

Frequently Asked Questions on CODIS and NDIS

Please note that these questions and responses refer specifically to the National DNA Index System; state DNA databases operate in accordance with the applicable state law, and questions concerning the operation of a particular state DNA database should be directed to that state.

CODIS

1. What is CODIS?

CODIS is the acronym for the Combined DNA Index System and is the generic term used to describe the FBI's program of support for criminal justice DNA databases as well as the software used to run these databases. The National DNA Index System or NDIS is considered one part of CODIS, the national level, containing the DNA profiles contributed by federal, state, and local participating forensic laboratories.

CODIS DNA Databases

2. How do these DNA databases using CODIS work?

For example, in the case of a sexual assault where an evidence kit is collected from the victim, a DNA profile of the suspected perpetrator is developed from the swabs in the kit. The forensic unknown profile attributed to the suspected perpetrator is searched against their state database of convicted offender and arrestee profiles (contained within the Convicted Offender and Arrestee Indices, if that state is authorized to collect and database DNA samples from arrestees). If there is a candidate match in the Convicted Offender or Arrestee Index, the laboratory will go through procedures to confirm the match and, if confirmed, will obtain the identity of the suspected perpetrator. The DNA profile from the evidence is also searched against the state's database of crime scene DNA profiles called the Forensic Index. If there is a candidate match in the Forensic Index, the laboratory goes through the confirmation procedures and, if confirmed, the match will have linked two or more crimes together. The law enforcement agencies involved in these cases are then able to share the information obtained on each of the cases and possibly develop additional leads.

3. What happens after there is a hit in the DNA database?

CODIS was designed to compare a target DNA record against the DNA records contained in the database. Once a match is identified by the CODIS software, the laboratories involved in the match exchange information to verify the match and establish coordination between their two agencies. The match of the forensic DNA record against the DNA record in the database may be used to establish probable cause to obtain an evidentiary DNA sample from the suspect. The law enforcement agency can use this documentation to obtain a court order authorizing the collection of a known biological reference sample from the offender. The casework laboratory can then perform a DNA analysis on the known biological sample so that this analysis can be presented as evidence in court.

4. How do laboratories count CODIS hits?

The procedure used for counting hits gives credit to those laboratories involved in analyzing and entering the relevant DNA records into CODIS. The system's hits are tracked as either an offender hit (where the identity of a potential suspect is generated) or as a forensic hit (where the DNA profiles obtained from two or more crime scenes are linked but the source of these profiles remains unknown). These hits are counted at the state and national levels. CODIS was established by Congress to assist in providing investigative leads for law enforcement in cases where no suspect has yet been identified; therefore a CODIS hit provides new investigative information on these cases. The hits are reported as "Investigations Aided," thus enabling the FBI to measure the effectiveness of both the CODIS software and National DNA Index System; see NDIS statistics by state for more information.

5. Do laboratories track conviction rates based on the CODIS hit?

Laboratories that participate in the National DNA Index System are not required to track local or state conviction rates based on CODIS hits. As discussed above, CODIS was designed to assist law enforcement by providing potential investigative information in those cases in which crime scene evidence has yielded a DNA profile but no suspect has been identified. Once the hit information is provided to law enforcement, neither the FBI nor the local laboratory is typically notified as to the resolution of the investigation-aided case.

6. Why do laboratories only send out the hit notifications to the law enforcement contributor?

A law enforcement agency sends the crime scene evidence to the forensic DNA laboratory for analysis and production of a DNA record. At the time of the hit, there may not be an open or active investigation or other judicial proceeding and, therefore, the submitting law enforcement agency becomes the laboratory's point of contact for hit notification.

7. What DNA information is stored in these databases?

The DNA profile, also known as a DNA type, is stored in the database. For Forensic STR DNA analysis, the DNA profile consists of one or two alleles at the 20 CODIS Core Loci.

8. Is any personal information relating to the convicted offenders, arrestees, or detainees stored in these DNA databases?

No names or other personal identifiers of the offenders, arrestees, or detainees are stored using the CODIS software (for missing persons records stored at NDIS, available metadata, such as the date of birth, may be included.) Only the following information is stored and can be searched at the national level:

1. The DNA profile—the set of identification characteristics or numerical representation at each of the various loci analyzed;
2. The Agency Identifier of the agency submitting the DNA profile;
3. The Specimen Identification Number—generally a number assigned sequentially at the time of sample collection. This number does **not** correspond to the individual's social security number, criminal history identifier, or correctional facility identifier; and
4. The DNA laboratory personnel associated with a DNA profile analysis.

9. What precautions are taken for safeguarding the information in these DNA databases?

The computer terminals/servers containing the CODIS software are located in physically secure space. Access to these computers is limited to only those individuals authorized to use CODIS and approved by the FBI. Communications between participating federal, state, and local laboratories occur over a wide area network accessible to only criminal justice agencies approved by the FBI.

Pursuant to federal law (the DNA Identification Act of 1994), DNA data is confidential. Access is restricted to criminal justice agencies for law enforcement identification purposes. Defendants are also permitted access to the samples and analyses performed in connection with their cases. If all personally identifiable information is removed, DNA profile information may be accessed by criminal justice agencies for a population statistics database, for identification research and protocol development purposes, or for quality control purposes. The unauthorized disclosure of DNA data in the National DNA database is subject to a criminal penalty not to exceed \$250,000.

The National DNA Index System

10. What is the National DNA Index System (NDIS)?

NDIS is the acronym for the “National DNA Index System” and is one part of CODIS—the national level—containing the DNA profiles contributed by federal, state, and local participating forensic laboratories. NDIS was implemented in October 1998. All 50 states, the District of Columbia, the federal government, the U.S. Army Criminal Investigation Laboratory, and Puerto Rico participate in NDIS.

The DNA Identification Act of 1994 (42 U.S.C. §14132) authorized the establishment of this National DNA Index. The DNA Act specifies the categories of data that may be maintained in NDIS (convicted offenders, arrestees, legal, detainees, forensic [casework], unidentified human remains, missing persons, and relatives of missing persons) as well as requirements for participating laboratories relating to quality assurance, privacy, and expungement.

11. What are the specific requirements for a state’s participation in the National DNA Index?

The DNA Identification Act (42 U.S.C. §14132(b)) specifies the requirements for participation in the National DNA Index System (NDIS) and the DNA data that may be maintained at NDIS (convicted offender, arrestees, legal, detainees, forensic [casework], unidentified human remains, missing persons, and relatives of missing persons). The DNA Identification Act requires the following:

- That the laboratories participating in the National DNA Index comply with the Quality Assurance Standards issued by the FBI Director;
- That the laboratories submitting the DNA records are accredited by a nonprofit professional association of persons actively engaged in forensic science that is nationally recognized within the forensic science community;
- That the laboratories submitting the DNA records undergo an external audit every two years to demonstrate compliance with the FBI Director’s Quality Assurance Standards;
- That the laboratories are federal, state, or local criminal justice agencies (“or the Secretary of Defense in accordance with section 1565 of title 10, United States Code”); and
- That access to the DNA samples and records is limited in accordance with federal law.

States seeking to participate in NDIS sign a Memorandum of Understanding with the FBI Laboratory documenting their agreement to abide by the DNA Identification Act requirements as well as record-keeping and other operational procedures governing the uploading of DNA data, expungements, CODIS users, audits, etc.

12. Are there approved accrediting agencies?

Federal law requires that laboratories submitting DNA data to NDIS are accredited by a nonprofit professional association of persons actively engaged in forensic science that is nationally recognized within the forensic science community. The following entities have been determined to satisfy this definition: the American Association for Laboratory Accreditation (A2LA), and ANSI-ASQ National Accreditation Board (ANAB: The American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) and Forensic Quality Services (FQS), approved separately as accrediting agencies are now part of ANAB).

13. What are the access requirements for the DNA samples and records?

- A. The DNA Identification Act, §14132(b)(3), specifies the access requirements for the DNA samples and records “maintained by federal, state, and local criminal justice agencies (or the Secretary of Defense in accordance with section 1565 of title 10, United States Code),” and “allows disclosure of stored DNA samples and DNA analyses only:
 - to criminal justice agencies for law enforcement identification purposes;
- B. in judicial proceedings, if otherwise admissible pursuant to applicable statutes or rules;
- C. for criminal defense purposes, to a defendant, who shall have access to samples and analyses performed in connection with the case in which such defendant is charged; or
- D. if personally identifiable information is removed, for a population statistics database, for identification research and protocol development purposes, or for quality control purposes.”

14. What if a state’s law on access to the DNA samples and profiles is different from the federal provisions?

If a state has signed the Memorandum of Understanding with the FBI to participate in NDIS, that state has agreed to comply with the Federal DNA Identification Act, including the limited access requirements. To the extent that these access and disclosure provisions of the Federal DNA Act conflict with a state’s DNA database law, the state has agreed to the provisions of the Federal DNA Act superseding the state law for purposes of NDIS participation. That is, if a state DNA database law permits access to the DNA samples and analyses in the state DNA database for purposes not contained in the Federal DNA Act (i.e., humanitarian purposes), and that state is participating in NDIS, then the state has agreed to comply with the more restrictive federal access provisions.

15. Is the defendant entitled to access the DNA samples and analyses of other individuals?

Under the DNA Identification Act, the defendant may have access to the samples and analyses performed in connection with his or her case for criminal defense purposes (42 U.S.C. §14132(b)(3)(C)). This provision permits access to the results of any analyses of samples taken from the defendant and any analyses developed from the crime scene evidence in the case for which the defendant is charged. This provision does not authorize access for the defendant to samples and analyses that were not developed in connection with his or her case (such as other offenders’ DNA profiles). Nor does this provision in the Federal DNA Act authorize access for the defendant to all of the DNA records in the National DNA Index System.

16. Are there any sanctions for states that participate in the National DNA Index System if the state does not comply with the Federal DNA Identification Act?

Under the Federal DNA Identification Act, access to the National DNA Index System (NDIS) “is subject to cancellation if the quality control and privacy requirements described in subsection (b) are not met” (42 U.S.C. §14132(c)). This means that if an NDIS participating laboratory or state does not comply with the FBI Director’s *Quality Assurance Standards for Forensic DNA Testing or DNA Databasing Laboratories* and/or the limited access provisions of the Federal DNA Act, that laboratory or state may lose its ability to search, store, and maintain its DNA records in NDIS.

DNA Data Requirements

17. What DNA data is accepted at NDIS?

Currently, DNA data generated through PCR Short Tandem Repeat (STR) technology, Y chromosome STR (Y STR) technology, and Mitochondrial DNA (mtDNA) technology are accepted at NDIS.

Y STR and mtDNA data are only searched with the missing person-related indexes.

The National DNA Index no longer searches DNA data developed using restriction fragment length polymorphism (RFLP) technology.

18. Are there specific data requirements for the DNA records submitted to NDIS?

Yes. There are several requirements for the DNA data submitted to NDIS:

1. The DNA data must be generated in accordance with the FBI Director's Quality Assurance Standards;
2. The DNA data must be generated by a laboratory that is accredited by an approved accrediting agency;
3. The DNA data must be generated by a laboratory that undergoes an external audit every two years to demonstrate compliance with the FBI Director's Quality Assurance Standards;
4. The DNA data must be one of the categories of data acceptable at NDIS, such as convicted offender, arrestee, detainee, legal, forensic (casework), unidentified human remains, missing person, or a relative of missing person;
5. The DNA data must meet minimum CODIS Core Loci requirements for the specimen category;
6. The DNA PCR data must be generated using PCR accepted kits; and
7. Participating laboratories must have and follow expungement procedures in accordance with federal law.

19. What are the CODIS core loci?

Effective January 1, 2017, the CODIS Core Loci include the following 20 loci:

- CSF1PO
- FGA
- THO1
- TPOX
- VWA
- D3S1358
- D5S818
- D7S820
- D8S1179
- D13S317
- D16S539
- D18S51
- D21S11
- D1S1656
- D2S441
- D2S1338
- D10S1248
- D12S391
- D19S433
- D22S1045

The Original CODIS Core Loci, required from October 1998 until December 31, 2016, included the following 13 loci:

- CSF1PO
- FGA
- THO1
- TPOX
- VWA
- D3S1358
- D5S818
- D7S820
- D8S1179
- D13S317
- D16S539
- D18S51
- D21S11

20. What are the minimum loci requirements for the STR DNA data submitted to NDIS?

The minimum CODIS Core Loci required for submission of DNA data to NDIS vary by specimen category. Generally, the CODIS Core Loci are required for submission of convicted offender, arrestee, detainee, and legal profiles. The CODIS Core Loci and Amelogenin are required for relatives of missing person profiles.

All CODIS Core Loci must be attempted for other specimen categories with the following limited exceptions:

- For forensic DNA profiles, all CODIS Core Loci must be attempted but at least 8 of the original CODIS Core Loci combined with a match rarity of at least one in ten million are required for submission to and searching at NDIS.
- For Missing Person and Unidentified Human Remains, all CODIS Core Loci must be attempted.

21. What are the requirements for submission of mtDNA data to NDIS?

Hypervariable region I ("HV1"; positions 16024-16365) and hypervariable region II ("HV2"; positions 73-340) are required for the submission of mtDNA data to NDIS.

22. Are there additional requirements for forensic (casework) DNA records?

Forensic (casework) DNA samples are considered crime scene evidence. To be classified as a forensic unknown record, the DNA sample must be attributed to the putative perpetrator. Items taken directly from the suspect are considered deduced suspect samples, not forensic unknowns, and are not eligible for upload to NDIS.

23. Are there any additional requirements for missing persons-related DNA records?

For missing person, relatives of missing person, and unidentified human (remains) samples, additional DNA technologies (such as mtDNA, Y STR) should always be considered, as appropriate. For purposes of this discussion, "as appropriate" means if relevant. For example, if the missing person is a female, then Y STR technology would not be relevant. The lack of an additional technology will not render a sample ineligible for entry into CODIS but use of an additional appropriate technology will ensure the most robust search possible.

Additionally, creation of a Pedigree Tree for the missing persons-related DNA record is strongly encouraged. A Pedigree Tree is a graphical representation of the relationship of the missing person with two or more relatives. The more robust Pedigree Trees have at least one relative that is a biological mother, biological father, or biological child of the missing person.

24. What are the expungement requirements?

Laboratories participating in the National DNA Index are required to expunge qualifying profiles from the National Index under the following circumstances:

1. For convicted offenders, if the participating laboratory receives a certified copy of a final court order documenting the conviction has been overturned; and
2. For arrestees, if the participating laboratory receives a certified copy of a final court order documenting the charge has been dismissed, resulted in an acquittal, or no charges have been brought within the applicable time period.

NDIS Searches

25. How is the National DNA Index System (NDIS) searched?

Currently, the Forensic Unknown Index is searched against the Offender Indices at high stringency with one mismatch. High stringency is defined as a search that requires all alleles to match between the two DNA profiles.

DNA profiles obtained from crime scene evidence may also be partially degraded and/or contain DNA from more than one individual and as a result, may contain fewer than the required CODIS Core Loci. These DNA profiles are maintained in the Forensic Partial and Forensic Mixture Indices, respectively. The Forensic Partial and Forensic Mixture Indices are searched against the Offender Indices at moderate stringency—a search that requires all alleles to match, but the two DNA profiles can contain a different number of alleles.

These high and moderate stringency searches are designed to accommodate the fact that different typing kits may be used in generating the DNA profile, the DNA sample from the crime scene evidence may be degraded, or multiple individuals may be represented in the sample. They assist in facilitating the identification of high quality candidate matches between the crime scene and offender DNA profiles.

26. Are there any plans to change how NDIS is searched?

The FBI consistently researches ways to improve how NDIS is searched.

On May 1, 2016, the FBI implemented an enhanced search strategy at the national level (NDIS). As noted above, because crime scene samples may be partially degraded and/or contain DNA from more than one individual, a forensic DNA sample may not yield interpretable results at all of the CODIS Core Loci. Historically, a forensic profile required a minimum of 10 of the original CODIS Core Loci to be searched at NDIS. The new searching strategy is designed to search more efficiently and use all information from the DNA profile by considering both the number of DNA loci present and the calculated match rarity of a DNA profile.

Effective May 1, 2016, the NDIS Operational Procedures authorized the uploading to and searching at NDIS, of a forensic DNA profile having a minimum of 8 of the original CODIS Core Loci combined with a match rarity of at least one in ten million. Using this new threshold, profiles never searched before at the National level are now eligible. This shift in scoring will result in many new matches, and the matches will be of high quality. Some profiles that do not meet the new rarity requirement will be removed from NDIS, however the high quality matches will allow labs to process potential matches quicker and submit those leads to law enforcement agencies.

New searching enhancements will be implemented with the deployment of CODIS 8.0 in late 2018 and early 2019. These new searching enhancements will build on the 2016 enhancements mentioned above and will allow some of the unsolved profiles removed in 2016 to be reentered into NDIS. The new capabilities will also assist in searching and matching challenging forensic DNA profiles from past and future cases.

Partial Matches and Familial Searches

27. Is searching at moderate stringency a form of familial searching?

No. Conducting a moderate stringency search is an effective means of searching forensic profiles from crime scene evidence that contains DNA from more than one individual (a forensic mixture), forensic DNA that is partially degraded, or to accommodate the use of different DNA typing kits by different laboratories. This should not be confused with attempting to search for similar, but not matching, profiles already stored within the National DNA Index System, a type of database searching the FBI does not conduct.

28. What is a partial match at NDIS?

A: Occasionally a partial match between a forensic profile and an offender profile is observed during a routine NDIS database search. The FBI defines a partial match as a moderate stringency candidate match between two single source profiles having at each locus all of the alleles of one sample represented in the other sample (see illustration below). A “partial match” is not an exact match of the two profiles. When evaluating whether a candidate match is viable and should be processed through to confirmation, a forensic scientist may discover that the candidate offender profile is, in fact, excluded as the possible source of the profile obtained from crime scene evidence. Because of a similarity in alleles between the forensic unknown and the candidate offender profile, the scientist may conclude that a close biological relative of the offender may be the source of the forensic unknown.

The following illustrates a hypothetical partial match as seen in the Scientific Working Group on DNA Analysis Methods (SWGDM) Recommendations to the FBI Director on the “Interim Plan for the Release of Information in the Event of a ‘Partial Match’ at NDIS” at http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/archive/oct2009/standard_guidelines/swgdam.html (with correction at <http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/communications/swgdamv3/swgdam.html>).

Locus	Forensic Unknown	Candidate Offender	Match Stringency
D8S1179	13	13, 14	Moderate
D21S11	28, 31.2	28, 31.2	High
D7S820	12	10, 12	Moderate
D7S820	10, 12	10	Moderate
D3S1358	15, 17	15, 17	High
TH01	8	7, 8	Moderate
D13S3179	9, 12	9	Moderate
D16S539	11, 12	12	Moderate
VWA	17	15, 17	Moderate
TPOX	8, 11	8	Moderate
D18S51	24	16, 24	Moderate
D5S818	9, 12	12	Moderate

FGA	24, 25	24, 25	High
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29. Can partial match information at NDIS be disclosed?

Since a partial match is not an exact profile match to an offender profile and therefore cannot be subject to NDIS-defined confirmation procedures, the FBI has authorized procedures for the release of partial match information. NDIS laboratories that identify a partial match resulting from an NDIS search and wish to identify the offender profile should refer to Appendix G of the NDIS Operational Procedures Manual and contact the FBI's CODIS Unit for further information.

30. Is there any guidance on how to address these partial matches?

At the FBI's request, the Scientific Working Group on DNA Analysis Methods (SWGDM) reviewed the scientific issues relating to partial matches and developed recommendations to assist in the evaluation of this information. Those recommendations are available in Forensic Science Communications at http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/archive/oct2009/standard_guidelines/swgdam.html (with correction at <http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/communications/swgdamv3/swgdam.html>).

31. How successful are partial matches at locating potential suspects?

As explained in SWGDAM's recommendations "Moderate stringency CODIS matches, in general, have very low efficiency in locating true relatives in offender databases. There is little useful probative value in the majority of partial matches using the current CODIS searching rules and algorithms. There are two main reasons for this: (1) true siblings will very rarely share alleles at all CODIS core loci; (2) as offender DNA databases get large, the number of unrelated people that do share at least one allele at all loci increases very rapidly. The original intent for allowing moderate stringency CODIS searches was the realization and acknowledgment that crime scene profiles often may be partially degraded and/or contain DNA from more than one contributor. Additionally, different primer sets may have been used between profiles. Allowing the detection of partial matches can help accommodate these two scenarios and allow the ultimate detection of full, high-stringency matches that might otherwise not have been found." The Committee's complete list of recommendations is available at http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/archive/oct2009/standard_guidelines/swgdam.html (with correction at <http://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/communications/swgdamv3/swgdam.html>).

32. Are partial matches the same as familial searches?

No. A partial match, as indicated above, is the spontaneous product of a routine database search where a candidate offender profile is not identical to the forensic profile but because of a similarity in the number of alleles shared between the forensic profile and the candidate profile, the offender may be a close biological relative of the source of the forensic profile. Familial searching is an intentional or deliberate search of the database conducted after a routine search for the purpose of potentially identifying close biological relatives of the unknown forensic sample associated with the crime scene profile.

33. Are familial searches performed at NDIS?

No, familial searching is not currently performed at NDIS. See also Familial Searching and Federal Register Vol. 73, No. 238 (December 10, 2008 at page 74937).

34. Are familial searches performed at the state level?

Each jurisdiction must determine whether or not they are authorized to perform familial searching, and if so, the criteria and procedures governing their use of this searching process. The FBI does not regulate this type of search at the state level. Arkansas, California, Colorado, Florida, Michigan, Texas, Utah, Virginia, Wisconsin and Wyoming currently perform familial searching (see, for example, policies/procedures available at http://ag.ca.gov/cms_attachments/press/pdfs/n1548_08-bfs-01.pdf and Colorado Bureau of Investigation - DNA Familial Search Policy). Please note that these jurisdictions use specially-designed software (not CODIS software) to perform familial searching of their databases. Two jurisdictions, Maryland (§ 2-506) and the District of Columbia (§ 22-4151), have passed laws specifically prohibiting familial searching. These laws are available at <http://law.justia.com/codes/maryland/2010/public-safety/title-2/subtitle-5/2-506/> and <http://law.justia.com/codes/district-of-columbia/2012/division-iv/title-22/subtitle-iii-a/chapter-41b/section-22-4151.html>, respectively.

Additional information about familial searching can be found on the CODIS homepage.

Expert Systems

35. What are Expert Systems and are they approved for use in generating DNA data for NDIS?

An Expert System is a software program or set of software programs that interprets the data generated from a DNA analysis instrument (or platform) in accordance with laboratory-defined quality assurance rules and accurately identifies the data that does and does not satisfy such rules. Portions of the technical review required by the FBI Director's Quality Assurance Standards may be accomplished by an NDIS-approved and internally-validated Expert System.

The following Expert Systems are approved for use on offender samples and known reference samples at NDIS. There are no Expert Systems approved for use on casework (forensic unknown) samples.

NDIS-Approved Expert Systems

- GeneMapper®/ID
- GeneMapper®/ID-X
- GeneMarker® HID
- i-Cubed™
- OSIRIS
- TrueAllele™

If you have a question concerning a specific Expert System, please contact the FBI's CODIS Unit.

PCR STR Kits

36. What are the PCR kits accepted for use at NDIS?

The following PCR kits are accepted for use at NDIS and contain the 20 CODIS Core Loci required effective January 1, 2017 (listed by manufacturer):

- AB GlobalFiler™ Express (Part Numbers 4474665 & 4476609)
- AB GlobalFiler™ (Part Number 4476135)
- Promega PowerPlex® Fusion (Catalog numbers DC 2402/2408)
- Promega PowerPlex® Fusion 6C (Catalog numbers DC 2705/2720)
- QIAGEN Investigator 24plex QS (Catalog numbers 382415/382417)
- QIAGEN Investigator 24plex GO! (Catalog numbers 382426/382428)
- Thermo Fisher Scientific VeriFiler Express™ (Catalog Numbers A32014, A32070, A33032)
- Verogen ForenSeq™ DNA Signature Prep Kit (TG-450-1001/TG-450-1002) (see NDIS Procedures for additional information)

Following are the most frequently used PCR kits for the Original CODIS Core Loci and CODIS Core Loci accepted at NDIS (listed by manufacturer):

- Applied Biosystems (AB) AmpFISTR®Profiler Plus® (Part Number 4303326)
- AB AmpFISTR®COfiler® (Part Number 4305246)
- AB AmpFISTR®Profiler Plus® and AmpFISTR®COfiler® (Part Number 4305979)
- AB AmpFISTR®Profiler Plus®ID (Part Number 4330284)
- AB AmpFISTR®Profiler Plus®ID and AmpFISTR®COfiler® (Part Number 4330621)
- AB AmpFISTR®Identifiler® (Part Number 4322288)
- AB AmpFISTR®Identifiler® Direct (Part Number 4408580)
- AB AmpFISTR®Identifiler® Plus (Part Number 4427368)
- Promega PowerPlex®1.1 (Catalog numbers DC 6091/6090)
- Promega PowerPlex®1.2 (Catalog numbers DC 6101/6100)
- Promega PowerPlex®2.1 (Catalog numbers DC 6471/6470)
- Promega PowerPlex®16 (Catalog numbers DC 6531/6530)
- Promega PowerPlex®16 BIO (Catalog numbers DC 6541/6540)
- Promega PowerPlex®16 HS (Catalog numbers DC 2100/2101)
- Promega PowerPlex®18 D (Catalog numbers DC 1802/1808)
- Promega PowerPlex® Fusion (Catalog numbers DC 2402/2408)
- Promega PowerPlex® Fusion 6C (Catalog numbers DC 2705/2720/2780)
- AB AmpFISTR® MiniFiler™ (Part Number 4373872)
- AB AmpFISTR® Yfiler® (Part Number 4373872)
- AB AmpFISTR® Yfiler Plus® (Catalog Numbers 4484678 and 4482730)
- Promega Powerplex® Y (Catalog numbers 6760/6761)
- Promega Powerplex® Y23 (Catalog numbers DC2305/DC2320)
- AB GlobalFiler™ Express (Part Numbers 4474665 & 4476609)
- AB GlobalFiler™ (Part Number 4476135)
- QIAGEN Investigator 24plex QS (Catalog numbers 382415/382417)
- QIAGEN Investigator 24plex GO! (Catalog numbers 382426/382428)
- Thermo Fisher Scientific VeriFiler Express™ (Catalog Numbers A32014, A32070, A33032)
- Verogen ForenSeq™ DNA Signature Prep Kit (TG-450-1001/TG-450-1002) (see NDIS Procedures for additional information)
- Promega PowerSeq™ CRM Nested System (Catalog # AX5810) (see NDIS Procedures for additional information)
- Thermo Fisher Scientific Applied Biosystems™ Precision ID mtDNA Whole Genome Panel (Catalog Number A30938) mtDNA control region data is approved for NDIS

If you have a question concerning a specific PCR kit, please contact the FBI's CODIS Unit.

37. What is the process for PCR kits, loci, and Expert Systems to be approved for use at NDIS?

Laboratories that participate in the National DNA Index and who have validated the kits, loci, or Expert Systems in their facilities may request that the FBI approve the kits, loci, or Expert Systems. The validation data and other supporting documentation must accompany the request.

International Searches

38. How are international DNA databases searched?

Requests for a search of an international DNA database should be directed to your state CODIS administrator. The state administrator will forward the request to their state liaison Interpol contact. Those requesting an international search must use the Interpol DNA Profile Search Request Form available at <http://www.interpol.int/INTERPOL-expertise/Forensics/DNA>.

39. Can the National DNA Index System be searched by international agencies?

An international law enforcement agency may submit a request for a search of the National DNA Index either through the FBI's legal attaché responsible for that jurisdiction or through Interpol. Requests for such a search will be reviewed by the NDIS Custodian to ensure compliance with the Federal DNA Identification Act (criminal justice agency status, authorized specimen category, and participation in quality assurance program) as well as the inclusion of a sufficient number of CODIS Core Loci for effective searching.

Outsourcing Offender/Arrestee or Casework Samples

40. Are there specific requirements for outsourcing offender/arrestee or casework samples?

Requirements for the outsourcing of DNA samples are contained in Standard 17 of the *Quality Assurance Standards for Forensic DNA Testing and DNA Databasing Laboratories*. For law enforcement agencies seeking to outsource offender and/or casework samples, the technical specifications of the outsourcing agreement must have the prior approval of the technical leader of the NDIS participating laboratory that will be entering that DNA data into CODIS. At a minimum, the outsourced laboratory must follow the FBI's *Quality Assurance Standards* and be accredited.

Standard 17 of the *Quality Assurance Standards* also requires the completion of an on-site visit of the vendor laboratory prior to the beginning of the outsourced analyses and a technical review of the outsourced DNA records by the NDIS participating laboratory. Please refer to the FBI's *Quality Assurance Standards for Forensic DNA Testing and DNA Databasing Laboratories* for additional information concerning the use of contract employees to perform the technical review of DNA records.

Quality Assurance Standards

41. What are the Quality Assurance Standards?

Compliance with the Quality Assurance Standards (QAS) issued by the FBI Director is required by federal law in order for a laboratory to participate in and contribute DNA records to the National DNA Index System.

The QAS describe the minimum standards for a laboratory's quality program if performing forensic DNA analysis and/or databasing. The minimum standards cover the following areas: organization, personnel, facilities, evidence or sample control, validation, analytical procedures, equipment calibration and maintenance, reports, review, proficiency testing, corrective action, audits, safety, and outsourcing. For example, the Standards require that DNA examiners undergo external proficiency testing on a semiannual basis.

42. Do the approved accrediting agencies use the Quality Assurance Standards?

The approved accrediting agencies use the FBI's Quality Assurance Standards when performing audits of forensic DNA and databasing laboratories.

43. What is the most recent version of the Quality Assurance Standards?

The Quality Assurance Standards were revised in 2020 and the revisions were effective July 1, 2020. An addendum to the QAS relating to the COVID-19 national emergency took effect on July 1, 2020. Links to the Quality Assurance Standards and Audit Documents can be found on the CODIS homepage.

For progress updates on Rapid DNA, as the FBI works to establish the proper foundation for using this technology through validation, guidelines, training, etc., please see the Rapid DNA Analysis page.

National Missing Person Program

44. How is an individual identified using the DNA from the family of a missing person?

The DNA from close relatives can help in establishing a DNA profile for the missing person. DNA is passed from parents to their children so the most beneficial samples for this purpose are those from a biological mother, father, brothers, sisters, or children. In situations where samples from children of a missing parent are collected, the spouse or parent in common should also be considered for collection in order to determine what portion of the child's DNA is in common with the missing parent. The samples collected from relatives are sent to an accredited forensic laboratory for DNA testing. The DNA profiles obtained from the relatives' samples are submitted to the FBI's National DNA Index System (NDIS), also referred to as the Combined DNA Index System (CODIS), solely for the comparison to DNA profiles obtained from unidentified persons or remains.

Relatives of a missing person may voluntarily provide DNA samples. These samples are known as Family Reference Samples. Law enforcement agencies, involved in an active missing person case (case in which a missing person report has been filed), are encouraged to collect Family Reference Samples from two or more close biological relatives of the missing person and obtain a consent form signed by the contributing relative to document that the DNA samples were given voluntarily.

45. What are the requirements for the collection of Family Reference Samples for entry and searching in NDIS?

Relatives of a missing person must be willing to provide a DNA sample and sign a consent form in the presence of law enforcement. Only DNA samples collected voluntarily from relatives of a missing person are eligible for searching in NDIS. Those profiles will be used only for identifying a missing person or remains. (34 U.S.C. § 12592(a)(4)).

Law enforcement personnel must witness the voluntary collection of the Family Reference Samples and a consent and information form must be completed and signed by the person providing the DNA sample. The identity of the contributor providing the DNA sample must be verified by law enforcement (e.g., through presentation of an appropriate government-issued identification card). Family reference samples which are not submitted by law enforcement and with the appropriate documentation will not be accepted for entry into NDIS.

46. What is the purpose of the consent and information form?

34 U.S.C. §12592(a)(4) authorized the FBI to establish an index of DNA profiles developed from DNA samples voluntarily contributed by relatives of missing persons. The consent form documents that the DNA sample was voluntarily contributed and provides permission for inclusion in CODIS for the sole purpose of identifying a missing person or recovered remains. It also indicates where, by whom, and how the Family Reference Sample was collected. Additional information related to the missing person such as metadata is collected on the form to assist with resolving possible associations between relatives and unidentified persons.

47. How will the DNA information contributed by a relative of a missing person be used?

Following 34 U.S.C. §12592 (b)(3)(A), the DNA information will be released only to criminal justice agencies for identification purposes and for comparison to DNA profiles related to the disappearance of individuals indexed in the missing persons database. The DNA profiles obtained from the Family Reference Samples will only be searched against the DNA profiles from unidentified persons stored at NDIS.

48. How long is the DNA profile stored in the database?

The DNA records of relatives of a missing person will remain in NDIS and be searched against missing persons and unidentified human remains profiles until one of the following happens: (1) the missing person has been identified; or (2) the family member who voluntarily provided the DNA sample is determined not to be related to the missing person; or (3) the family member who voluntarily provided the DNA sample requests in writing that it be removed.

After an identification is confirmed, the DNA profiles from the relatives of a missing person are removed from the database. In the event of only partial remains being located and identified, laboratory personnel may decide to allow the Family Reference Samples to remain in the database to assist with possible future recoveries. The family member who voluntarily provided the DNA sample may request in writing that the DNA profile be removed from NDIS at any time.

49. How is an identification established?

Once a potential association is found, the results are provided to the law enforcement agency and the appropriate medico-legal (usually a medical examiner or coroner) authority. Only the designated medico-legal authority can declare the identity through the issuance of a death certificate.

50. Can DNA profiles from foreign nationals whose family members have gone missing in the United States be added to NDIS?

Foreign nationals can be added to NDIS for the purpose of assisting with the identification of a missing family member. The DNA Identification Act of 1994 does not limit the entry of a voluntarily provided Family Reference Sample based on the nationality of the donor. However, any voluntarily provided DNA sample must be collected in the presence of law enforcement and include the appropriate consent and information documentation.

51. Can a private laboratory enter a DNA profile from an unidentified person or a Family Reference Sample into NDIS?

Private laboratories do not have access to NDIS. Private laboratories must work in partnership with an NDIS participating laboratory in order to meet requirements for the outsourcing of casework samples contained in Standard 17 of the *Quality Assurance Standards for Forensic DNA Testing and DNA Databasing Laboratories*.

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