Standard Operating Procedure (SOP) 003V8.0
Acquisition of Serum from Whole Blood

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Approved by:

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Materials:

**Blood collection sets**: BD (Becton, Dickinson and Company) Vacutainer™ Blood Collection Set, 21 gauge butterfly (Fisher cat. # 02-664-1)

**SST Collection tube**: BD Vacutainer™ Venous Blood Collection Tubes: SST* Serum Separation Tubes Red/Gray top 8.5ml (Fisher cat. #02-683-96)

**Centrifuge**: Eppendorf 5702 or 5702R

**Cryostorage tubes**: Corning 2.0ml Cryogenic Vials. (Fisher cat. # 0337421)

**Repeater Pipet**: Eppendorf Repeater Plus Pipette (Fisher cat. # 21-380-9)

**Combitips**: (Fisher cat. #13-683-705)

**Labelling**: All tubes are to have bar code stickers placed on the tube prior to venipuncture. Bar code packets are assigned during the donor registration process.

**Position for venipuncture**: sitting

**Order of the Blood Draw**: Blood collection tubes must be drawn in a specific order to avoid cross-contamination of additives between tubes. [5] The order of draw is 1) SST, 2) EDTA 9ml (SOP 001V8.0), and 3) EDTA 2ml (SOP 001V8.0). A total of three tubes of blood are drawn during the collection process.

**Temperature for collection and processing**: Blood samples to be separated into serum are drawn into an SST and allowed to clot at room temperature. [4]
Processing: Blood is drawn into the Serum Separator tube (SST) and gently mixed by inverting eight times immediately after drawing. Tube is incubated upright in a tube rack at room temperature for 45 minutes (±10 min.) after the blood has been drawn to ensure complete coagulation. Following incubation and clotting, the Serum Separator tube is centrifuged at 1200rcf for 10 min. A repeater pipet is used to aliquot 600ul of the top serum layer directly into each of five pre-labeled cryogenic vials. If serum volume is low, fewer aliquots are collected. If serum volume exceeds 3ml, existing 5 vials are topped off. Vials are capped and immediately placed into cryoboxes on dry ice.

Storage of Serum:
Best Practice recommends that separation into serum and placement of serum into frozen storage should occur within 2 hours of the blood draw [1]. Freeze-thaw is not optimal [2] and therefore, serum should be aliquoted. Serum aliquots are logged into cryoboxes and placed on dry ice for transport to the storage facility. Serum is stored at -80°C.

Standardization: All variables including the time the whole blood is at room temperature prior to separation, time stored at -80°C as serum prior to shipment and/or utilization, volume of aliquots and color of serum will be entered into the database.

Oversight: All adverse and unexpected events will be recorded in the database and will be addressed by the Executive Committee. This includes all phases of the process: donation, storage and retrieval, processing, and utilization.
References:


Bibliography


Electronic Resources

- Arzoumanian, Lena. Tech Talk Vol.4, No.2

- Holland Lab/Berkeley http://www.hollandlabucb.org/

- http://library.med.utah.edu/WebPath/TUTORIAL/PHLEB/PHLEB.html