Maximizing the Investigative Power of DNA

DNA collection and analysis give the justice field a powerful tool for convicting the guilty and exonerating the innocent. Procedural improvements have made the collection of DNA evidence more efficient and reliable, and advances in science allow forensic scientists to identify DNA samples from hair, bone, and ever smaller amounts of blood and other body fluids. But the process remains relatively expensive, and as States enact statutes calling for the collection of DNA samples from offenders for a growing list of crimes, crime labs face a continuing backlog of samples to be tested. NIJ has been instrumental in improving DNA collection and analysis, and in 2003 continued to help solve the backlog dilemma.

Presidential DNA initiative

In 2001, the Attorney General directed NIJ to examine existing delays in analyzing crime scene DNA evidence and develop recommendations to eliminate those delays. He also directed NIJ to make recommendations for a national, comprehensive effort to eliminate the delays. In response, NIJ submitted a report to the Attorney General with a series of recommendations to eliminate the DNA testing backlog and to build the capacity to routinely use DNA evidence as an investigative tool in jurisdictions throughout the Nation. That report became a key building block of the President's DNA initiative, Advancing Justice Through DNA Technology, a comprehensive national strategy for using DNA technology to solve crime and to protect the innocent, announced by the Attorney General in March 2003. The initiative is a $1 billion, 5-year Federal effort to strengthen and improve the collection, analysis, and use of DNA at the Federal and State levels. The initiative also calls for the creation of a National Forensic Science Commission to assess the needs of the forensic science community and to stimulate public awareness of and interest in the uses of other forensic technologies to solve crimes.

For more information:

- Visit NIJ's Web page on the President's DNA initiative at http://www.ojp.usdoj.gov/nij/dnainitiative/welcome.html.

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DNA Backlog Reduction Program

During 2003, NIJ's DNA Backlog Reduction Program continued efforts to eliminate backlogs of DNA evidence in public sector crime laboratories in order to crack unsolved cases and prevent future crimes. The program has two components:

Convicted Offender DNA Backlog Reduction Program. The goal of this program is to rapidly accelerate the analysis of DNA samples collected from convicted offenders. Participating labs can use funding to analyze samples inhouse or to have the samples outsourced to private vendor labs with a larger and more rapid analytical capacity. The analyzed samples can then be entered into the Combined DNA Index System (CODIS), the national database of criminal DNA profiles. In 2003, $23.9 million in funding was awarded to 42 States through this program.

No Suspect DNA Backlog Reduction Program. NIJ provides funding to States to identify, collect, and analyze DNA samples from evidence collected in cases with no suspect or in which the original suspect has been ruled out as the perpetrator. The analyzed samples are then compared to local, State, and national databases to identify whether there are matches between the evidence and a convicted felon or evidence from other crime scenes. This process can be a powerful tool for solving cold cases or for tying disparate crimes together to assist investigations. NIJ encourages States applying for funding under the program to develop a plan that will prioritize no suspect cases, foster cooperation among all the agencies in the State analyzing the cases, and provide for building or increasing laboratory capacity to handle future no suspect cases. In 2003, 38 States with 29,964 no suspect cases received $39.7 million in funding under the program.

CBS News covered Attorney General John Ashcroft's March 11, 2003, announcement that the Justice Department planned to seek $1 billion over 5 years to increase DNA analysis, which "has proved invaluable in solving crimes." The plan, outlined in President Bush's budget request for 2004, would double the FBI's rate of processing DNA samples by 2005 and provide money for State and local laboratories to do the same. *From http://www.CBSNews.com*

Operational support to crime laboratories

NIJ's Crime Laboratory Improvement Program helps State and local crime laboratories improve their capacity and ability to conduct justice-related forensic analyses. NIJ funded 32 awards under this program in 2003. These awards helped establish forensic capabilities previously unavailable in some labs, cut the time needed for labs to analyze evidence, reduce the backlog of samples awaiting analysis, and provide training and continuing education for analysts.

The Paul Coverdell National Forensic Sciences Improvement Act provides funding to State and local crime laboratories and medical examiner offices to improve the quality, timeliness, and credibility of justice-related

forensic science services. Funds are awarded in two parts:

- 75 percent is awarded to States and territories through formula awards. In 2003, NIJ distributed a total funding of $3.69 million to 48 States through the formula grants program.
- 25 percent is available for discretionary awards to States, territories, and local governments. NIJ distributed six awards totaling $1.24 million from the discretionary program in 2003.

DNA Research and Development Program

A key aspect of NIJ's effort to maximize the investigative power of DNA is to improve the tools and technologies that State and local crime laboratories can use to examine DNA evidence collected from crime scenes. Awards were made in 2003 to:

- Separate male and female samples of sexual assault evidence to improve identification of the source of evidence.
- Improve examination of challenging DNA evidence samples, such as mixtures from two or more individuals and damaged, degraded, or limited DNA that would otherwise be impossible to analyze.
- Isolate DNA from aged skeletal remains for identification and investigative purposes.
- Develop and improve smaller DNA testing devices to make them more portable.
- Refine the use of nontraditional DNA markers such as those found on the Y chromosome and in mitochondrial DNA that can provide more information on the source of a DNA sample.

SERVING THE FORENSIC SCIENCE COMMUNITY

NIJ continued funding in 2003 for the Forensic Resource Network, a collaboration of NIJ grantee institutions with forensic science expertise. The Network assists State and local forensic laboratories and the forensic science community in four critical areas: (1) training; (2) technology transfer; (3) methods research and development, testing, and evaluation; and (4) analytical services.

The Forensic Resource Network includes the following institutional members:

Forensic Science Center at Marshall University in Huntington, West Virginia, provides technical assistance to DNA labs, distance education, and training and conducts basic and applied research. Offers a master's degree program in forensic science. Recent successes include support for DNA laboratory transition to a new DNA analysis platform and analysis of convicted offender samples for entry into the Combined DNA Index System.

Forensic Science Initiative at West Virginia University in Morgantown, West Virginia, conducts basic and applied forensic science research and provides education and training for forensic scientists. Recent work includes the development of curriculum recommendations for forensic science education, which have been adopted by the American Academy of Forensic Sciences for its pilot accreditation program.

National Center for Forensic Science at the University of Central Florida, Orlando, Florida, conducts research, technology transfer, testing, and evaluation. Recent successes include advances in DNA analysis, arson investigation, textile fiber identification, and digital evidence.

National Forensic Science Technology Center in Largo, Florida, develops forensic science training programs and provides support for quality systems and forensic examiner competency. Recent successes include providing quality assurance audit services for DNA laboratories, conducting auditor training classes, and establishing DNA and controlled substances training academies.