FBI Laboratory

DNA Casework Unit (DCU)

Case Acceptance

The DNA Casework Unit (DCU) has developed this case acceptance document to assist you in understanding the Unit's testing capabilities and to advise you of those evidentiary items necessary for the DCU to perform a complete serological, nuclear DNA (nDNA) and mitochondrial DNA (mtDNA) analysis. Should you have any questions, please feel free to call the DCU at 703-632-8446.

- The DCU accepts cases from FBI Field Offices and legal attaches, other federal agencies (e.g., Bureau of Indian Affairs, DEA, Coast Guard, etc.), United States Attorney Offices, and military tribunals. The DCU also accepts cases from International law enforcement agencies through **FBI Legat Offices** in matters involving United States citizens.

- The DCU may accept cases from duly constituted **state**, **county** and **municipal law enforcement agencies** in the United States and its territories if: 1) The submitting agency does not have access to a government forensic DNA laboratory, and 2) No serological or DNA testing has been previously conducted in the matter by another government or private DNA testing laboratory.

- The DCU can only accept cases with **trial dates** if all of the evidence, to include the appropriate reference samples, is received into the DCU at least **30 days prior** to the scheduled trial or if statutory speedy trial dates apply. Contact the DCU to discuss the acceptance of cases not meeting these criteria.

- For **historical cases** in which the FBI Laboratory has previously conducted serological and/or DNA analysis, please contact DCU prior to submitting additional evidence. Based on the details surrounding the new submission of evidence, the DCU will perform a review of the case file to determine if additional examinations will be conducted.

- The DCU will use the information contained in your submittal letter to develop an examination plan and then place your case in our queue for examination. As part of this process, you may be contacted by one of our examiners, either by telephone or e-mail for additional information regarding your submission. Upon completion of the DCU testing,

you will receive a report containing the results of examinations. The DCU averages a 30 day turn-around-time (TAT); however, the TAT can be affected by the number of items, type of items submitted and the examinations being requested.

Services Offered

- The DCU conducts serological testing for the identification of **blood** and **semen**. **Nuclear DNA testing (i.e., autosomal Short Tandem Repeat and Y-chromosome STR testing)** is performed on biological stains or from items of evidence that may have DNA present on them, based on how they are used (e.g., bottles, cigarette butts, envelope flaps, etc.).

- The DCU does not provide testing for the detection of **saliva**, **urine**, **feces**, or **sweat**.

- The DCU will attempt to preserve evidence from consumption; however, if the submitted evidence, or stain(s) identified on evidence, is so limited that DCU determines consumption is necessary to provide the greatest chance of successfully developing DNA results, the contributor will be notified.

- The DCU conducts mtDNA examinations and, if possible, nuclear DNA testing on hairs. Hairs that are less than 2 cm will be consumed during the DNA testing.

  The DCU does not perform DNA testing on **envelopes or stamps designated as self-adhesive**.

- The DCU performs **kinship analysis** to analyze and report familial associations in missing person, criminal, and intelligence casework. Based on the transmission of genetic material within a family, nuclear DNA typing results can potentially be used to establish biological relatedness. These procedures can be used to provide estimates for the relatedness of samples using both full and partial DNA profiles and information provided by the contributor regarding the nature of the alleged relationships between the submitted samples. The samples that can be submitted include parents, offspring, siblings (to include full and half-siblings), grandparent/grandchild, uncle-aunt/niece-nephew, and first cousins. When performing such kinship assessments, samples from first degree relatives (e.g., children, parents, or full siblings of the person in question) provide the strongest evidence of a familial relationship. Second degree relatives (e.g., grandparent) and third degree relatives (e.g., cousins) are generally less useful for kinship assessments.

- For mitochondrial DNA testing, the reference samples needed must be maternally related to the person of interest. This is due to the fact that children inherit mtDNA from their mother only; therefore, there must be a maternal link from the donor to the person of interest (e.g., the maternal grandmother (mother's mother) donor sample for a missing grandson).

- Y-STR reference samples must be paternally related to the male of interest. Male children inherit their Y-chromosome only from their father; therefore, there must be a paternal link from the donor to the person of interest (e.g., the paternal grandfather (father's father) is the sample donor for a missing grandson).

- The DCU performs criminal parentage testing (**paternity or maternity testing)**. The DCU can make comparisons between samples collected from a putative parent(s) and a child. Based on the transmission of genetic material within a family, the DNA profile of an alleged parent can be assessed in comparison to that of a child (with or without a known parent) and assessed in terms of a Combined Paternity Index and the Probability of Paternity.

- Although body cells that contain DNA may be transferred onto objects through handling or other physical contact, the ability to obtain DNA typing results from such objects is dependent on a number of factors, such as the extent and nature of contact with the object; the porosity, texture and size of the surface area; and the characteristics of an individual's skin and propensity for sweating. Generally, any DNA from cells transferred onto objects through limited contact is not detectable using the analytical procedures used by the DCU.

    - Please contact the DCU prior to the submission of evidence that can be expected to yield little to no DNA, or DNA from many individuals, such as firearms, public telephones, bank teller counter tops/windows, door knobs from public entrances and fingerprint/palm prints. The acceptance of such **"touch" items** by the DCU will be based on the specific manner in which the item was handled with testing conducted only on those items from which it is reasonable to believe that DNA will be recovered from a potential perpetrator.

    - It should be noted that DNA profiles obtained from items that may have been handled by one or more individual during their routine use and from which so

called **"touch" DNA samples** have been collected, are generally not suitable for entry into CODIS. Under these circumstances, examinations will not be conducted unless a reference sample from a putative subject(s) is available for comparison purposes. Submissions of this nature may be rejected by the DCU if no accompanying reference samples are submitted for comparison.

- The usage of test strategies to enhance the detection of DNA (sometimes referred to as **Low-Copy Number, or LCN, testing**) is currently being researched by the FBI Laboratory, however, none have yet demonstrated the necessary reliability for use in forensic casework by the DCU nor are any approved for uploading into the Combined DNA Index System (CODIS).

Databases

- The DCU requests that known reference sample(s) from any individual who may have deposited biological material on an item of evidence for comparison to evidence materials be submitted. **It is important to note that statutorily, the DNA profiles contained within the Convicted Offender Index of the National DNA Index System (NDIS) cannot be used as reference samples in criminal casework.** Additionally, the DCU is statutorily responsible for establishing the suitability of all evidence profiles for uploading into the Forensic Index of NDIS.

- Mitochondrial DNA profiles or Y-chromosome STR profiles from crime scene samples are not searched at NDIS.

- The DCU will process samples for the **National Missing Person DNA Database (NMPDD)**. Cases worked by the DCU are eligible for entry into the Biological Relatives of Missing Persons, Missing Person or Unidentified Human Remains Indices of NDIS; however, consent forms are required, and must be provided to DCU, from relatives of missing persons for NDIS entry.

Please see the Handbook of Forensic Services (Revised 2007) for additional information regarding the submission of evidence to the FBI Laboratory in **property crimes**.
http://home.fbinet.fbi/STB/Lab/LABLibrary/forensics_handbook.pdf