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## Procedure for Aseptic Technique and Contamination Control

**1.0 Purpose** - This procedure specifies the method for using aseptic technique in the Forensic Biology Section.

**2.0 Scope** - This procedure applies to those Forensic Scientists who have been released to do forensic casework. The procedure also applies to trainees.

### 3.0 Definitions

- **Bulky evidence** - Any evidence in which hair, fiber or other trace evidence could be attached. This includes, but is not limited to, clothing, bed linens and towels. Undergarments are not considered bulky evidence.
- **Raw evidence** – Original evidence that is submitted to the Laboratory from another agency.
- **Autoclave** – Exposing an item to heat in excess of 120 °C and pressure for at least 30 minutes.

### 4.0 Equipment, Materials and Reagents

- Brown paper
- Nitrile gloves (or equivalent)
- Disposable lab coats
- Disposable masks
- Deionized water
- 70 % isopropyl alcohol
- 10 % bleach
- Autoclave

### 5.0 Procedure

**5.1** All Forensic Scientists shall wear protective equipment when processing evidence. This protective clothing shall not be worn outside the Laboratory building or in office space in the Laboratory. In laboratory space during active examination, the Forensic Scientist shall wear disposable lab coats, disposable masks, nitrile gloves (or equivalent), and disposable head/hair coverings. When entering a laboratory space, Forensic Scientists shall wear, at a minimum, disposable lab coats, disposable masks, and disposable head coverings. When Forensic Scientists are performing microscopic analysis, disposable lab coats, gloves, and head coverings shall be worn and disposable masks shall be readily available.

**5.1.1** Disposable lab coats/masks/head coverings shall be discarded at the end of the day on which they are used. If a Forensic Scientist determines that the lab coat/mask/head covering has been compromised during use, the lab coat/mask/head covering shall be disposed of immediately and a new one used in its place.

**5.1.2** Unless the disposable lab coat/mask/head covering comes into contact with biohazard materials (e.g., liquid blood, phenol-chloroform), it shall be discarded in regular trash bins.

**5.1.3** If a Forensic Scientist intends to dispose of a lab coat after setting up an amplification or quantitation plate, he/she may wear the lab coat from the extraction and pre-amplification areas into the post-amplification area, but shall dispose of it before exiting the room.

**5.1.4** Gloves shall be replaced with new gloves for the following reasons:

**5.1.4.1** When the gloves have been compromised (e.g., material spilled onto glove or a non-clean item is touched).

**5.1.4.2** When processing bulky evidence, gloves shall be replaced between handling evidence items.

**5.1.4.3** When processing swabbed/cut evidence for Body Fluid Identification, gloves shall be replaced between handling evidence items from the victim, crime scene, and suspect.

**5.1.4.4** When doing a DNA extraction, gloves shall be replaced between handling forensic unknowns and known standards.

**5.2** The lab benches and hoods shall be cleaned with a 10 % bleach solution (made fresh each day it will be used) under the following circumstances:

- Prior to use.
- Between cases (or batched cases).
- Between processing items from the victim and suspect when processing raw evidence.
- Between forensic unknowns and known standards when doing DNA extractions.
- When they have been contaminated or soiled (e.g., material spilled onto surface).

**5.2.1** In addition, lab benches and hoods shall be dusted and cleaned with bleach once a week.

**5.3** Forensic Scientists shall process bulky evidence over a piece of clean paper to capture any hair, fiber, or other trace evidence which may be dislodged during analysis. Upon completion of analysis, the evidence item shall be placed back into its original container wrapped in the paper or the paper shall be folded separately and placed in the bag to contain debris that may have fallen off the evidence during analysis. If multiple sheets of paper are used or a very large sheet of paper is used it is acceptable to concentrate the debris into a smaller area of the paper. The area around the debris can then be cut and folded and placed in the original container.

**5.3.1** Forensic Scientists shall process samples for DNA extraction over clean paper (e.g., brown paper or Kimwipe). This paper shall be replaced with clean paper between each sample.

**5.4** Only sterile disposable scalpels, scissors, or utensils shall be used to process evidence.

**5.5** A separate pair of scissors or scalpel blade shall be used for each item of evidence.

**5.6** All sharps shall be disposed of in a properly marked sharp container after use.

**5.7** Forensic Scientists shall bleach pipettes prior to use by wiping surface with a 10 % bleach solution. This shall be followed by wiping with a 70 % isopropyl alcohol (or equivalent) solution.

**5.8** All pipette tips are considered single-use only and shall be discarded after use.

**5.9** There shall be no more than one item of evidence or sample open at a time. Exceptions are for use of strip tubes during amplification and the 96 well plates that are used during the quantitation, amplification, and 3130 runs.

**5.10** The DNA extraction of the unknown and known samples shall be separated by time. Between extraction of the unknown and known samples, the work space and instruments shall be decontaminated refer to **5.2** and **5.7**.

**5.11** Amplified DNA product including real time PCR shall be generated, processed and maintained in a room(s) separate from the evidence examination, DNA extraction and PCR set up areas. The doors between the rooms containing amplified DNA and other areas shall remain closed. All equipment, reagents and amplified DNA work product used in the amplified work area shall be dedicated to this area and shall not be used in extractions or PCR setup.

**5.12** Trays used for amplification and extraction shall be bleached after each use before they can be used again.

**5.13** If samples are lost through spillage, are inadvertently mixed, or accidentally compromised, the Forensic Scientist will cease all work on that sample immediately, notify the Forensic Scientist Manager and the appropriate Technical Leader (Body Fluid or DNA) and document the incident in the case file. If the analysis cannot be repeated because the entire sample has been destroyed, the final Laboratory Report shall indicate the reason why no results are reported.

**5.14** The following items shall be autoclaved:

- All glassware used in the preparation and storage of forensic DNA and database reagents/ solutions.
- 1.5 mL centrifuge tubes.
- 0.5 mL centrifuge tubes (blue, yellow and purple).
- Spin baskets.
- Buffers and components (refer to Forensic Biology Section Procedure for DNA Reagent Preparation and Quality Control).

**6.0 Limitations - N/A**

**7.0 Safety -** When using a bleach solution, gloves shall always be used and safety glasses should be used unless working in a safety hood or cabinet. Care shall be taken when using scalpel blades.

**8.0 References**

Forensic Biology Section Procedure for Maintenance and Calibration

Forensic Biology Section Procedure for DNA Reagent Preparation and Quality Control

Forensic Biology Section Technical Procedures for Body Fluid and DNA Analysis

**9.0 Records - N/A**

**10.0 Attachments - N/A**

<b>Revision History</b>		
Effective Date	Version Number	Reason
09/17/2012	1	Original Document
09/13/2013	2	5.4.1 – added weekly dusting requirement
12/18/2013	3	Header – added issuing authority; 1.0, 2.0, 5.1, 5.2, 5.3 - removed references to database work/unit; 5.7 – removed database instrument reference; 5.12 – added amplification; 5.13 – updated section reference; 8.0 – removed database documents as reference
04/18/2014	4	5.3.2 – add wording to clarify; 5.3.3 – added wording for body fluid processing; 5.5.1 – added to perform DNA extractions over paper; 5.7 – removed scalpel safety concerns, added to 7.0; 5.3, 5.3.2, 5.3.3, 5.3.4, 5.5.1 – clarified replacement of gloves/paper
02/27/2015	5	5.1 – clarified wording in shared lab space; 5.1.3 – removed blue lab coats; 5.2, 5.3 – combined into 5.1; 5.5 – removed requirement for wiping scissors with bleach; 5.10 - updated reference numbers