

U.S. DEPARTMENT OF JUSTICE  
FEDERAL BUREAU OF INVESTIGATION  
LABORATORY DIVISION

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FBI LABORATORY  
RAPID  
DNA  
CODIS

ISHI  
September 19, 2023

FEDERAL BUREAU OF INVESTIGATION  
LABORATORY DIVISION

**RAPID DNA UPDATE**

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**Rapid DNA Act of 2017**

- Defines "Rapid DNA instruments"
  - "Instrumentation that carries out a fully automated process to derive a DNA analysis from a DNA Sample"
- Authorizes the FBI Director to:
  - Issue Standards and Procedures for the use of Rapid DNA instruments and resulting analyses for CODIS applications
    - Accredited Laboratory – 2020 QAS and NDIS Procedures (reference samples)
    - Booking Stations - issued 9/1/2020
      - Qualifying arrestees

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### DNA Identification Act

- DNA Identification Act of 1994 and its amendments
  - Establishes "CODIS"/NDIS
  - Establishes Quality Structure
    - FBI Quality Assurance Standards (QAS)
    - Accreditation and QAS audit requirements
    - Access and penalties for unauthorized disclosure
  - Rapid DNA Act of 2017 is an amendment to the DNA Identification Act of 1994**
- Analyzing samples under the FBI QAS has been a foundation of DNA result admissibility for investigations since 1998
  - CODIS eligibility**
  - Probable cause determination**
  - Court admissibility**
  - Comparison of forensic unknowns to reference samples, surreptitious samples or other forensic samples
    - Non-CODIS eligible samples such as **suspect, surreptitious, elimination, and victim samples**

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### Rapid DNA Systems – Laboratory Use

- 2 Rapid DNA Systems (**fully automated**) currently approved for **accredited laboratory use on reference sample buccal swabs**
- 2020 FBI Forensic and Database Quality Assurance Standards (QAS) addresses Rapid DNA use for Casework Reference and Database Reference Samples
- Only A-chip (ANDE) and ACE cartridge (Thermo) are included in NDIS approval
  - Reference Sample Buccal Swabs Only**

**Rapid DNA in an Accredited DNA Laboratory**  
The following Rapid DNA Systems are approved for NDIS use by an accredited forensic DNA laboratory for eligible reference mouth swabs.

**DNAScan IC Rapid DNA Analysis System**

Component	Name	Part/Version Number
Rapid DNA Instrument	ANDE IC Instrument	AD23001003
Typing Kit	FastType2	FastType2
Cartridge	ANDE A-Chip (FastType)	AD23001007
System Software	ANDE System Software	2.0.0
Expert System Software	ANDE Expert System	2.0.0

**RapidIT™ ID**

Component	Name	Part/Version Number
Rapid DNA Instrument	Applied Biosystems™ RapidIT™ ID	441901
Typing Kit	GlobalFiler™ Express PCR Amplification Kit	447603
Cartridge	Applied Biosystems™ RapidIT™ ID ACE GlobalFiler™ Express	441901
System Software	RapidIT™ ID System Software	v1.3, v1.1, v1.1.2, v1.3.3
Expert System Software	RapidIT™ ID Expert System Software	v1.0, v1.1

**Resources**  
NDIS Operational Procedures Manual

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### Benefits of Laboratory Use

- Benefits of Integrating Rapid DNA for Casework Reference Samples
  - Streamline workflow for casework reference samples
    - Allows DNA analysts to focus on evidence samples
    - Suspect and elimination samples submitted after the evidence don't disrupt analyst's workflow
    - DNA data/profiles are quickly available for comparison

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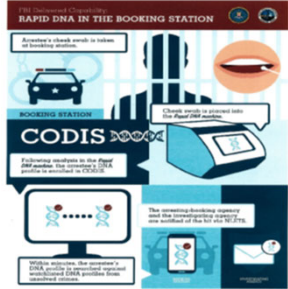
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### Rapid DNA Implementation at the Booking Station

- A mouth swab is taken after a qualifying arrestee is identified via fingerprints
- A CODIS DNA profile is automatically developed by the Rapid DNA Booking System
- The qualifying arrestee's DNA profile is immediately enrolled in the State and National DNA Database
- DNA Profile is immediately searched against the DNA Index of Special Concern (unsolved "DNA Watchlist")
  - Arrestee profile searched against all other forensic profiles within 24 hours
- Hits to DNA Index of Special Concern are immediately disseminated via Nlets



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### Rapid DNA Booking Station Implementation Timeline

- First Approval to Operate Rapid DNA issued to Louisiana on April 27, 2022
  - Second ATO issued to Florida on December 9, 2022
  - Third ATO issued to the FBI on May 3, 2023
- The Louisiana State Police Crime Laboratory went online with a single booking station on August 2, 2022
  - 3 hits within the first 3 weeks
    - 1 NDIS hit
    - 2 DISC hits



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### Benefits Arrestee Collection and Booking Station Rapid DNA

- Benefits of Rapid DNA at the Booking Station
  - Improves sample collection compliance
    - Prevents missed collections
    - Prevents duplicate collection of samples already in the database
    - Allows for collection of qualifying arrestees only
  - DNA results loaded into CODIS while arrestee is in custody
    - Immediate searching of high interest unsolved crimes
    - Searching of all crimes within 24 hours
    - Quick investigative leads
  - Release of Hit information faster due to qualifying offense and confirmation of identity at time of collection
- Resource Needs
  - Requires upgrading and integrating Rapid DNA into electronic booking process and state criminal history database.

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### CJIS APB Rapid DNA Task Force

Draft Forensic Rapid DNA Requirements for CODIS – **Highlights**

- LE agency program/location under CODIS laboratory scope of accreditation
  - Partner Agency
  - MOU defining roles and responsibilities
  - Transfer data over secure network to CODIS laboratory
  - NDIS approved devices only
  - Training requirements
  - Evidence submission requirements
- CODIS eligibility
- **Submission of "A-swab" to Laboratory**
  - Submission of critical case documentation with Rapid DNA data to CODIS laboratory
  - SWGDAM requirement for Standards
  - NDIS Board requirements for approvals

*Rapid DNA Instruments are not as sensitive as Laboratory analysis*

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### Path for Forensic Rapid DNA Use for CODIS

The FBI envisions the development of a crime scene Rapid DNA program that is covered under the accreditation umbrella of a CODIS laboratory.

Provides the quality structure needed to:

- Increase the capacity of CODIS lab (remote processing)
- Provide laboratory reach back capability needed for crime scene samples
- Provide ability to search CODIS
- Address the Accreditation and QAS requirements of forensic labs as outlined in the DNA Identification Act

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### Path for Forensic Rapid DNA Use for CODIS

CJIS Advisory Policy Board (APB) Rapid DNA Task Force

- Develop Law Enforcement Agency requirements for use of crime scene Rapid DNA and CODIS

**FBI Rapid DNA Crime Scene Task Force – Technology Advancement Task Group**

- Published Rapid DNA for crime scene use: Enhancements and data needed to consider use on forensic evidence for State and National DNA Databasing – An agreed position statement by ENFSI, SWGDAM and the Rapid DNA Crime Scene Technology Advancement Task Group (FSI-Genetics 48 (2020) 102349)
  - Identified five major areas that must be addressed before Rapid DNA instruments can be tested and considered for the analysis of forensic evidence for State and National databasing purposes.
- Coordinate multi-laboratory study on the enhanced crime scene Rapid DNA technology and make recommendations to SWGDAM based on the results of the study

**SWGDAM - Casework Expert Systems Working Group and Rapid DNA Committee**

- Develop Guidance and Standards for use of Expert Systems on single source crime scene samples in an accredited laboratory
- Develop Quality Assurance Standards for crime scene Rapid DNA use

**NDIS Board**

- Approve enhanced Rapid DNA STR typing kits for use on crime scene samples
  - For use with Modified Rapid DNA analysis
- Approve crime scene Rapid DNA System(s) for use on single source crime scene samples

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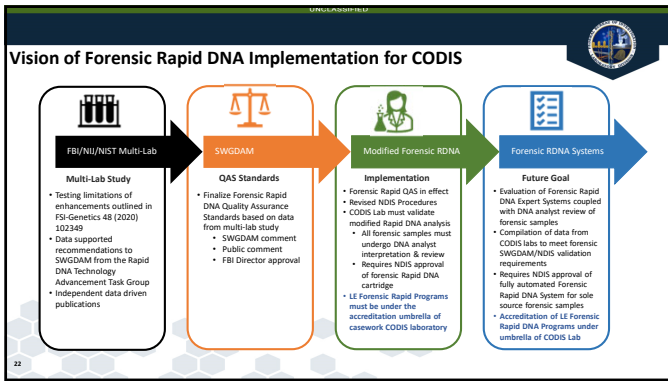
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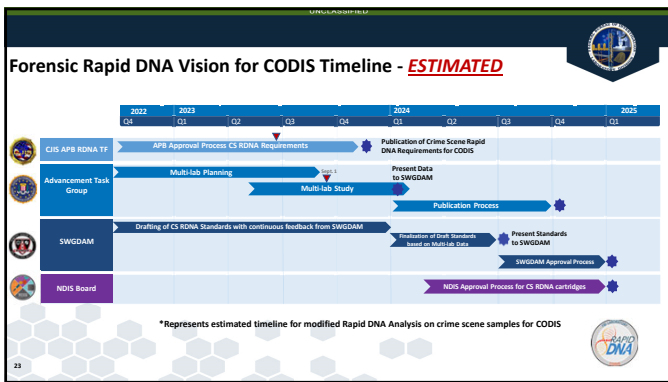
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### Planning

- It's time to start Rapid DNA planning!
  - Budgets
  - Concepts
  - Validation of modified forensic Rapid DNA
  - Accreditation
    - Scope expansion
- Forensic Rapid DNA is another tool in our forensic DNA toolbox
- More details coming soon
  - CIS APB CS Rapid DNA Requirements in 2023
  - Public comment on Draft Forensic Rapid DNA Standards in 2024

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**• ISHI Workshop on Thursday September 21, 2023**

- **Preparing for Crime Scene Rapid DNA and CODIS**
  - The primary goal of this workshop is to begin preparing CODIS laboratories for the FBI's future vision and implementation of crime scene Rapid DNA for CODIS enrollment. It is estimated that national crime scene Rapid DNA Quality Assurance Standards may be available as early as the first quarter of 2025. Presentation topics include progress on the FBI's vision, expanding a CODIS Laboratory's scope of accreditation to locations outside the laboratory to include partner agencies, lessons learned from non-CODIS crime scene applications, and important concepts regarding future national crime scene Rapid DNA Standards and Procedures. The workshop will conclude with a panel discussion with all presenters from the workshop.

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**• IACP Workshop: Tuesday October 17, 2023, 2:00 – 3:00**

- **Law Enforcement Rapid DNA: Booking Station Implementation, Use, and Policies**
  - Presenters will provide information about State and Federal Rapid DNA (R-DNA) Booking Station Implementation (CODIS application) and crime scene Rapid DNA use (non-CODIS application). There will also be a presentation on the FBI's Crime Scene Rapid DNA Task Force that was established in 2018. The presentations will be followed by a panel discussion and a question-and-answer session on policy, best practices, and steps forward in the use of Rapid DNA technology by law enforcement outside of crime laboratories.

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