



## BIOLOGY

### DNA Violent Crime Service (VCS) Guide

#### Investigators & Submitters

#### Technical Information Sheets

The CFS VCS conducts examinations and DNA analysis in support of the investigation of violent crimes against the person. This document is intended to provide guidance on the submission of evidence items to the laboratory.

For complex cases, consultation is recommended via email or telephone PRIOR to submission. Otherwise an online submission request ([cfs.gov.ca](http://cfs.gov.ca)) can be made and you will be contacted if more information is required.

Contact the Major Crime Scientific Advisor for clarification or exceptions.

**All priority requests require consultation.**

## SUBMITTING EVIDENCE

Complete a [Case Submission Form](#) and include all relevant information:

- Individuals involved and their relationship to each other/scene/items.
- A brief description of the alleged events leading to, during and subsequent to the occurrence.
- A list of items being submitted and the examinations requested.
- An explanation as to how the items may be related to the occurrence.
- For cases involving examinations for blood, indicate the number of potential bleeders, if known.
- For sexual assault cases, indicate last previous consensual activity, if known.
- Reference pre-consultations with CFS staff and include the tracking number (if provided to you) during discussions regarding acceptance of the case/items.
- Confirm the occurrence meets the requirements for a [DNA designated offence](#).
- List any known time pressures (e.g., court dates).

Although there is no limit on the number of items which may be accepted for VCS cases, for complex investigations, the scientist may stage the examinations, only accepting a subset of relevant items per submission.

## QUALIFYING OFFENCES

Evidence collected in relation to the following offences may be submitted to the Violent Crime Service:

- All listed Primary Designated Offences  
Exception: 348(1)(d) Breaking and entering a dwelling house – submit to HVS
- The following Secondary Designated Offences:
  - ✓ 98.1 Robbery to steal firearm
  - ✓ 173(1) Indecent Acts
  - ✓ 266 Assault
  - ✓ 270 Assaulting a peace officer
  - ✓ 160(1) Bestiality
  - ✓ 162 Voyeurism
  - ✓ 280/281/282/283 Abduction offences
  - ✓ All traffic offences that involve direct impact to a person by a vehicle resulting in injury or death

Please refer to the national DNA databank website for the complete list of designated offences.

For HVS offences please refer to the [HVS Guide](#) and [HVS information sheet](#).

## ACCEPTANCE CRITERIA

Where possible, submit the entire item for examination.

In those instances where you are requested/direct to submit a sample of the item, refer to the [HVS Guide for sampling tips](#).

Items are accepted as per the [DNA Identification Act 1998, c.37; 5.\(3\) \(a\) – \(d\)](#).

The DNA Identification Act states that the crime scene index shall contain DNA profiles derived from bodily substances that are found:

- at any place where a designated offence was committed;
- on or within the body of the victim of a designated offence;
- on anything worn or carried by the victim at the time when a designated offence was committed; or

- on or within the body of any person or thing or at any place associated with the commission of a designated offence.

Reasons why items may not be initially accepted:

- ✘ Item type has a low success rate/expectation of obtaining reliable results.
- ✘ Item is not the most relevant to address the allegations or has no probative value.
- ✘ Individual is already associated with an item (e.g., handler analysis requested though item is located in individual's possession).
- ✘ Limitations of the testing preclude examination (e.g., outcome of the testing may not address the question at hand).
- ✘ Item has undergone pre-testing by the submitting agency (e.g., fingerprinting/presumptive body fluid testing).
- ✘ Any associative DNA item (that may have been handled/worn) was not brought to the scene by the perpetrator and instead was a single touch/use event

### STANDARD ITEM TYPES

- A. Body Fluid Examination (e.g., clothing, scene swabs, weapons) and/or "Associative" DNA Examination (e.g., clothing, gloves, headwear, personal effects that may have been used/worn):
- ✓ Air dry all items
  - ✓ Package one item per container
  - ✓ Package into paper bags, breathable plastic bags, swab boxes/tubes or envelopes
- B. "Associative" DNA Examination (e.g., firearms, knives, tools that may have been handled/used):
- ✓ Package items in a manner that limits movement within the container.
- C. Vehicles
- ✓ Inform CRO prior to submission.
- D. Condoms, diapers, human tissue samples/bones, sanitary napkins/tampons:
- ✓ Submit frozen
  - ✓ Submit in leak-proof container
- E. Comparison samples
- ✓ Air dry before packaging.

### NOTES

Attach a numbered seal to each container.

Wear gloves, masks, and protective clothing when collecting, handling and packaging evidence.

Direct questions, concerns and exception requests to CFS Scientific Advisors.

Discuss any pre-testing with CFS Scientific Advisors.

## COMPARISON SAMPLES



Samples from known individuals, collected with consent, by warrant or discarded, may be submitted at any point.

Comparison samples from complainants should always be submitted with the first round of items in every case.

Purpose of Comparison Samples:

- Required for comparison to DNA profiles generated in a case, to assist in excluding individuals as the source of unknown profiles.
- Ensures that DNA profiles which are attributable to complainants/deceased are not uploaded to the DNA Databank.
- May be required to assist scientists in the interpretation of complex DNA profiles.

The accompanying case synopsis should include:

- Comparison sample type (e.g., consent, warrant or discard).
- A list of any other cases and items to which a comparison is requested and authorized, if outside of the current case. If none are listed, comparisons will be confined to results generated in the case for which the comparison sample is submitted.

## BLOOD EXAMINATION



The extent of examinations for blood will depend on the case specific information provided – i.e., the number of potential bleeders and the purpose of the testing.

**ALWAYS** indicate the number of potential bleeders (if known) and the nature of the allegations.

If blood is suspected, submit the entire item (where possible) for examination. If this is not possible, consult the “Bloodstains” section in the [Forensic Evidence Handbook](#) for submission tips.

### **PRIOR TESTING**

Do not test items prior to submission with Hemastix® or with blood enhancing chemicals such as Luminol, BlueStar®, LMG etc.

Testing items for blood prior to submission can compromise DNA analysis as it may result in:

- Removal of DNA
- Destruction of DNA
- Inhibition of DNA analysis
- Contamination with other sources of DNA during the testing process
- Additionally, such testing will preclude the ability to collect and preserve trace evidence

### **BLOODSTAIN PATTERN ANALYSIS (BPA)**

Swabs collected for BPA can be processed for blood identification and/or DNA analysis (if necessary). BPA swab examinations will be limited, and swabs must be chosen by the BPA expert. In the majority of cases only a small subset of BPA swabs are examined.

A maximum of ONE swab per identified bloodstain pattern will be considered for the first round of testing.

The number of swabs accepted per submission will vary according to the number of potential bleeders, number of scenes associated with the alleged event, the number of patterns identified and the results of other examinations in the case.

Consultation between CFS and the assigned bloodstain pattern analyst may be required.

## **SEXUAL ASSAULT CASES**

### **DIRECT TO DNA**

Where internal samples are available, sexual assault cases are subjected to a “Direct to DNA” approach, where swabs are processed for DNA without body fluid testing.

Step 1:

- Internal swabs
- External genitalia swabs
- Comparison samples

Step 2 (if required; may include body fluid testing):

- Skin swabs
- Clothing items

### EXAMINATION STRATEGY

The examination strategy will depend on the case specific information. Therefore, please inform the scientific advisor of the following:

- Increased urgency due to public safety risk;
- Nature of the allegations;
- Actions of the complainant following the alleged incident (e.g., bathing);
- Items available in the SAEK;
- Last previous consensual activity;
- Use of lubricants;
- Whether the investigation indicates that consent is an issue;
- If/how the complainant and alleged perpetrator are known to each other;
- If items have been collected from the alleged perpetrator;
- Necessity for attribution of DNA profile to a body fluid.

### ADDITIONAL SEXUAL ASSAULT SUBMISSION INSTRUCTIONS

- ✓ Air dry swabs and clothing prior to submission.
- ✓ Indicate whether clothing items have been laundered since the alleged incident.
- ✓ Submit condoms, sanitary napkins, tampons and diapers frozen.
- ✓ Submit only items relevant to the case.
- ✓ Submit SAEK paperwork.
- ✓ Submit comparison samples from consensual partner(s).
- ✓ Ensure blood/urine for Toxicology testing is refrigerated.

## FIREARMS

Fingerprinting/test firing is to occur **after** biology examinations.

During consultation, inform the scientific advisor of any requirements to protect the firearm for potential future fingerprinting analyses.

Swabs of cartridge cases have a poor success rate in terms of generating a DNA profile suitable for comparison. Swabs of single fired cartridge cases will only be accepted in primary designated offences. In addition, they will only be examined if the firearm from which the cartridge case was discharged from was not recovered, or if it did not generate a DNA profile that is suitable for comparison. Swabs of fired cartridge cases will not be routinely accepted if the cases have been treated with fingerprint reagents or manipulated without the use of gloves (consult with CFS

advisor for exception requests). Where multiple fired cartridge cases have been recovered that have likely been fired from the same weapon, a single combined swab of all items may be submitted.



Body fluid examination not required?  
**Submit firearm OR swab**



Body fluid examination required?  
**Submit firearm**

### SAMPLING NOTES

Swab both sides of textured area of grip and/or slide only, as outlined, using a single swab



Swabs from the hammer, trigger or trigger guard or muzzle will NOT be accepted



## ASSOCIATIVE DNA ANALYSIS

Associative DNA Analysis (previously referred to as 'Handler DNA') may be attempted to associate an individual with an item.

Consultation must occur prior to submission.

## ACCEPTANCE CRITERIA

Associative DNA Analysis pertains to:

- Firearms
- Knives
- Tools

Does not generally include:

- ✗ Briefly touched items
- ✗ Grabbed clothing

Criteria:

- ✓ Item was brought to scene by alleged perpetrator.
- ✓ Item has not been handled by multiple individuals.
- ✓ Item has not previously been fingerprinted.

## FINGERPRINTING

Fingerprinting prior to submission may compromise the ability to generate a DNA profile due to:

- Use of reclaimed chemicals during the fingerprinting process.
- Manner in which item has been handled prior to submission.

DNA analysis will not routinely be conducted on items already fingerprinted.

Preserving smooth components for fingerprinting may decrease the likelihood of generating a DNA profile.

## ASSOCIATIVE DNA ANALYSIS EXAMINATION STRATEGY

The examination strategy should be determined prior to examinations, in consultation with CFS Scientific Advisor.

- Does the item have a rough handle?
  - ✓ Submit for handler DNA analysis.
- Does the item have a smooth handle?
  - ✓ Select either fingerprint **OR** handler DNA analysis.
- Does the item have both rough and smooth components on handle?
  - ✓ Select either fingerprint **OR** handler DNA analysis.



## CONTACTS

### **Major Crime Scientific Advisor**

[CFS.biology.majorcrime@ontario.ca](mailto:CFS.biology.majorcrime@ontario.ca)

647-329-1602

*Murder, Attempt Murder, Assault, Robbery*

### **Sexual Assault Scientific Advisor**

[CFS.biology.sexualassault@ontario.ca](mailto:CFS.biology.sexualassault@ontario.ca)

647-329-1603

*Sexual Assault*

### **Centre of Forensic Sciences - Sault Ste. Marie Laboratory**

705-945-6550

*All violent crimes or sexual assaults committed in Northern Ontario*