**Serology and DNA**

**What is Serology?**

Serology is the examination and identification of body fluids. These include blood, saliva, urine, feces, etc.

**How to collect DNA evidence:**

Evidence that may contain DNA should always be packaged in paper bags or envelopes. If possible, collect the entire item. If a possible fluid is found on a surface that can not be collected, the substance can be swabbed and then packaged. If the sample is a dried stain, you may need to add a drop of water to the swab first to rehydrate the stain. The package should then be sealed with evidence tape and the seal should be initialed. When the analyst is ready to do serology or DNA testing, an unsealed area should be cut open with a sterile scalpel or scissors.

**Types of Serology Tests for Blood:**

HemaStix are test strips with a square of blood reagent material at the tip. Unknown substances may be absorbed onto the strip and it will change color if blood is present or not. The initial yellow reagent will turn a shade of greenish blue if blood is present. If it is blood check the next subject below, if it is not blood then keep looking for blood evidence in order to proceed.

Phenolphthalein is used as a color indicator in the Kastle-Meyer test. Unknown substances may be absorbed onto a moist swab or rubbed with a piece of filter paper. Then in order, a drop of alcohol, phenolphthalein, and hydrogen peroxide are added. If blood is present, the colorless phenolphthalein will be oxidized and will turn to pink phenolphthalein.

**So what does DNA testing have to do with serology?**

DNA can be extracted from body fluids as well as skin cells. Stains that test positive for a bodily fluid can be sent for DNA testing. After extracting the DNA, a DNA profile can be generated which is unique to a specific individual (with the exception of identical twins). DNA profiles contain short repeating sequences called short tandem repeats (STRs) which help in the comparison and identification of a person or suspect. Once a DNA profile is generated from an unknown sample, then it can be compared to a known DNA profile to see if they are consistent with one another.