IF IT'S THERE, WE'LL FIND IT !

Basic Concepts

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This article is written to assist those in the field to share and learn from an experience that taught me a lot about being persistent in my efforts and not giving up. Even when there are those around you who might feel that what you are being asked to do is wasted effort.

During the early morning hours of Friday, April 10, 1998, I was contacted by one of my department's homicide investigators. He asked me an unusual question concerning the possibility of recovering physical evidence from a vehicle. Now, a request to process a vehicle is not, in and of itself, unusual; however, in this case there was a twist.

Based upon witness statements and some preliminary physical evidence, detectives had developed a theory concerning a homicide that had occurred about three months earlier. Some unknown subjects had picked up the victim, a tourist in the Miami area, at the airport. It was believed that he was carrying a large amount of cash when he arrived. A short time later his body was discovered in a remote area. He had been robbed and shot. Careful investigation revealed that witnesses had seen the victim dropped off in the area by a vehicle. As the vehicle began to leave the victim was seen trying to enter the vehicle through an open window on the passenger side. The witnesses were able to provide a partial description of the subjects involved, a general description of the vehicle, and more important, a partial tag number. Detectives pursued all possible leads but could not locate the vehicle or the subjects. The case remained open.

On April 10, 1998, a uniform officer had stopped a vehicle for a traffic infraction. When the officer ran a check on the tag he was advised that the vehicle's tag matched a partial tag on the homicide vehicle. Homicide detectives were contacted and responded to the scene. They interviewed the occupants of the vehicle and conducted a preliminary examination of the vehicle. It was the results of this examination that led to my being contacted.

The lead detective asked, "If a struggle and shooting had occurred inside the vehicle, and the vehicle had been thoroughly cleaned and detailed, inside and out, would any physical evidence remain?" His second question was "What impact would time have on the condition and value of any evidence found?" I told him that I couldn't give him an answer without examining the vehicle, but I was definitely interested in assisting in the investigation.

My schedule required that I be out of town for the next four days. I asked the detective to have the vehicle towed to a secure facility and obtain the search warrant. Upon my return, I would begin my examination. I returned to work on April 15, and was told to contact the detective immediately. He advised that the vehicle was waiting for me and he had the search warrant.

In any investigation it is always preferable to work in a location that is as comfortable as possible. Normally, at a crime scene, an area is selected and designated as the on-site work area. The scene is then evaluated and a plan of action is developed and implemented. In this case the crime scene - the vehicle - was in a location of my choosing, which made my job easier.

The processing of any crime scene should follow a systematic approach. I began by conducting a careful examination of the vehicle. It was in excellent condition, especially considering it was 11 years old! It was obvious it had just been repainted. The interior was not just clean, it was spotless! Everything seemed new. New headliner, seat covers, carpet, and door panels. It was also obvious that, if this vehicle was involved in the homicide, the subjects had gone to great lengths to remove any evidence. The complete makeover and pristine condition of the vehicle immediately eliminated several categories of evidence that I might be able to recover. The first step in a systematic approach to crime scene investigation and processing, SCENE RECOGNITION, was complete.

I now began the second step, SCENE DOCUMENTATION. The steps in a systematic approach to documentation consist of note taking, any sketching needed, and photographs. I photographed the vehicle, beginning with the exterior, from every angle. This not only showed its condition, but would provide a record of the work done during the continued search for evidence.

The third step in a systematic approach is EVIDENCE RECOVERY. I realized that my success in this step would require a total strip out of the interior of the vehicle. I also realized that the most likely type of evidence I would be looking for was blood. Common sense and experience told me that any liquid blood in the vehicle would have run and pooled in the lowest parts of the vehicle. There was also a remote possibility that some spattered or sprayed blood might remain in the vehicle. But, based upon the interior's cleanliness and the time frame, it was unlikely. Even so, I began by removing the headliner. Nothing!! I next went to the seat area. When I removed the plastic molding that holds the driver's side front seat belt harness I hit paydirt!! There was a reddish stain on the lower trim of the molding where it at-

tached to the frame. The cloth seatbelt harness strap was also stained where it was attached to the chassis. Next, the metal trim plate inside the driver's door, attached to the rocker panel was removed. Underneath were chunks of crusted material, dark red in color. After removing the metal trim plate I was able to lift back the new carpeting. Given the effort that had gone into redoing the interior of the vehicle, I was surprised to find that the new carpet had been laid over the original padding. At first glance the padding revealed nothing, however when I pulled it back I was pleased to see a large reddish stain. Finally, when I removed the front seat, which was a bench type, I found that the center seat belt strap was also stained red. I had carefully photographed my discoveries as they were made, and documented the locations in my notes. My next step was recovery and collection of the suspected blood.

In standard crime scene procedures recovery of all suspected blood is accomplished by scraping, swabbing, or collecting the entire blood stained item. I used all three methods in this case. In all, eight items or samples were collected and submitted to the lab.

It was not until October that I was notified by the lead detective that 7 of the 8 samples or items submitted was blood and they had been identified as belonging to the victim in the case. This was done with DNA analysis.

My involvement in this case began at 8:30 a.m. and ended at 8:00 p.m., when I had submitted the last item of evidence. In a systematic approach to crime scene processing, consisting of SCENE RECOGNITION; SCENE DOCUMENTATION; and EVIDENCE RECOVERY, a crime scene investigator is often faced with tedious and time consuming work, and even an aggressive approach may not produce the positive results desired. But when they do, the results are worth the effort expended. ■

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Genetics in Forensic Science for Non-scientist

By N. Alice Yamada

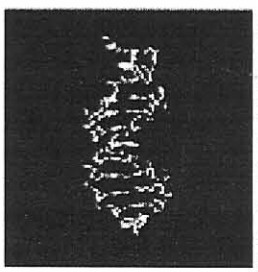
In the past decade or so, recombinant DNA technology and genetic engineering have experienced an explosion of knowledge and new discoveries. From early detection of defective birth to the O. J. Simpson trial, genetic technology is everywhere. We hear words like RFLP, PCR, and VNTR, but what exactly are they saying? How accurate are these results in forensic science and how do we know what we think we know?

Here's a quick and comprehensive introduction to recombinant DNA technology. In the near future, all this may become general knowledge much like how everyone knows that the earth revolves around the sun. But for now this is a start.

Basically, your genes are comprised of DNA, which are these super condensed chains of chemicals. It's been stated over and over that your DNA is a double helix (two chains in a helical pattern). The chemicals in the chains have initials and they are A, G, T, and C. A and G are sisters and T and C are brothers; A and T are always paired up together and G and C are also hooked up. These chemicals may be lined up in different orders and repeat in many different patterns. The repeating sequence is called *tandem repeats.*

Each person has different numbers of tandem repeats. Let's say your repeat sequence is Gccc, and you have 3 of these copies, so your DNA looks like this: GcccGcccGccc. These repeats bring individuality in your DNA pool. VNTR stands for Variable Number Tandem Repeats, and detects the length of tandem repeats in your DNA. VNTR's are especially useful in forensic science, because the chances of somebody else having the exact same VNTR results, if done in careful lab conditions, is less than one in a million.

In forensic science, it is common to have only a small amount of sample to use for lab work. This sample can be a tiny bit of blood, sperm, mucus, etc. PCR is simply an amplification method of making a sufficiently big pool of DNA sample from a very small amount.



Jurassic Park based its creation of dinos on this amplification method. PCR is a very simple and easy method, and it is one of the most important techniques in genetic study. More explanation is found in several Web sites, such as the clinical genetics page at http://www.trincoll.edu. ■

(This article was condensed from an article found on the internet.)

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