



TISSUE BANK AT THE  
IU SIMON CANCER CENTER

## **Standard Operating Procedure (SOP) 003V6.0**

Acquisition of Serum from Whole Blood

SPREC SER-SST-A-A-N-B-A (3)

Effective Date: Sep.1, 2012

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Approved by:

### **Materials:**

**Blood collection sets:** BD (Becton, Dickinson and Company) Vacutainer® Blood Collection Set, 21 gauge butterfly.

**Collection tube:** BD (Becton, Dickinson and Company) Vacutainer Venous Blood Collection Tubes: SST\* Serum Separation Tubes Red/Gray top 8.5ml (Fisher cat. #0268396)

**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. #21-381-330)

**Labelling:** All tubes are to have bar code stickers placed on the tube prior to venipuncture. Bar code stickers will be generated during the process of registration of the volunteer donor.

**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. [4] The order of draw is 1) SST, 2) EDTA 9ml, and 3) EDTA 2ml. 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.

**Processing:** Best Practice recommends that separation into serum and placement of serum into frozen storage should occur within 2 hours of the blood draw, [1]. And Freeze-thaw is not optimal [2], therefore, serum should be aliquoted.

Blood is drawn into the Serum Separator tube and gently mixed by inverting the tube 5 times. Forty five minutes ( $\pm 10$  min.) after the blood has been drawn, the Serum Separator Tube is placed into the centrifuge and centrifuged at 1200rcf for ten minutes at room temperature. A repeater pipet is used to aliquot 600ul of the serum into each of five cryogenic vials.

**Storage of Serum:**

Serum aliquots are logged into cryoboxes and placed on dry ice for transport to the storage facility.

Serum is stored at  $-80^{\circ}\text{C}$ .

**Standardization:** All variables including the time the whole blood is at room temperature prior to separation, time stored at  $-80^{\circ}\text{C}$  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:**

1. Leyland-Jones, Brian R. et al. (2007). Recommendations for Collection and Handling of Specimens from Group Breast Cancer Clinical trials, from Onsite Collection through Shipping to the Central Bank. Unpublished.
2. Mitchell BL, Yasuie Y, Lia CI, et al. (2005). Impact of Freeze-thaw Cycles and Storage Time on Plasma Samples Used in Mass Spectrometry Based Biomarker Discovery Projects. *Cancer Informatics* 1:98-104.
3. Sabine Lehmann et.al. International Society for Biological and Environmental Repositories (ISBER) Working Group on Biospecimen Science. Standard preanalytical Coding for Biospecimens: Review and Implementation of the Sample PREanalytical Code (SPREC). *Biopreservation and Biobanking* Vol. 10 No.4, 2012
4. [http://lab.healthalliance.com/pdfs/collection/Order\\_of\\_Draw\\_for\\_Blood\\_Specimens.pdf](http://lab.healthalliance.com/pdfs/collection/Order_of_Draw_for_Blood_Specimens.pdf)

## **Bibliography**

1. Leyland-Jones, Brian R. et al. (2007). Recommendations for Collection and Handling of Specimens from Group Breast Cancer Clinical trials, from Onsite Collection through Shipping to the Central Bank. Unpublished.
2. Mitchell BL, Yasuie Y, Lia CI, et al. (2005). Impact of Freeze-thaw Cycles and Storage Time on Plasma Samples Used in Mass Spectrometry Based Biomarker Discovery Projects. *Cancer Informatics* 1:98-104.

## **Electronic Resources**

1. Holland Lab/Berkely  
<http://ehs.sph.berkeley.edu/holland/protocollibrary.html>
2. SCCPRR Standard Protocol for Collection and Storage of Serum  
<http://reprobio.stanford.edu/sccprnet/>
3. Arzoumanian, Lena. *Tech Talk Volume 4, No. 2*.  
[http://www.bd.com/vacutainer/pdfs/techtalk/TechTalk\\_November2005\\_VS7436.pdf](http://www.bd.com/vacutainer/pdfs/techtalk/TechTalk_November2005_VS7436.pdf)
4. <http://library.med.utah.edu/WebPath/TUTORIAL/PHLEB/PHLEB.html>
5. [http://www.geisingermedicallabs.com/catalog/blood\\_specimens.shtml](http://www.geisingermedicallabs.com/catalog/blood_specimens.shtml)