angeles, said a recent appellate decision in California excluded the most sophisticated form of DNA testing from a criminal case because the statistical sample was inadequate to make it trustworthy.

"There is going to be a major fight about DNA testing," Arenella said.

But University of Southern California law professor Erwin Chemirinsky said defense lawyers should not underestimate the power of simple blood tests.

"People have gotten the impression that without DNA testing, blood evidence is untrustworthy, but that's not true," he said. "Countless defendants have been convicted on serological evidence."

AP graphics by Karl Tate. Sources: Cellmark Diagnostics; The Almanac of Science and Technology; Scientific American

Genetic "fingerprinting" is possible because there are short sections within each person's DNA which are unique to that individual (except in the case of identical twins).

- 1 DNA from blood or hair found at crime scene and DNA from suspect are cut into short fragments by an enzyme.
- 2 The DNA fragments are processed. Patterns derived from both DNA samples can be compared like fingerprints.

Sample from crime scene



Sample from suspect



Small college makes 'super'-sized discovery

'This star died when the dinosaurs died,' says professor

BOSTON (AP) - Less than two months after tiny Wheaton College began its supernova program, a professor and students made an exciting discovery - a brightly burning star that collapsed on itself about 65 million years ago.

The rare supernova was the first discovered by a small college program. Wheaton has 1,300 undergraduates at its

campus in Norton.

Professor Timothy Barker, who founded the fledgling program, pinpointed the star.

"This star died when the dinosaurs died," Barker said.

With the help of students, Barker spent 10 years preparing for the search project, creating a computer program that would instruct a 14-inch telescope to focus on 1,200 galaxies in se-

quence, one every 30 seconds.

"The significance is the heroic effort and the great job these guys did," said Carl Pennypacker, co-director of a more sophisticated supernova search at the University of California, Berkeley. "I think it's a triumph of will and dedication."

In late May, Barker and his students began spending their nights on the roof of the school's

science center, looking for dying stars on a TV monitor linked to a light-sensitive camera that looks through the telescope.

If the monitor shows a bright star that's not on the map, they have their first clue to what might be a supernova.

Barker spotted such a star just before midnight on June 26, smack in the middle of galaxy NGC 4948.

He said he wasn't sure how far the star is from earth.



HEALTH TIPS

Is there really such a thing as 'safe sex'?

By Trey Dublin
A. P. BEUTEL HEALTH CENTER

Is there really a means to having safe sex? The phrase "safe sex" is under fire because of the true meaning of the phrase.

The phrase "safer sex" has replaced "safe sex" when referring to reducing the risks of acquiring sexually transmitted diseases (STDs) through sexual contact.

In examining the change from the standard belief of safe sex to one of safer sex, people should keep the following circumstances in mind:

The reasons for the change from safe sex to safer sex lie primarily in the definition of the term "safe." "Safe," when used in conjunction with sex, has a strict meaning. Webster's dictionary defines the term "safe"

as being: freed from harm or risk; secure from threat of danger; affording safety or security from danger, risk or difficulty; not liable to take risk. This definition of the term allows for no mistakes or margin of error.

There is not a means of sexual contact that would eliminate all risks of sexually transmitted diseases. The only way that this can be reached is through abstinence.

To use the phrase "safe sex" would lead to the conclusion that there is no chance that an STD can be transmitted from an infected individual.

Another reason for using the phrase "safer sex" is that there are individuals who practice methods of safe sex incorrectly.

There are various ways to reduce the risk of transmission of STDs, but when they are used ineffectively, the chance of infection in-

creases.

Some ways to reduce the risk of infection include: wearing a condom and using a birth control foam, jelly or lubricant containing nonoxynol-9.

Improper use of the condom is a common error. Some mistakes that are made concerning condom use include putting the condom on wrong, not using a water-base lubricant and improper storage.

All of these mistakes can lead to an increased infection risk. When used properly, the methods of having "safer sex" are effective in decreasing the risk of contracting STDs.

The next time one uses the term "safe sex," he or she should think carefully and question the validity of the phrase. Is there really such a thing as safe sex?



Stew Milne/The Battalion

Measuring up

Edsel Sledge of Mesas surveys the grassy area between the O&M building and the Langford complex so he can map out the site. Sledge was participating in Camp Planet Earth, taking place this week at Texas A&M.

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