

## DNA analysis and exam time frames

SART Listserv  
February 2007

**Issue:** Do crime labs that find DNA up to a week after an assault find it using "regular STRs" or are they utilizing new technology called "YSTRs?"

**Background:** Our state's victim compensation program pays for the exams and requires that the victim report to law enforcement within 72 hours of the assault. Therefore, we still use the 72 hour time frame for evidence collection. I have spoken with our local crime lab regarding extending the time frame to 96 - 120 hours once reporting to law enforcement is no longer an issue. Currently, our local lab analyzes the DNA using "regular STRs."

**Response from a Forensic Laboratory Scientist:**

- The precise answer to this question is laboratory specific, but generally the STR and YSTR analysis platforms have about the same lifespan.
- The advantage of YSTR's is that substantially more target DNA can be loaded into the STD test systems. Thus, the sensitivity seems to be greater.
- The article (below) and others are all suggesting that under controlled conditions the window may be wider than 72 hours, or that yplex systems (systems that test for just male DNA), may be able to widen the window. The problem is that forensic investigations do not tend to operate under such "controlled conditions" or with platforms that are being employed by the researchers;
- Work done in Arizona suggests that we may be able to push the collection time frame out to 120 hours. Our own anecdotal experience (we have been working with STR's since 1995) is that after 8 hours, give or take some hours, there is an obvious and progressive diminishing return on analysis, and that any analysis in the 72-120 hour time frame is generally not a cost effective proposition.
- If a laboratory has unlimited resources, or if it wants to make sure it captures 100% of its potentially positive cases, then 120 hours maybe the target time frame. Occasionally we get cases that have kits collected more than 72 hours after the assault. We get minimal return with such cases. Occasionally we get "lucky," but that is the exception and not the rule.

**Use of a Y chromosome Probe as an Aid in the Forensic Proof of Sexual Assault.  
Journal of Forensic Sciences: Volume 47, Issue 3, May 2002, pp. 601 to 604.**

This study examined the use of the FISH test to identify Y chromosomes taken from samples of blood lymphocytes, bone marrow, and epithelial swab specimens following a sexual assault.