## Collection, Processing, Storage and Shipment from Adult Participants/Subjects:

## Acquisition of Blood Biospecimens

1. Blood is collected through venipuncture by appropriately trained personnel.

1. For isolation of genomic DNA from whole blood, collection of 5 – 20 mL using EDTA-containing vacutainer tubes is preferred. Use of citrate or heparinized tubes is also suitable.
   1. Invert the sample 8-10 times to ensure proper mixture of blood and anticoagulant.
2. For isolation of peripheral blood mononuclear cells (PBMCs), collection of 5-10 mL using a vacutainer tube containing sodium heparin is preferred. Use of a LeukoprepTM container is acceptable.
   1. Invert the sample 8-10 times to ensure proper mixture of blood and anticoagulant.
3. For creation of lymphoblastoid cell lines, collection of 5-10 mL using a vacutainer tube containing acid citrate dextrose (ACD) is preferred. Use of EDTA or heparinized tubes is also suitable.
   1. Invert the sample 8-10 times to ensure proper mixture of blood and anticoagulant.
   2. Note: **This is not a source of genomic DNA**. However this source of DNA can be used for discovery methods and validations. Cell lines can be expanded and additional DNA extracted.

## Local Processing (DNA)

1. Whole blood should be maintained at room temperature until transfer to the laboratory for processing.
2. Transport the original, unfrozen vacutainer without breaking the seal to the designated local genomics lab if DNA extraction is completed on site. The vacutainer system best preserves the integrity of the blood sample as long as it is not broken.
3. If DNA extraction lab is offsite, freeze whole blood tube in a -80 freezer, standing upright in a wire rack until shipment.
4. **Local Processing (PBMC and Lymphoblastoid Cell Lines)**
5. Whole blood should be maintained at room temperature.
6. Transport original, unfrozen tubes overnight to a laboratory experienced in the isolation of PBMCs, viral transformation, and preparation of lymphoblastoid lines.
7. If processing lab is offsite, shipment to processing lab must be same day.
8. **Local Documentation and Storage**
9. Appropriate and complete documentation surrounding biospecimen collection, processing, and storage are essential and will influence the quality of research data to be obtained.
10. Bar code identification of samples with an automated date and time stamp is recommended.
11. An inventory system should be established for tracking provenance of samples, including the time of collection, processing, storage, and QC procedures carried out on each sample.
12. **Shipping**
    * 1. DNA degradation begins after 2-3 days at room temperature, so fresh blood samples should be shipped to the processing site within 24 hours if possible. If the genomics lab is not within reach of local transport, frozen blood samples may be shipped through a designated agency.
      2. Consult the local agency for proper shipping options and certified transport materials. The International Air Transportantion Association website (<http://www.iata.org/Pages/default.aspx>) and the U.S. Department of Transportation website (<https://www.transportation.gov/>) have legal requirements governing the packaging, labeling, and shipping of biospecimen.
         + 1. Category B Infectious Substances (also “diagnostic specimens” or “clinical specimens” could be infectious but do not meet the standard for Category A inclusion.
           2. Exempt Patient Specimens have a minimal likelihood of containing pathogens.

## Central Storage

* + 1. Appropriate and complete documentation surrounding biospecimen collection, processing, storage, and shipping from the individual sites is essential and will influence the quality of the multicenter research data to be obtained.
    2. Bar code identification of samples with an automated date and time stamp is recommended.
    3. A formal plan for sharing the central biospecimen resource is recommended.
    4. The Central Bank should maintain information of laboratories where the samples have been sent to avoid duplicative genotyping and inadvertent repetitive reporting of data from the same patient.
    5. The Central Bank should also maintain information regarding any stipulations regarding informed consent for the use of the samples. For example, in some studies participants may provide permission for their samples to be used only for studies on TBI.