CELL ISOLATION FROM A LIQUID SAMPLE

Background

A biological sample received in a liquid form can be tested as a means of determining parentage or identity. The sample may be a product of amniocentesis, spinal tap, vitreal fluid collection, urinalysis, or other body fluid collection. The resulting biological sample is a limited source of cells.

Summary of Procedure

The cells in the fluid can be concentrated by centrifugation. After centrifugation the cells may be physically separated from the liquid by pipetting the liquid

Sample Handling

Forensic samples may be in limited supply. Retain sufficient sample for replicate analysis.

Label all samples with complete identifying information.

All biological samples and DNA must be treated as potentially infectious. Appropriate sample handling and disposal techniques should be followed. See:

- ***Safety Manual***, *Universal Precautions*
- ***Quality Assurance Manual***, *General Sample Control and Forensic Sample Preservation Policy*
- ***Analytical Procedures Manual,*** **Forensic Evidence Handling**.

Reagents and Materials

See **Appendix B** for reagent preparation

Sterile transparent 2.0mL micro-centrifuge tubes and rack
Sterile transfer pipettes
Disposable bench paper
Lab Coat
Gloves
Kimwipes
Permanent marker
Biological safety cabinet
Micro-centrifuge

Reagents and Materials – Storage and Handling

All reagents and materials are to be kept under sterile conditions. Store all reagents according to the manufacturers' recommendations.

Do not use reagents beyond the listed expiration dates. Date and initial all reagents when put in use. Record in the **Reagent Log**.

Quality Control

Documentation of performing this procedure is required in the Comments section of the appropriate extraction worksheet.

Procedure

1. Describe the sample received in the case notes. Note the description of the sample container, specific markings, color of the biological liquid, liquid volume and any other unique identification.

2. Label 2.0mL tube(s) with case number, sample number and Analyst initials. Transfer the liquid sample from the original container to a suitable number of transparent 2.0mL tubes. Label the 2.0mL tube(s) with case number, sample number and Analyst initials.

Note: The amount removed for testing is dependent upon sample type. An amniotic fluid sample may require two 2.0mL tubes. A urine sample may require four 2.0mL tubes.

3. Open the original container in the biological safety cabinet with proper safety equipment. Using a sterile pipette, transfer a portion of the fluid to the 2.0mL tubes. Seal the original container and cap the 2.0 mL tubes.

4. Centrifuge the 2.0mL tubes containing the fluid at 13,200 rpm for 7 to 15 minutes dependent upon the sample type.

Note: Clear fluids such as urine require 15-minute centrifuge time due to the limited cell quantity. Amniotic fluid contains a greater concentration of cells and may only require 7 minutes centrifugation to obtain an adequate cell pellet.

5. Remove the sample(s) from the centrifuge. Visually inspect the 2.0mL tubes for a cellular pellet at the bottom of each tube.

Note: If no pellet is observed repeat steps 3, 4, and 5.

6. Open the 2.0mL tube(s). Pipette the liquid on top of the cell pellet back to the original container. The remaining cell pellet is ready for DNA extraction.

Note: If two or more 2.0mL tubes were centrifuged they can be combined into one 2.0mL

Comments on Storage

Securely store samples at 4°C or proceed on to extraction.