Baseline serum processing and storage.

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The purpose of banking baseline serum from biomedical laboratory staff is to provide assistance with clinical diagnosis and/or treatment in the event of an occupational exposure. This protocol describes the appropriate drawing, processing and storage of baseline serum. Research experiments conducted on a biosafety level 1 (BSL1) risk do not warrant baseline serum storage. Research experiments representing a BSL2 risk must be reviewed on a case-by-case basis by the Institutional Biosafety Committee (IBC) in consultation with the Hospital Epidemiologist for appropriateness of baseline serum storage. Research experiments representing a BSL2+ or BSL3 risk warrant baseline serum storage. NOTE: All baseline serum samples are obtained on a voluntary basis. However, laboratory staff not willing to provide said sample will be restricted from working with BSL2 or higher protocols. Laboratory staff serum is used only for diagnostic purposes with the consent of the individual whose serum is to be tested, it is not to be used for any other purpose not related to the investigation of potential occupational exposures.

Procedure

1. Draw 50 mL of whole blood with two 25 mL sterile syringes without anti-coagulant.

2. Introduce both blood-filled syringes along with two centrifuge buckets and aerosol lids, two 50mL conical tube adaptors, Pasteur pipettes, and three 50mL conical centrifuge tubes into a class II biological safety cabinet.

3. Label two 50 mL conical centrifuge tubes with complete patient name, date and time of baseline serum drawing and the legend BASELINE SERUM.

4. Inside the class II biological safety cabinet, pool the content of the two syringes into a 50 mL conical centrifuge tube without anticoagulant.

5. Still inside the biological safety cabinet; allow conical centrifuge tube with 50mL of whole blood to stand vertically for 30-45 minutes at room temperature (but for no more than 60 minutes).

6. Using a Pasteur pipette detach blood clot from conical centrifuge tube walls completely.

7. Place the 50 mL conical centrifuge tube in centrifuge buckets with corresponding 50 mL tube adaptors and place aerosol containment lids. If not already available, use the second 50 mL conical tube to balance the rotor with appropriate amount of water. Clean exterior of bucket assembly with 70% ethanol before removing from biological safety cabinet.

8. Place bucket assembly into centrifuge and spin at 2000 G for 10 minutes, using fast acceleration but slow deceleration profiles at a temperature between 4 - 10ºC.

9. After spinning remove bucket assemblies from centrifuge, clean with 70% ethanol and place inside the biological safety cabinet.

10. After introducing centrifuge bucket assemblies into the biological safety cabinet, wipe exterior again with 70% ethanol before opening. Bucket assemblies should only be opened within a biological safety cabinet.

11. Inspect centrifuged blood tube, serum should be clear, although yellowish in colour. Any sign of turbidity or presence of red blood cells or clots should dictate the need to re-spin sample.

12. If serum is clear, recollect the supernatant serum using a Pasteur pipette taking care not to disturb clot. Pool serum into a pre-labelled (see step 3) sterile 50 mL conical tube.

13. Using the same Pasteur pipette (or use a *de facto* goose-neck wash bottle) to fill the 50 mL conical tube containing the blood clot with fresh 0.1% NaOCl. Allow at least 15 minutes of contact time for proper decontamination.

14. Wipe all plastics, pipettes, buckets, adaptors and tubes with 70% ethanol before removing from biological safety cabinet.

15. Store the tube with the baseline serum immediately at -20ºC.

16. Wipe the interior the biological safety cabinet clean with 70% ethanol and decontaminate using UV light for 10 minutes.

17. Place all tubes, pipettes and paper towels into red biohazard bags.

References

1. Biosafety in Microbiological and Biomedical Laboratories, Centers for Disease Control & Prevention, Appendix H Working with human, non-human primate and other mammalian cells and tissues. Fifth Edition 2007

Revision history

1.0 Original document.

2.0 Added references and formatting changes.

3.0 Updated volumes and centrifuge settings.

4.0 Changes to document format only.