

**A N D E<sup>®</sup>**

R A P I D   D N A   F O R   A   S A F E R   W O R L D

"ANDE gives us the ability to solve crimes quickly,  
to rule out the innocent, and to identify and  
to pursue that bad guy with all of our resources."

**ED DAVIS**

former Boston Police Commissioner

"Rapid DNA Analysis is a hugely important issue  
for the whole American criminal justice system.  
It presents tremendous opportunities to solve  
crimes in an effective way and can produce justice...  
one of the biggest bottlenecks of all of our laws  
involving prosecutions of criminal activity is the  
bottleneck of scientific analysis... all of this slows  
down and stops cases that should long since have  
been brought forward and disposed of."

**ATTORNEY GENERAL  
JEFF SESSIONS**

Senate confirmation hearing, January 12, 2017



## **ANDE IS THE FIRST AND ONLY RAPID DNA SYSTEM...**

...to receive FBI NDIS Approval

...to pass military grade ruggedization tests

...that equals or betters existing laboratory processes

...that enables non-technical operators  
to process crime scene samples

...with consumables that do not require refrigeration

...that automatically interprets DNA fingerprints  
and allows routine searching of DNA databases

...to feature PrivacyGuard™ protection

DNA fingerprinting is extraordinarily accurate, much more so than conventional fingerprints or facial and iris recognition. Rapid DNA identification brings DNA analysis out of the lab and puts it into your hands – under your control – where a two-hour DNA result can have immediate impact on your investigation.

**1,000,000,000,000,000,000,000,000**

THE CHANCE OF A RANDOM DNA MATCH IN  
THE POPULATION USING THE ANDE SYSTEM  
IS APPROXIMATELY ONE IN A TRILLION TRILLION.

## **FAR MORE ACCURATE THAN A FINGERPRINT, DNA IS THE GOLD STANDARD FOR IDENTIFICATION.**

But the value of DNA is diminished by the excessive time required for evidence processing in labs that are overwhelmed by the sheer volume of samples. And the situation is getting worse.

Of the approximately 12 million arrests made annually in the United States, only a small fraction of cases use DNA as a primary investigative tool. These are a small subset of serious crimes in which DNA is essentially a technology of last resort. In the vast majority of DNA supported cases, DNA has been relegated to use as confirmatory evidence – frequently used to bolster a case only after the actual culprit has been identified.

With few exceptions, laboratory DNA analysis requires weeks, months or – in some jurisdictions – years. This leads to case backlogs and increases the time required to solve crimes. Millions of samples are not submitted or even collected because the results come too late to have a real impact on the investigation. When samples are not processed quickly, criminals remain free and can commit more crimes.

As a country, we are falling farther and farther behind in DNA testing. Forensic DNA labs are overwhelmed, despite recent and substantial expansions and increases in technical personnel. As the National Institute of Justice explains, “(t)he demand for DNA testing is rising because everyone is becoming more aware of the potential of DNA evidence to help solve cases. The increased demand for DNA testing comes from two primary sources: (1) the increased amount of DNA evidence that is collected in criminal cases and (2) the expanded effort to collect DNA samples from convicted felons and arrested persons.”

Law enforcement needs a new approach to solve the DNA evidence problem. ANDE is that new approach.

## **LESS THAN 1% OF CRIMES ARE ASSISTED BY CODIS**

Since the Federal DNA database was created and implemented in 1997, CODIS has produced over 362,144 hits assisting in more than 347,240 investigations.\* This is a remarkable achievement, certainly one of the most important advances of the past century. However, these hits represent less than 18,000 investigations that have been CODIS-assisted in an average year—less than 1% of annual violent and property crimes. *Rapid DNA represents a paradigm shift that offers the potential to amplify the value of DNA in law enforcement.*

\* Source: FBI CODIS – NDIS Statistics, March 2017

## **RECIDIVISM**

A study of over 400,000 prisoners in 30 states found that 71.3% of violent offenders and 82.1% of property offenders were rearrested for a new crime, with 56.7% of rearrests occurring in the first year.\*

\*Source: Bureau of Justice Statistics Special Report, April 2014, NCJ 244205

## **BURGLARY & MORE SERIOUS CRIMES**

Not analyzing or collecting DNA samples for minor offenses could prevent law enforcement from apprehending offenders before they commit more serious crimes. Data indicate that many violent offenders start off with committing property crimes. “[a] study of DNA databases hits in Florida show that 52% of hits for homicide and sexual assault cases matched offenders who had prior convictions for burglary.”\*

\* Source: Congressional Research Service, DNA Testing in Criminal Justice: Background, Current Law, Grants, and Issues, December 2012

## **BACKLOGGED SAMPLES**

Researchers who surveyed more than 2,000 law enforcement agencies across the country found that 14 percent of all unsolved homicides and 18 percent of unsolved rapes contained evidence that was not submitted by law enforcement agencies to crime labs for analysis.\*\* The delays in processing DNA evidence discourage both the collection of sufficient numbers of samples at the crime scene and their submission, *leading to millions of samples that are either backlogged, never submitted, or never collected.*

\* Source: U.S. Department of Justice, Office of Justice Programs Fact Sheet, November 2011

## THE RAPE CATASTROPHE IN THE U.S.



### 1 IN 5

women (18.3%) and 1 in 71 men (1.4%) in the United States have been raped at some time in their lives. 37.4% of female victims were first raped between ages 18-24.

Source: CDC

### 393,000+

women and men are estimated to be raped in a single year, 300,000 of those are women. But most rape goes unreported--only one in five adult women report their rape to the police.

Source: National Institute of Justice

**THE AVERAGE RAPIST COMMITS 12 RAPES BEFORE APPREHENSION – TIMELY DNA TESTING WOULD ALLOW CAPTURE IN MANY CASES AFTER A SINGLE ASSAULT.**

– UMass and Brown School of Medicine

### 400,000+

sexual assault evidence kits sit in storage in the United States, unprocessed. This is likely a significant underestimate.

## **ANDE: BREAKING THE CYCLE OF CRIME**

Rapid DNA is defined by the FBI as “the fully automated generation and interpretation of a DNA profile in less than two hours in a ruggedized, field deployable appliance, by non-technical users.” Moving DNA from the lab to the field enables law enforcement to identify individuals at the speed of their investigation. This is changing the paradigm in law enforcement.

ANDE has proven its effectiveness and has been used successfully by the U.S. Military and our allies around the world. The system has also been subjected to rigorous testing, with over tens of thousands of samples evaluated. With two years of field experience and 2016 approval by the FBI's National DNA Index System, ANDE is now impacting law enforcement.

### **WHERE CAN ANDE BE DEPLOYED?**

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- Police Stations
- Crime Scenes
- Vans, Trucks, and Cars
- Booking Centers
- Jails/Prisons
- Coroners'/Medical Examiners' Offices
- Hospitals and Sexual Assault Kit Collection Centers
- Mass Casualty Sites
- Borders and Ports
- Embassies
- Essentially Anywhere (runs on generator power)

### **WHO CAN USE ANDE?**

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Essentially anyone. Learning how to use ANDE is straightforward and operators can begin using the system almost immediately.

### **WHAT SAMPLES CAN BE PROCESSED ON ANDE?**

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- Cheek Swabs
- Bloodstains
- Sexual Assault Kits
- Cups, Cans, and Bottles
- Cigarette Butts, Gum, and Drinking Straws
- Steering Wheels, Guns, Cell Phones, and Handled Items
- Bones
- Hair
- Teeth
- Semen
- Muscle and Tissues
- Many Others

### **WHEN WILL RESULTS BE READY?**

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In less than two hours.

## ANDE L-SERIES

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## CHANGING THE PARADIGM

ANDE is being deployed broadly in two public safety areas: Investigative operations and booking facilities/other corrections centers. ANDE will help you:

### **MANAGE THE CRIME SCENE**

Implementing Rapid DNA testing in the field provides tremendous advantages to law enforcement agencies in the preservation of evidence. In serious crimes, understanding the evidence in hand and having the ability to identify the most likely criminal scenarios will unquestionably lead to more efficient investigations. Confirming solid DNA information prior to releasing crime scenes back to property owners will prevent needless loss of evidence.

### **STOP MORE CRIME/ EXONERATE THE INNOCENT**

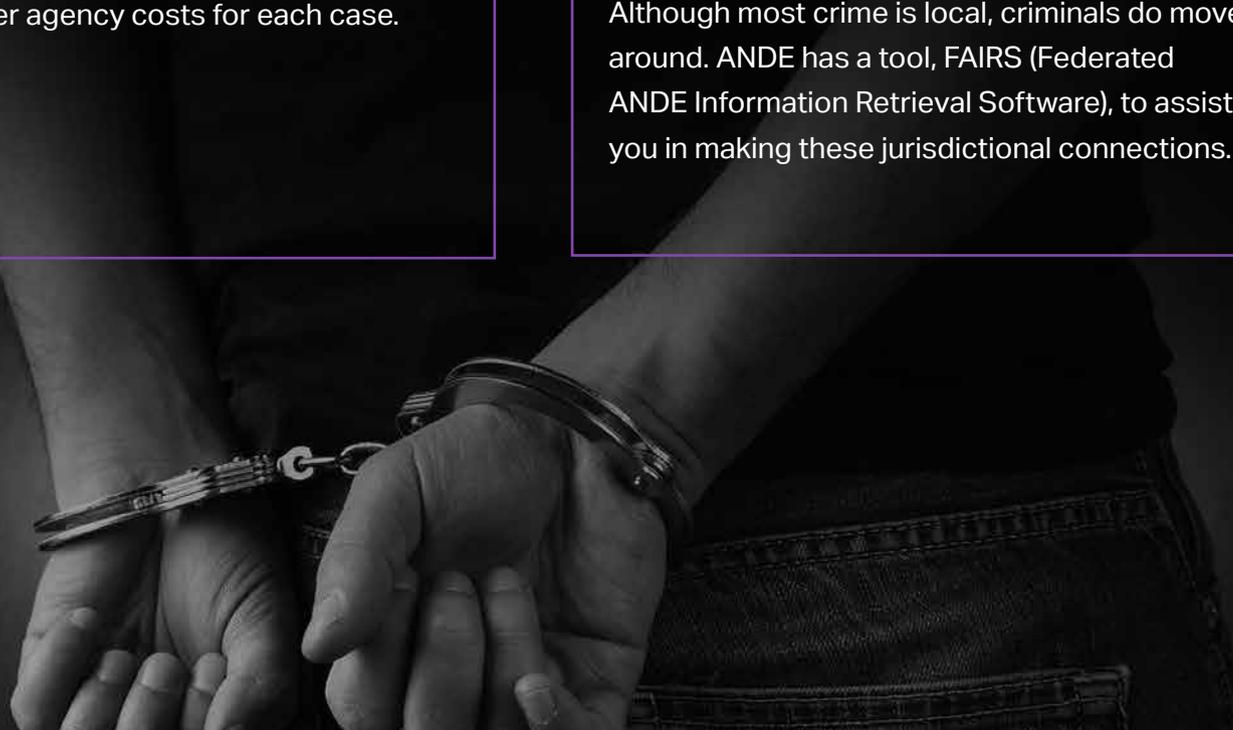
Instead of leaving a child rapist on the street for months waiting for DNA analysis, it is now possible to provide a suspect's DNA profile in less than two hours. Interruption of crime takes offenders off the street before they can commit additional crimes. This reduces the number of victims and the amount of suffering and damage or loss inflicted. Criminals that commit small crimes also commit more serious ones.

### **MAKE YOUR AGENCY MORE EFFICIENT**

The use of such a high-fidelity tool allows agencies to focus their resources on the real suspects much earlier in the investigative process. The cost savings driven by early suspect identification and confirmation can materially lower agency costs for each case.

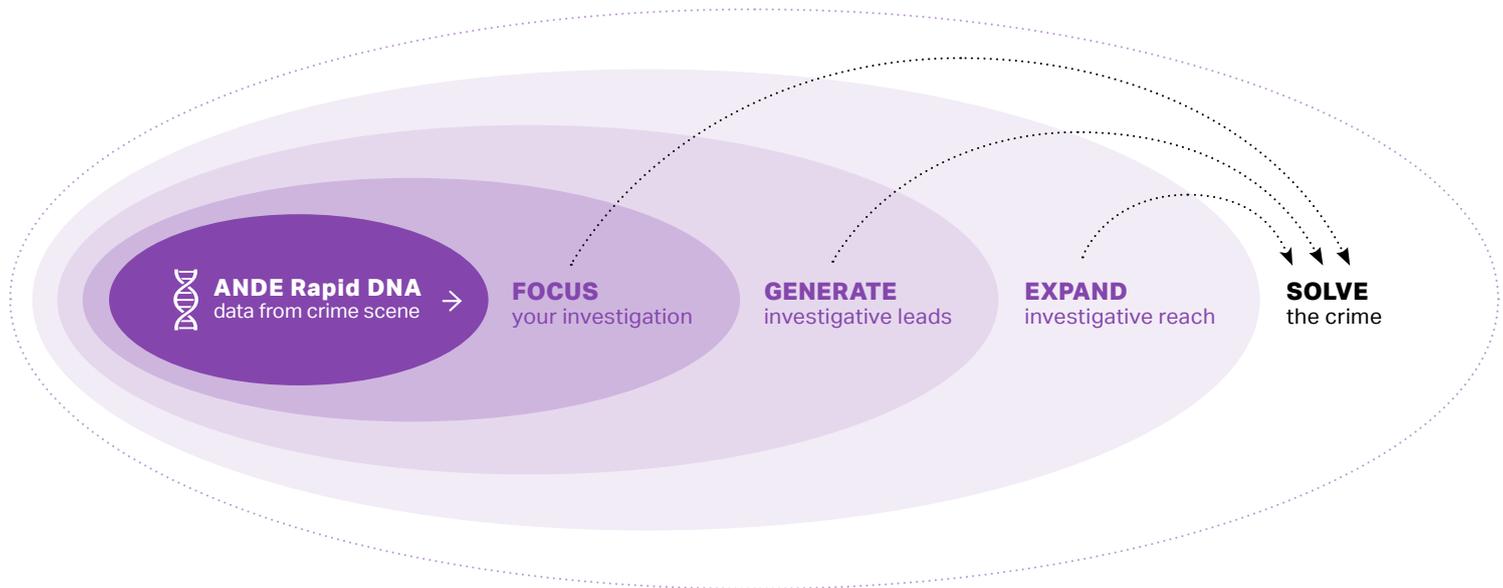
### **CONNECT THE DOTS**

Use ANDE data to link multiple unsolved crimes to each other and to suspects. Furthermore, by reaching out to other local and regional agencies, you will be able to identify suspects that are located outside your jurisdiction. Although most crime is local, criminals do move around. ANDE has a tool, FAIRS (Federated ANDE Information Retrieval Software), to assist you in making these jurisdictional connections.



## ACTIONABLE RESULTS

Generate DNA fingerprints at the crime scene and search an expanding set of DNA databases to impact investigations and solve cases.



### FOCUS YOUR INVESTIGATION:

- Collect DNA samples at the crime scene. Run on ANDE.
- Collect cheek swabs from potential suspects. Run on ANDE.
- Automatically compare sample results: focus in on suspects that require additional investigation and eliminate those that do not.
- Results are available in two hours or less: provides for practical use of DNA evidence as an integral part of an investigation, greatly enhancing the efficiency of investigative efforts.
- DNA is no longer used solely to verify results of an investigation or convict a suspect. Rapid DNA provides a real-time guide: focus your investigation early, leading to faster resolution and lower costs.

### GENERATE INVESTIGATIVE LEADS:

- Collect DNA samples at the crime scene/ Run on ANDE.
- Automatically search local and state databases. Preserve conventional processes during the transition by doing two swabs, one for ANDE and one for the lab.
- Quickly develop leads—instead of waiting for weeks, months, or years for lab DNA data, generate the data yourself and use it in real time. Dramatically reduce the time to solving the case and the cost of the investigation.
- Reduce crime by quickly identifying, arresting and prosecuting offenders before they have a chance to offend again.

### EXPAND INVESTIGATIVE REACH:

- Use your ANDE results to search local and regional databases.
- As Rapid DNA becomes routine, increasing numbers of agencies will have local DNA databases.
- Consortiums of local agencies can join forces to share crime scene DNA data. ANDE can help make these connections using FAIRS (Federated ANDE Information Retrieval Software).
- Even distant agencies can work together to optimize the use of ANDE DNA data. If a given suspect has travelled to your jurisdiction (e.g. human, arms, or drug trafficking), FAIRS allows connections to be made.

### A BROAD RANGE OF ADDITIONAL APPLICATIONS INCLUDE:

#### EXPEDITE DISASTER VICTIM IDENTIFICATION:

- Collect swabs from victims and body parts and process on the scene.
- Collect and process cheek swabs from relatives of the victim.
- The cheek swabs of the relatives represent a local DNA database. Using the ANDE FAIRS: Claimed Relationships module, search this database to identify victims and remains. DNA is the only biometric that enables such identification.
- Reunite loved ones and provide immediate closure to families.

#### TEST ARRESTEES:

- Use ANDE at booking to test cheek swabs from eligible arrestees (automated searching of the Federal database will require activation of the FBI's Rapid DNA collection program). Immediately run profiles through CODIS providing positive identification and matches to forensic unknowns across the country.
- Develop or expand your local DNA database: Search expanded database as new crime scenes are processed and for cold cases.

#### WORK WITH FORENSIC NURSES AND SANES TO PROCESS SAKs:

- Identify violent sex offenders in less than two hours – instead of waiting for weeks, months, or years for lab DNA data, generate the data yourself and use it in real time. Dramatically reduce the time to and cost of resolving the case. Work with Forensic Nurses and Sexual Assault Nurse Examiners (SANEs) to collect Sexual Assault Kits (SAKs) and process samples on ANDE at the hospital.
- Provide immediate feedback to sexual assault victims ensuring that they know the high priority placed on their case.
- Significantly reduce the incidence of sexual assault by identifying and removing offenders before they have the opportunity to re-offend or escalate their actions.

## A NEW STANDARD OF PERFORMANCE

### FULLY-AUTOMATED DNA PROCESSING

ANDE eliminates the need for a highly trained lab tech to execute a number of complex and potentially error-prone manual processes. Independent testing of ANDE throughout the world shows results consistently equal to or better than manual lab processing in routine DNA cases. ANDE is the best option to run a limited evidence sample since the statistical likelihood of success is generally greater than a laboratory on a first run. Rapid DNA won't replace labs—instead, ANDE will free up highly trained lab personnel to tackle the most complex samples. But Rapid DNA will replace your long wait for lab results with a two-hour turnaround time that is entirely under your control.

### FULLY-AUTOMATED DATA INTERPRETATION

ANDE's ability to interpret and categorize DNA data more quickly and precisely than humans and its rock-solid capacity to interpret data consistently make it better than most humans at evaluating the graphic results of a DNA test. The Expert System software engine was developed by modeling the decision making of the same scientists who invented the DNA fingerprinting process in the first place. ANDE's system outperforms the manual human analysis done in most labs today in terms of both consistency and accuracy.

"Rapid DNA technology would give law enforcement the ability to identify suspects of violent crimes more accurately and more quickly, it would help us reduce our DNA backlogs, and it would better protect innocent men and women from being wrongfully accused of crimes."

### SENATOR KIRSTEN GILLIBRAND

Referencing a press release Issued  
by Senator Orrin Hatch, June 15, 2016

### MOBILE AND RUGGED

ANDE was designed and tested to a rigorous military ruggedization standard, MIL STD 810G. The system is mobile and can be operated outside the lab under austere conditions—it simply requires electricity (whether from a stand outlet or generator). ANDE has proved it can operate in mobile land-based vehicles, in the air and on the sea. The ANDE chip is room-temperature stable for up to 6 months with minimal storage requirements—meaning that your agency will be prepared to run samples on demand. Competitive instruments can never be unplugged – loss of temperature controls means chemicals could spoil. Competitive instruments can never be moved, even an inch, without re-alignment of their lasers by certified technicians. ANDE self-aligns on every run to insure accurate results, and has the unique ability to be turned off, moved, and restarted at will.



### Easy-to-Use Chip

With ANDE, all of the materials necessary to perform testing are built into a single, disposable, plastic chip. ANDE does not use multiple consumables, fragile glass consumables, or refrigerated materials, all of which would increase the likelihood of system failure. This ANDE system is easy-to-use, critical when DNA results may affect life or death decisions.

**NO LOSS OF EVIDENCE OR CONTAMINATION**

Each sample is tracked in the instrument by an RFID chip and bar code. Additional bar codes are available to be taken from the swab collection container and added to case paperwork. ANDE tracks the location of each sample in the chip and uploads its results based on the barcode to the database.

Each chip processes five cheek swabs (A-Chip) or four crime scene samples (I-Chip). In both chips, each sample is processed independently, effectively eliminating the possibility of contamination.



**STAFF TRAINING**

ANDE supports your agency's implementation of Rapid DNA:

- Training of operators on sample collection and performing an ANDE run
- Training of System Administrators
- Most importantly, ANDE will work with you to effectively implement Rapid DNA to have maximum impact in your jurisdiction.

**24/7 TECHNICAL SUPPORT**

Following implementation, and offers world-class technical support, with standard (9-5) and enhanced (24/7) options available.

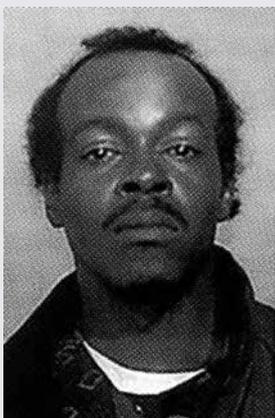


**PRIVACYGUARD™**

ANDE is committed to ensure privacy of your samples and data. PrivacyGuard includes several critical components, including:

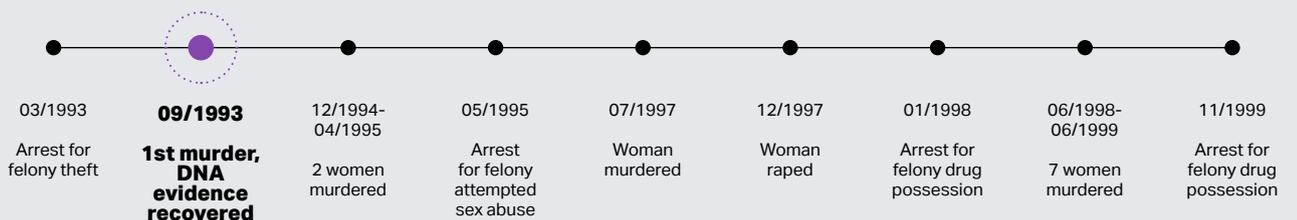
- Access to the instrument is restricted and assigned by your system administrator.
- Each sample is tracked by RFID tag (and/or barcode) and by chip, instrument, and user.
- Samples are irreversibly locked into place, preventing analysis by unauthorized users.
- All data is encrypted.
- Sample DNA is destroyed following the run.
- Only identification data is tested – no ability to generate medical information.

Source: Chicago's Study on Preventable Crimes, 2005



**JUSTICE DELAYED**

Andre Crawford was arrested on March 6, 1993 for attempted sexual abuse. If the state had required him to give a DNA sample during that time, a match could have been obtained with the DNA evidence recovered from his first murder. This could have prevented the 10 murders and one rape he committed afterwards.



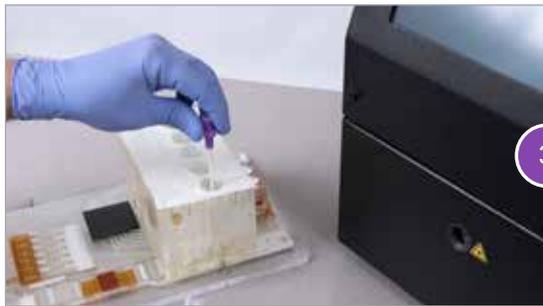
# ANDE IS EASY TO USE



1 Collect sample



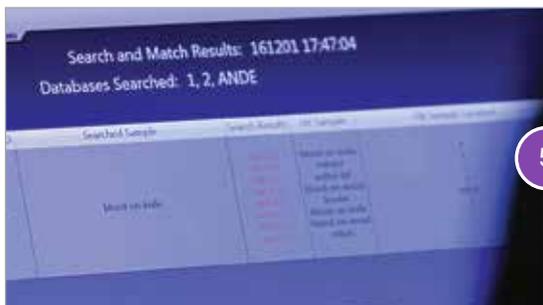
2 Scan sample into ANDE



3 Insert sample into disposable chip



4 Insert chip into ANDE – close door to start



5 DNA Fingerprint created and matched against regional and state databases



## **THE ANDE SUBSCRIPTION PLAN: PROVIDING YOU VALUE AT ANY VOLUME**

We believe the value of our service is in allowing you to generate results, not in owning the instrument. Accordingly, you pay for only the chips used and for the service option chosen.

Major features of the ANDE subscription plan include:

### **No equipment purchase required**

ANDE provides the instrument based on the volume of chips subscribed as an included feature of the service. Additional instruments will be provided as use increases. ANDE continues to own the hardware and software and provides your agency with disposable chips purchased under this agreement.

### **Chips Delivered As Required**

ANDE will deliver chips such that your agency always has a sufficient number in inventory.

### **Standard Maintenance and Support**

You choose your level of support.

### **Upgrades Included:**

ANDE is committed to maintain compliance with national standards, security protocols, and state-of-the-art system reliability and operations. System upgrades are provided at no additional cost.

"This [Rapid DNA] technology will reduce processing time from months to hours, allowing the police to quickly advance investigations and protect the public."

**SENATOR DIANE FEINSTEIN**

Press Release Issued by Senator Hatch, June 15, 2016

"Our commitment to our customers is paramount – we can make their lives better and their work more successful. As a result, our world will be a safer place and evil people will be held accountable for their actions."

**GEORGE HEINRICHS**

CEO, ANDE

## FAQs:

### How can I use ANDE?

- Focus your investigation. You can collect samples at the crime scene and cheek swab samples from suspects. Use ANDE to eliminate individuals or to focus on certain suspects.
- Collect samples at the crime scene and search against your local database. If you do not yet have a local database, ANDE can help you create one.
- Collect samples at the crime scene and search against your state database. This has been done in other states and will likely require collaboration with either your State forensic lab or a senior State official.

### Can I use ANDE results to search against the national DNA database?

Searches of CODIS are currently restricted by FBI rules. Rules to access national databases will likely change as the use of Rapid DNA in criminal investigations becomes routine. In the meantime, since most crime is local, a combination of suspect testing and local, state, and regional database searching should generate hits in a large percentage of cases.

### How does ANDE handle mixtures?

ANDE readily detects mixtures, which are found in 10-30% of crime scene samples. When a mixture is identified and one contributor is known (for example in a sexual assault sample), it is straightforward to separate the two DNA fingerprints. For more complex mixtures, a lab is required for interpretation. ANDE is working on software to do this complex work automatically.

### Can I take ANDE to a crime scene?

Yes, ANDE is mobile and can be used at a crime scene or in a police station.

### What is ANDE testing when it generates a DNA fingerprint?

ANDE was initially developed to generate DNA fingerprints using the 13 sites in the human genome that were defined by the FBI in 1997, termed the "Core 13." ANDE received FBI approval in 2016 by demonstrating that the system-generated DNA fingerprint results with these markers that were at least as good as those generated by a laboratory. Effective January 2017, the FBI expanded to a "Core 20," and ANDE now meets this standard. In fact, ANDE has exceeded the standard by utilizing 27 sites in the human genome. Termed "FlexPlex," this major advance adds two critical capabilities. First, not only does ANDE now test for the 20 FBI sites, it also tests for all sites utilized by major countries worldwide – that means DNA data can be shared much more effectively, an important new tool in the battle against international crime and terrorism. Second, FlexPlex is more effective at determining kinship than any other DNA fingerprinting test, with valuable applications including Immigration and Disaster Victim Identification. Even with all this additional information generated, ANDE still provides actionable results in under two hours.

### How can I get started?

ANDE is available today and we will be glad to discuss implementation in your jurisdiction. Rapid DNA is not a theoretical advance – it is being used by the U.S. Military and by our allies. The technology has already impacted investigations, and Rapid DNA will soon become routine in police agencies across the U.S. By assisting investigations and exonerating the innocent, Rapid DNA has the potential to dramatically improve societal safety. ANDE will work with you to help you make that a reality.



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