NIHR GOSH BRC

Rare Disease Cross Cutting Theme Exemplar Standard Operating Procedure

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| **Processing of Venous blood for research Plasma SOP** |
| Version:  | Author:  |
| Implementation date:  | Reviewed by: |
| Next Review date: | Date Reviewed:  |

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| 1.0 Purpose  |

Standard operating procedure to describe the collection, processing and storage of venous blood for plasma for research in rare diseases research as part of the NIHR GOSH BRC. Blood plasma is the liquid component of blood, made up primarily of water (90%) with dissolved proteins, hormones, metabolites, clotting factors and ions. Plasma is collected from blood using anticoagulant tubes to ensure the clotting factors are retained during centrifugation.

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| 2.0 Scope  |

This protocol applies to the processing of venous blood plasma in labs with the required skills and equipment to follow this SOP.

General principle of consent, ethical and ethical regulations, data collection, safety and quality control should be adhered to at all times, as per laboratory specific procedures.

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| 3.0 Description, Protocol Overview  |

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| **Description**  |
| Biospecimen  | Venous Blood  |
| Biological Material  | Plasma |
| Downstream Application  | *Each study to insert here*  |
| **Protocol Overview**  |
| Collection  | *Insert the tube type and size used suggested EDTA or Sodium Citrate as less likely to interfere with downstream analysis. –coagulant*  |
| Handling  | Precentrifugation delay of <2h at ambient temp.  |
| Processing  | Centrifugation, separation of plasma from whole blood.  |
| Storage  | Serum aliquots at -80 |

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| 3.0 Equipment  |

3.1 Collection

* Collection tube (*insert specific tube and size here*)
* Specimen beg

3.2 Processing

* Sterile Eppendorfs (*insert specific size here*)
* Sterile Category 2 tissue Culture hood
* Sterile pipettes and appropriate tubes
* Centrifuge (*insert specifics here*)

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| 4.0 Procedures  |

* 1. **Collection Procedure**

4.1.1 Prior to collection of sample check blood collection tube expiry date, as these have a 12 month shelf life.

4.1.2 The phlebotomist should collect the blood sample directly into the collection tube. For serum extraction 1-3 ml of blood is recommended. Try to ensure the complete filling of tube. If multiple samples are being collected from the one patient then blood should be drawn in the correct order in accordance with WHO guidelines. Where possible a ‘vacutainer’ sampling procedure is recommended. If the vacutainer method is not used please refer to the correct guidelines for the technique used.

4.1.3 The blood tube should be securely closed (if vacutainer system not used) and inverted 6 – 8 times. The blood tube should then be sealed inside a plastic specimen bag

4.1.4 The phlebotomist should ensure that only the patient’s unique study identity code should be written on the tube itself in permanent black ink.

* + 1. The phlebotomist should ensure the study id code, date and time of sample collection are recorded.

**4.2 Processing Procedure**

4.2.1 Venous blood for plasma samples should be processed within 2 hours of collection.

* + 1. Record the time of sample arrival to the lab and the time processing started.
		2. Within a category 2 tissue culture hood, blood is removed from the container using a sterile pipette and placed into a sterile, labelled (with participant study ID) 1.5ml Eppendorf.
		3. The sample is spun for 10 minutes at between 1500g – 2000g at room temperature (17 – 25 °C) in a centrifuge.
		4. Remove all supernatant using a pipette and aliquot this into a sterile, labelled 1.5ml Eppendorf.
		5. Spin again at 2000 – 2500g for 10 minutes at room temperature (17 – 25 °C) in a centrifuge.
		6. Aliquot the serum into sterile, labelled 0.5ml Eppendorfs, in volumes appropriate to study.

The processor should ensure that no patient identifiable data is written on study tubes. Instead, the patient’s unique study identity code should be written on the Eppendorf itself in ethanol proof permanent black ink as well as the date and sample type, VBP (Venous Blood Plasma).

The number and volume of aliquots should be recorded.

**4.3 Storage Procedure**

4.3.1 Samples should be immediately placed in a -80°C freezer and both location and time to freezer recorded.

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| 5.0 Quality Control  |

Plasma should be checked for turbidity prior to aliqouting and re centrifuged if required.

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| 6.0 Health and Safety  |

Appropriate personal protective items should be worn when handling blood (gloves and lab coat)

All plastic waste (blood vacutainer, pipette tips) to be discarded in a sharps container.

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| 7.0 Related Paperwork and Additional SOPs.  |

* Health and safety, as per laboratory.
* Data collection form