

WSP CRIME LABORATORY DIVISION NEWSLETTER

Welcome to our second quarterly newsletter for 2007. In this issue, you will receive the following:

- An introduction to our DNA functional area.
- Case studies where DNA was important in the investigation.
- A few pointers on evidence handling
- Answers to frequently asked questions.

If you have a question or topic you want addressed in the next newsletter, please contact me at:

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George Johnston

Spotlight for June



DNA analysis in Marysville



Semen – alternate light source



Presumptive testing for blood

DNA FUNCTIONAL AREA

The WSP CLD has 5 DNA labs scattered across the state: Marysville, Seattle, Tacoma, Vancouver, and Spokane. We have **33** biology–DNA analysts and **4** biology-serology analysts who are fully proficient and heavily involved in casework.

The Good News:

In 2006, the division completed almost **2000** requests, ranging from homicides to high profile burglaries. The majority are violent crimes, primarily rapes and homicides. Less than 10% of the submissions are burglaries and each one is screened before it is accepted for sexual motivation, escalating violence or suspected serial in nature with high monetary impact. Burglaries are also the perfect venue for training new scientists so some are selected to meet that need. Someday, in the future, once we've addressed our backlog of violent crimes, we can turn to high throughput DNA technology to address the burglaries. When that happens, we will be contacting your agencies, so they can begin to collect evidence on these crimes and submit them. But, for now, we are still not ready.

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The Bad News:

We received over **2200** requests (versus the 2000 completed), so the backlog continues to grow and remains at a little over 800 cases. As we enter a new state budget cycle, we are hiring 10 new DNA scientists to address the backlog which will allow us to get to cases more quickly. The average training timeframe for a new scientist is approximately **1 year** before the scientist is assigned independent casework. It will take time to see the benefits of the new scientists but once they are analyzing cases we should see ~550-650 additional cases going out the door each year.

There are several different types of DNA analysis.

- **Nuclear DNA**, testing involves analysis of specific body fluids such as blood, semen, or saliva. Nuclear DNA testing also includes cellular or “touch” DNA, which is an analysis of areas/locations of evidence that may contain DNA. For example, material on a ball cap, a belt buckle, or a cartridge case may have DNA present, but just not visible.
- **Mitochondrial DNA** testing is used for missing person identification and when there isn't sufficient nuclear DNA and is particularly useful in hair evidence and with human remains.
- **Y-STRs**; specifically targets male DNA. This is useful for cases with limited amounts of male DNA. An example of this would be fingernail swabbings from a sexual assault.

CASE STUDY



Case Study 1: In western Washington, a young woman called 911 to report that she and her baby daughter had been beaten by the father of the child. The woman claimed the suspect punched the baby and then whipped the woman with an AC adapter. When the baby would not stop crying, the suspect then covered the baby's mouth with duct tape and taped the feet together and the hands and arms to the torso. Cellular DNA was detected on the AC adapter and one of the pieces of duct tape. The DNA typing profile matched the mother. The profile on the duct tape piece was a mixture consistent with the woman and the baby. The suspect pled guilty and was sentenced to eight years in prison.

Case Study 2: The CSRT (Crime Scene) helped in the search of a pickup truck that had been impounded from a homicide suspect. The victim had been bludgeoned to death in his own garage/shop building. The suspect had associations with the victim and was developed as a suspect based on witnesses in the area. During the search of the vehicle, a few blood stains collected from the interior of the cab of the truck as well as a pair of hiking boots that appeared to have blood spatter on them. DNA and blood stain pattern analyses were done on the blood stains and the boots.

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DNA from the stains in the cab of the truck was matched to the suspect and the stains on the boots were matched to the victim. The blood stain pattern analysis concluded that the boots could have been present during the bludgeoning event and if they were, they were close to the head when the stains were deposited. The suspect was found guilty at trial.



Crime Scene Search



DNA Profile Interpretation

Frequently Asked Questions (FAQs):

- 1. What is the best information to include on the Request for Laboratory Examination?** Please complete the lab request as fully as possible, listing the items to be examined in order of priority. Also, it is very helpful to have the investigator's phone number and email address. Sometimes, it is easier to make contact using email rather than leave phone messages.
- 2. What types of training does the CLD provide?** The CLD is active in training our user agencies across the state. Several times a year, we instruct at classes for Crime Scene Investigation, proper evidence handling (preservation, collection, packaging and labeling), and on-line mini classes scheduled through the CJTC. We also will work with your agency to provide training on specific topics of interest; please call your nearest lab for more information.
- 3. Practical Tips from the Physical Evidence Handbook:**
The CLD Physical Evidence Handbook can be located at the WSP website:
<http://www.wsp.wa.gov/about/flsbhome.htm>
 - Be sure to dry evidence as much as possible before submission. Submitting damp evidence often promotes bacterial growth, which can degrade evidence and lessen the ability to obtain useful information in analysis.
 - Each item of clothing collected for examination should be packaged and submitted in a separate container, to prevent contamination or transference of material/evidence.
 - Be sure to package control samples (samples known to be from a specific person, location, or item) separately from questioned samples collected from a crime scene.

If you have questions about forensic science or our crime lab division, please feel free to contact any of the labs, and someone should be able to help you