BioSTAC

COLLECTION AND SHIPMENT TRAINING
Training Overview: BioSTAC

- Kit Review
- Sample Collection and Processing
- Sample Shipping
- Sample Form
- NCRAD Website
- Common Nonconformance Issues
- Questions?
# BioSTAC Study Specimens

<table>
<thead>
<tr>
<th>Biospecimen</th>
<th>Visit 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasma</td>
<td>X</td>
</tr>
<tr>
<td>Buffy Coat (DNA)</td>
<td>X</td>
</tr>
<tr>
<td>CSF</td>
<td>X</td>
</tr>
</tbody>
</table>
Kit Request Module

http://kits.iu.edu/biostac/
BioSTAC Kit Request Module

- Choose your site from the drop-down list.
- The coordinator name and contact information will appear.
- Verify that this information is accurate, or correct it if necessary.
- Indicate the quantity needed of each kit
- Once selected, kit components of the chosen kit will appear at the bottom of the screen
- Click “Submit” to turn in your request.
- **Note: You can order more than one type of kit in a single kit request**

### Specimen Collection Kit

<table>
<thead>
<tr>
<th>Kit Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>BioSTAC Collection Kit</td>
<td>1</td>
</tr>
<tr>
<td>BioSTAC LP Kit</td>
<td></td>
</tr>
</tbody>
</table>

### Shipping Kits

- UPenn Ambient Shipping Kit
- NCRAD Frozen Shipping Kit (holds 3 subjects)

### Supplemental Kits
- BioSTAC Supplemental Supply Kit

### Extra Supplies

- Do you need extra BioSTAC kit supplies?
  - Yes
  - No

### Comments

Each BioSTAC Collection Kit Contains:

1. EDTA (purple-top) blood collection tube (10 ml)
2. Cryovial (2 ml) with purple cap
3. Cryovial (2 ml) with gray cap
4. False bottom, low protein binding CSF collection tube
5. Disposable graduated transfer pipette
6. Pre-printed UPenn CSF Specimen Label
7. Pre-printed NCRAD Cryovial Labels
8. Pre-printed Kit Number Labels
9. Labels for handwritten Site and NACC ID
10. Cryovial box (holds up to 29 cryovials)
Specimen Labels
Four Label Types

- **Kit Number**
  - Kit Number: 300001

- **Site and NACC ID**
  - Site: ______
  - NACC ID: 

- **Upenn Specimen**
  - NACC: ______
  - Draw date mm/dd/yy: __/__/__
  - BioSTAC
  - Plasma
  - Kit: 300001

- **NCRAD Cryovial**
  - NCRAD Cryovial
Kit Number Labels

Used to track patient samples and provide quality assurance – Will be placed on the following locations:

1. EDTA collection tube
2. Blood/CSF Sample Processing Forms
3. Cryoboxes that house aliquots during shipping
4. One extra label provided

Provided by NCRAD in the kits
Site and NACC Labels

- Subjects will be identified by their Site and NACC ID
- Sites will be responsible for handwriting this onto the provided labels
  - Must use Fine Point Marker
  - Each site will receive 3 markers in initial kit supply
Upenn Specimen Labels

- Collection Tube labels have 3 components:
  - NACC ID field
  - Collection date field
  - Specimen barcode
# NCRAD Cryovial Labels

- Only one label to be placed on each cryovial
  - **Plasma**
    - From EDTA tube
  - **Buffy Coat**
    - From EDTA tube
  - **CSF**

<table>
<thead>
<tr>
<th>BioSTAC</th>
<th>Kit: 300001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasma</td>
<td></td>
</tr>
<tr>
<td>Buffy Coat</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BioSTAC</th>
<th>Kit: 300001</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSF</td>
<td></td>
</tr>
</tbody>
</table>
All collection tubes will have two labels:
- The handwritten Site and NACC ID label
- The kit number label
Blood Collection Tube Labels

- Kit Number Label
- Site and NACC ID Label

EDTA Tube
Labeling UPenn Cryotube

- Label tube immediately after collecting CSF (to keep tube sterile)
- Place label approx. in middle of tube for automated barcode scanning
- Make sure the label is completely adhered by rolling between your fingers
- Do not cover volume markings on tube

UPenn CSF Cryotube
Labeling NCRAD Cryovials

- Label all collection and aliquot tubes *before* collecting, processing or freezing samples
- Label only *1* subject’s tubes at a time to avoid mix-ups
- Wrap the label around the tube *horizontally*. Label position is important for *all* tube types
- Make sure the label is completely adhered by rolling between your fingers
- Do NOT cover barcode on cryovial with label
Handling/Processing Study Specimens
# Blood Draw Order

<table>
<thead>
<tr>
<th>Tube Type</th>
<th>Number of Tubes Drawn</th>
<th>Tube Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. EDTA (Purple-Top) Tube (10 ml)</td>
<td>x1</td>
<td>![Tube Image]</td>
</tr>
</tbody>
</table>

Blood should be collected the same day as CSF, following a minimum 6 hour fast.
NCRAD Cryovial Cap Colors

<table>
<thead>
<tr>
<th>Cap Color</th>
<th>Sample Type</th>
<th>Cap Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purple</td>
<td>Plasma</td>
<td>![Purple Cap Image]</td>
</tr>
<tr>
<td>Gray</td>
<td>Buffy Coat</td>
<td>![Gray Cap Image]</td>
</tr>
<tr>
<td>Gray</td>
<td>CSF</td>
<td>![Gray Cap Image]</td>
</tr>
</tbody>
</table>
Plasma Collection

Create up to four 1.0ml plasma aliquots
Buffy Coat Collection

Create 1 buffy coat
Plasma/Buffy Coat Collection and Processing

Step One: Store tubes at room temp.
Step Two: Collect blood in EDTA Tube allowing blood to flow for 10 seconds and ensuring blood flow has stopped.
Step Three: Immediately after blood draw, invert tube 8-10 times to mix samples.
Step Four: Place thoroughly mixed tube on wet ice until centrifugation begins.
Step Five: Centrifuge samples at 2000 x g for 10 minutes at 4°C.
Step Six: Label purple-capped cryovials with “PLASMA” labels.
   - Aliquot 1.0 ml into each cryovial.
   - Store plasma aliquots upright at -80°C until shipment to NCRAD.
Step Seven: Label gray-capped cryovial with “BUFFY COAT” label.
   - Using a clean transfer pipette, collect the buffy coat (may have residual plasma and some RBCs included).
   - Transfer the buffy coat into the cryovial.
   - Store buffy coat aliquot upright at -80°C until shipment to NCRAD.
   - Spin, aliquot, and freeze aliquots within 1 hour of collection.
CSF Collection

Ambient Upenn Sample

Frozen NCRAD Sample (at least one 1.0 ml aliquot)

CSF should be collected the same day as blood, following a minimum 6 hour fast.
CSF Collection and Processing

Step One: Gravity

Step Two:

Step Three:

Step Four: Ship to Upenn

Step Five: Ship to NCRAD

- Label CSF collection tubes with pre-printed specimen labels prior to collection.
- Collect initial 1-2 ml CSF for local lab testing.
- Collect 2.0-2.5 ml CSF into the false bottom, low protein binding CSF collection tube with UPenn label.
- Collect 1.0 ml CSF into one 2.0 ml gray-capped cryovial with NCRAD label. (Additional cryovials provided in supplemental kit to create a second 1.0 ml aliquot to send to NCRAD if desired.)
- Send 2.0-2.5 ml ambient CSF sample to UPenn SAME DAY AS COLLECTION.
- Store 1.0 ml CSF sample(s) upright at -80°C until frozen shipment to NCRAD.
Sample Form
# Appendix C

## Blood/CSF Sample Processing Form

**Study:** BioSTAC  
**Site ID:** NACC ID: NACC  
**Sex:** □ M □ F □ Year of Birth: □  
**Date subject last ate:** [MMDDYY] □  
**Time subject last ate:** [HHMM] □  
**Kit #:** □ KIT BARCODE □  
**Kit #:** □

### Blood Collection:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of draw</td>
<td>[MMDDYY]</td>
</tr>
<tr>
<td>Time of draw</td>
<td>[HHMM]</td>
</tr>
<tr>
<td>Original volume drawn</td>
<td>ml</td>
</tr>
<tr>
<td>Time spin started</td>
<td>[HHMM]</td>
</tr>
<tr>
<td>Duration of centrifuge</td>
<td>mins</td>
</tr>
<tr>
<td>Temp of centrifuge</td>
<td>°C</td>
</tr>
<tr>
<td>Rate of centrifuge</td>
<td>x g</td>
</tr>
<tr>
<td>Time aliquoted</td>
<td>[HHMM]</td>
</tr>
<tr>
<td># of 1.0 ml plasma</td>
<td>aliquots created</td>
</tr>
<tr>
<td>Time aliquots frozen</td>
<td>[HHMM]</td>
</tr>
<tr>
<td>Storage temperature in freezer</td>
<td>°C</td>
</tr>
<tr>
<td>Duffy cost aliquot created</td>
<td>□ Yes □ No</td>
</tr>
</tbody>
</table>

### Ambient CSF Sample Collection:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of draw</td>
<td>[MMDDYY]</td>
</tr>
<tr>
<td>Time of draw</td>
<td>[HHMM]</td>
</tr>
<tr>
<td>Collection method</td>
<td>□ Gravitational □ Quincke □ 22g Sprotte □ 24g Sprotte</td>
</tr>
<tr>
<td>Needle Used</td>
<td></td>
</tr>
<tr>
<td>Volume of ambient CSF sample</td>
<td>ml</td>
</tr>
<tr>
<td>Ambient CSF sample barcode (6 digits):</td>
<td></td>
</tr>
</tbody>
</table>

### Frozen CSF Sample Collection:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection method</td>
<td>□ Gravitational □ Aspiration</td>
</tr>
<tr>
<td># of 1.0 ml CSF aliquots created for NCRAD:</td>
<td></td>
</tr>
<tr>
<td>(If spun) Time spin started</td>
<td>[HHMM] □ N/A</td>
</tr>
<tr>
<td>(If spun) Duration of centrifuge</td>
<td>mins □ N/A</td>
</tr>
<tr>
<td>(If spun) Temp. of centrifuge</td>
<td>°C □ N/A</td>
</tr>
<tr>
<td>(If spun) Rate of centrifuge</td>
<td>x g □ N/A</td>
</tr>
<tr>
<td>Time aliquoted</td>
<td>[HHMM]</td>
</tr>
<tr>
<td>Time aliquots frozen</td>
<td>[HHMM]</td>
</tr>
<tr>
<td>Storage temperature in freezer</td>
<td>°C</td>
</tr>
</tbody>
</table>

**Notes:**
Sample Shipments
Sample Shipment Summary

Four FROZEN plasma aliquots (1.0 ml) and one buffy coat → TO NCRAD

(At least) One FROZEN CSF aliquot (1.0 ml) → TO UPENN

One AMBIENT CSF aliquot (2.0-2.5 ml) → TO UPENN

Sample MUST be shipped SAME DAY AS COLLECTION (Monday-Thursday)
One 2.0-2.5 ml CSF sample

Only Monday-Thursday collection and same day shipping. Plan ahead to schedule UPS.

Samples must be received at Upenn one day after collection.

Do NOT draw or ship ambient samples on Friday
Place the ambient CSF tube in the absorbent slot and biohazard bag.

Place the bag inside the small shipping box, and then set the refrigerant pack on top of it.

Place small shipping box within a provided UPS Laboratory Pak, seal, and place UPS label on outside of package.

*Gel packs must be put in a freezer at minimum the night before shipping.*
 Ambient Shipment Notification

- Login to website at https://r3plus.pmacs.upenn.edu/ using provided credentials
- Click the “New Requisition” button:

![New Requisition Button]

- NACC ID
- NCRAD Kit Number
- Collection Date
- UPS Tracking Number
- Comment (if necessary)
Frozen Samples

- All other samples shipped frozen to NCRAD
  - Plasma, Buffy Coat, CSF in cryovials
  - **Ship Monday-Wednesday Only**

- Hold packaged samples in a -80°C freezer until pickup

- Batch samples together
  - 3 cryoboxes (3 subjects)
  - **Batch shipping should be performed quarterly or as a full shipment of specimens accumulates, whichever is sooner.**
Frozen Shipment Packaging

Plasma, Buffy Coat, and CSF samples for shipment to NCRAD
Frozen Shipment Packaging

- Use the biohazard bag to package the 25-Slot cryobox

Cryovial box placed in clear biohazard bag
Place 2-3 inches of dry ice in the bottom of the Styrofoam shipping container, then insert the cryoboxes laying upright.

Fully cover the cryoboxes with about 2 inches of dry ice in the provided shipper.

Each Styrofoam shipper must contain about 10 lbs (4.5 kg) of dry ice.
Frozen Shipment – Dry Ice Requirements

Dry Ice label should not be covered with other stickers and must be completed or the shipping carrier will reject/return your package!

Net weight of dry ice in **kg**

Contains **4.5 kg of Dry Ice**
Frozen Shipment Notification

• Go to NCRAD website at https://ncrad.org/resource_biostac.html
• Under the “Additional Resources” header on the right side of the page, select Web-based Sample Form

Additional Resources
- BioSTAC Kit Request System
- Web-based Sample Form
- Friday Blood Draws
- Shipping Address
- Holiday Closures
# Holiday Closures

<table>
<thead>
<tr>
<th>Date</th>
<th>Holiday</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1</td>
<td>New Year’s Day</td>
</tr>
<tr>
<td>3rd Monday in January</td>
<td>Martin Luther King, Jr Day</td>
</tr>
<tr>
<td>4th Monday in May</td>
<td>Memorial Day</td>
</tr>
<tr>
<td>July 4</td>
<td>Independence Day (observed)</td>
</tr>
<tr>
<td>1st Monday in September</td>
<td>Labor Day</td>
</tr>
<tr>
<td>4th Thursday in November</td>
<td>Thanksgiving</td>
</tr>
<tr>
<td>4th Friday in November</td>
<td>Friday after Thanksgiving</td>
</tr>
<tr>
<td>December 25</td>
<td>Christmas</td>
</tr>
</tbody>
</table>
Nonconformance Issues

- Sample aliquots and collection tubes frozen at an angle/inverted
  - Recommendation: Place aliquots in cryoboxes in freezer **upright** until shipment

- Fields left blank on Blood/CSF Sample Processing Form
  - Last time subject ate often left blank/unknown
  - Incorrect data reported on Sample Forms
  - Recommendation: Complete Sample forms during the participant study visit as samples are processed.

- Multiple low volume aliquots
  - Recommendation: Lay out cryovials in a row and aliquot in order until sample is depleted
Nonconformance Issues

All frozen samples for a participant not sent within one shipment box (plasma, buffy coat, and CSF aliquots should be kept together)

Aliquots arriving to UPenn or NCRAD without labels

Recommendation:
Ship Samples to NCRAD utilizing the Notification Form, by subject.

Do not throw away labels until samples are packed and shipped.

Ambient CSF sample not shipped to UPenn the day of collection

Recommendation:
Ensure all ambient CSF samples are shipped by end of the day.
Contact Information

Kaci Lacy
  ◦ Phone: (317) 278-1170
  ◦ E-mail: lacy@iu.edu

General NCRAD Contact
  ◦ Phone: (800) 526-2839
  ◦ E-mail: alzstudy@iu.edu
  ◦ Website: www.ncrad.org