

BioSpecimen Exchange for Neurological Disorders (BioSEND)


*UAB UDALL Training
Webinar*

BioSEND Training Webinar Overview

1. Study Reminders
2. Site Equipment
3. UDALL Biospecimen Collection Protocol
4. Study Visit Protocol
5. Kits & Samples
 - Requesting Kits
 - Labels
 - Sample Collection & Processing
 - Sample Shipment
5. BioSEND Website
6. Contact Information

Study Reminders

Please remember...

- Biospecimens are limited, valuable resources.
- Standardization and quality are key! 
- Reference the BioSEND Manual of Procedures as needed.
- Do not replace or supplement any kit components without first receiving approval from BioSEND.

Site Equipment

The following items are to be supplied by the site:

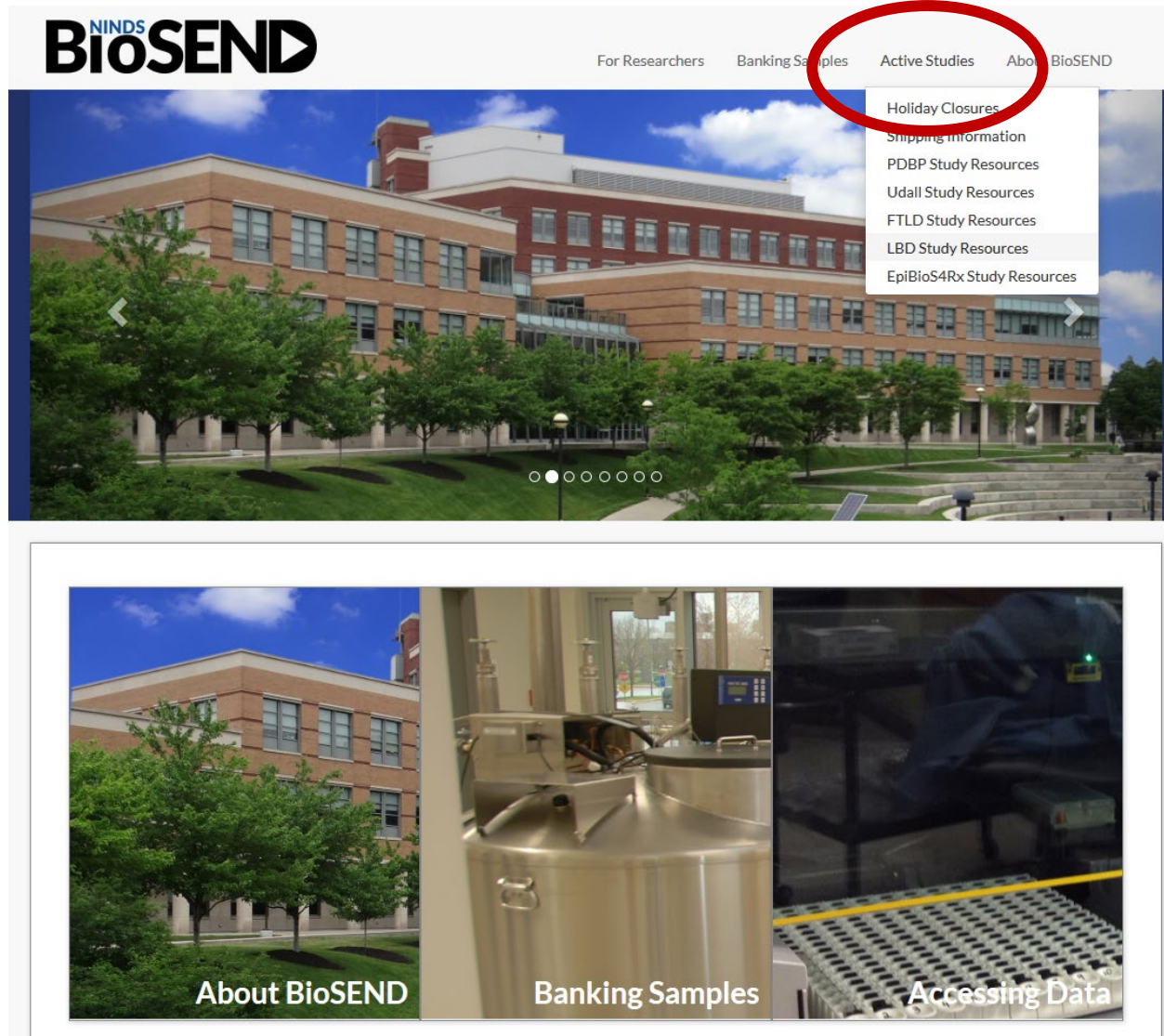
- Personal protective equipment
- Alcohol prep pads
- Butterfly needles and hubs
- Tourniquet
- Gauze pads
- Bandages
- Sharps bin and lid
- Microcentrifuge tube rack
- Test tube rack
- Crushed ice
- Pipettes and pipette tips
- 4°C Centrifuge
- -80°C Freezer
- Dry ice

UDALL Biospecimen Collection Protocol

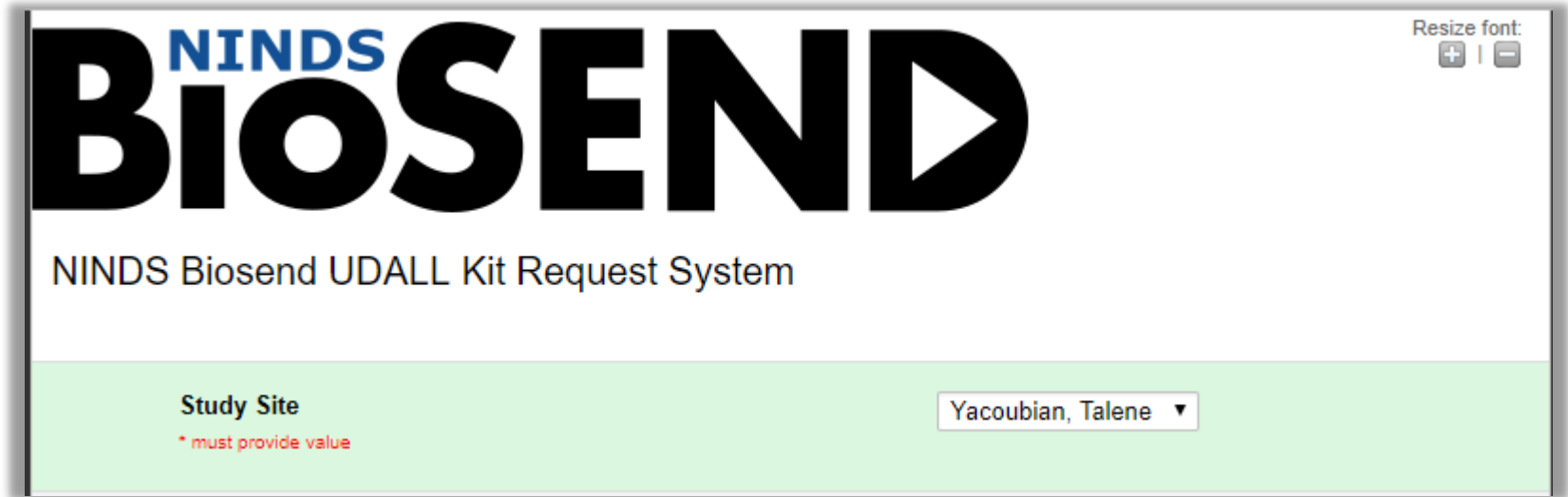
	BL	12M	24M	36M	48M	60M
Plasma (6 x 1ml)	X	X	X	X	X	X
Buffy Coat (2 aliquots)	X	X	X	X	X	X
CSF (10 x 1ml)	X					

Requesting Kits

NINDS BioSEND Website



BioSEND Kit Request Module

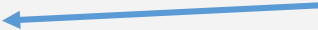


The screenshot shows the NINDS BioSEND Kit Request System interface. At the top, the logo "NINDS BioSEND" is displayed in large, bold letters. Below the logo, the text "NINDS Biosend UDALL Kit Request System" is visible. In the top right corner, there is a "Resize font:" option with plus and minus icons. The main form area has a light green background. On the left, the label "Study Site" is followed by a red asterisk and the text "must provide value". On the right, there is a drop-down menu showing "Yacoubian, Talene" with a downward arrow.

- <http://kits.iu.edu/biosend/udall>
- Choose your site from the drop-down list.

BioSEND Kit Request Module

NINDS Biosend UDALL Kit Request System

Study Site <small>* must provide value</small>	<div>Yacoubian, Talene ▾</div>
UAB Allen Joop 1720 7th Ave South Sparks 350A Birmingham, Alabama 35233	
Is the contact name above correct? <small>* must provide value</small>	<div><input checked="" type="radio"/> Yes <input type="radio"/> No</div> <div>reset</div>
Is the shipping address above correct? <small>* must provide value</small>	<div><input checked="" type="radio"/> Yes <input type="radio"/> No</div> <div>reset</div>
Is the e-mail address above correct? <small>* must provide value</small>	<div><input checked="" type="radio"/> Yes <input type="radio"/> No</div> <div>reset</div>

Confirm site information:

- Study site
- Shipping address
- Contact name
- Email

BioSEND Kit Request Module

Is the contact name above correct? <small>* must provide value</small>	<input type="radio"/> Yes <input checked="" type="radio"/> No	reset
New Contact Name <small>* must provide value</small>	<input type="text"/>	
Is the shipping address above correct? <small>* must provide value</small>	<input type="radio"/> Yes <input checked="" type="radio"/> No	reset
New Shipping Address <small>* must provide value</small>	<div><input type="text"/></div> <div>Expand</div>	
Is the e-mail address above correct? <small>* must provide value</small>	<input type="radio"/> Yes <input checked="" type="radio"/> No	reset
New e-mail Address <small>* must provide value</small>	<input type="text"/>	

- Is the information correct?
- Provide the correct information if needed

BioSEND Kit Request Module: Kit Type

Kit Type

****Please allow two weeks for shipment****

* must provide value

- ☐ Baseline Visit Kit
- ☐ Annual Visit Kit
- ☐ Supplemental Kit
- ☐ Extra Supplies



Please specify in comments if you need kits before the standard two week shipment time.

BioSEND Kit Request Module: Baseline Kit

Kit Type **Please allow two weeks for shipment** * must provide value	<input checked="" type="checkbox"/> Baseline Visit Kit <input type="checkbox"/> Annual Visit Kit <input type="checkbox"/> Supplemental Kit <input type="checkbox"/> Extra Supplies <small>Please specify in comments if you need kits before the standard two week shipment time.</small>
CSF Sprotte Needle Gauge * must provide value	<input type="radio"/> 22 <input type="radio"/> 24 reset
Baseline Visit Kit Quantity * must provide value	<input type="text"/> <small>If you need more than 10 kits or labels, please use the file upload option or submit multiple requests.</small>

- BioSEND creates ST numbers for baseline kits
- Enter preferred CSF needle gauge
- Enter kit quantity

BioSEND Kit Request Module: Annual Visits

Annual Visit Kit Quantity	<input type="text" value="2"/>
<small>* must provide value</small>	<small>If you need more than 10 kits or labels, please use the file upload option or submit multiple requests.</small>
<p>If you going to request more than 10 kits/labels or prefer to upload a file with the Biorepository ID and Visit, you may download this template file and fill in the relevant information.</p> <p>Attachment:  BioSEND_Kit_IDs_Template.xlsx (0.01 MB)</p>	
<p>If you are using the provided template to upload Biorepository IDs and Visits, please upload your template file here.</p> <p> Upload document</p>	
1st Kit Visit ID (only if not using file upload option)	<input type="text" value="ST-00012345"/> <small>e.g. ST-00012345</small>
1st Kit Visit Month	<input type="text" value="12 Month"/>
2nd Kit Visit ID (only if not using file upload option)	<input type="text" value="ST-00012346"/> <small>e.g. ST-00012345</small>
2nd Kit Visit Month	<input type="text" value="12 Month"/>

- Up to 10 kits can be requested:
 - Enter the UDALL Subject ID - ST Number
 - (Example: ST-00012345)
 - Enter the follow up visit month

BioSEND Kit Request Module: Supplemental Kit

Kit Type **Please allow two weeks for shipment** <small>* must provide value</small>	<input type="checkbox"/> Baseline Visit Kit <input type="checkbox"/> Annual Visit Kit <input checked="" type="checkbox"/> Supplemental Kit <input type="checkbox"/> Extra Supplies <small>Please specify in comments if you need kits before the standard two week shipment time.</small>
Supplemental Kit Quantity <small>* must provide value</small>	<input type="text"/> <small>If you need more than 10 kits or labels, please use the file upload option or submit multiple requests.</small>
Comments	<div></div> <div>Expand</div>
Each Supplemental Kit Contains: 2 100 ml absorbent sheets 2 6-tube bubble pouches 2 Cryoboxes 20 Siliconized sterile cryogenic vials (2 ml) 2 Screw-top centrifuge tubes (15 ml) 2 Screw-top centrifuge tubes (50 ml) 2 Biohazard bags 2 Monoject- Lavender-top EDTA tubes (10 ml) 2 Disposable transfer pipettes (1ml) 2 Warning label packets	

- Contains a variety of extra kit pieces

BioSEND Kit Request Module: Extra Supplies

Kit Type **Please allow two weeks for shipment** <small>* must provide value</small>	<input type="checkbox"/> Baseline Visit Kit <input type="checkbox"/> Annual Visit Kit <input type="checkbox"/> Supplemental Kit <input checked="" type="checkbox"/> Extra Supplies <small>Please specify in comments if you need kits before the standard two week shipment time.</small>
6-Tube Bubble Pouch	<input type="radio"/> 2 <input type="radio"/> 4
Cryobox	<input type="radio"/> 2 <input type="radio"/> 4 <small>reset</small>
Siliconized Sterile Cryogenic Vial (2 ml)	<input type="radio"/> 10 <input type="radio"/> 20 <small>reset</small>
FedEx return Airbill	<input type="radio"/> 2 <input type="radio"/> 4 <small>reset</small>

- Allows you to choose specific supplies and particular quantities

BioSEND Kit Request Module: Multiple Orders

Kit Type

****Please allow two weeks for shipment****

* must provide value

☒ Baseline Visit Kit

☒ Annual Visit Kit

☒ Supplemental Kit

☒ Extra Supplies

Please specify in comments if you need kits before the standard two week shipment time.

- You can order more than one type of kit in a single kit request

BioSEND Kit Request Module: Submit

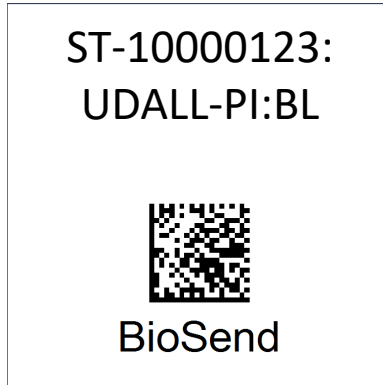
- Click “Submit” to turn in your request.
- The BioSEND staff will notify you that your request has been received and address any issues.

A screenshot of the NINDS Biosend UDALL Kit Request System form. The form is titled "NINDS Biosend UDALL Kit Request System" and features the NINDS BioSEND logo. It contains several sections for data entry: "Study Site" (a dropdown menu showing "Yacoubian, Talene"), "UAB" (a text area with address information), and three validation questions: "Is the contact name above correct?", "Is the shipping address above correct?", and "Is the e-mail address above correct?". Each question has radio buttons for "Yes" and "No", and a "reset" link. Below these is a "Kit Type" section with checkboxes for "Baseline Visit Kit", "Annual Visit Kit", "Supplemental Kit", and "Extra Supplies". A "Comments" section with a text area is at the bottom. The "Submit" button at the very bottom is circled in red. A "Resize font" control is in the top right corner.

Labels

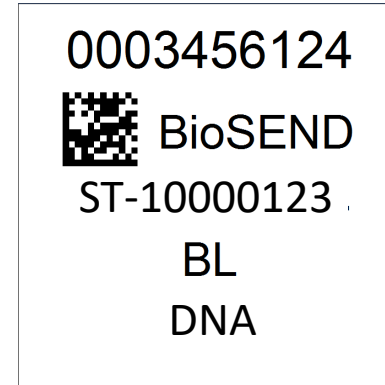
Types of Labels

Case Label



Identify study

Specimen Label



Identify individual biospecimens

Case Label

ST-10000123:
UDALL-PI:BL



BioSend

Subject Number

**Study
Visit**

Biorepository Name

Collection and Aliquot Tube Label

0003456124



BioSEND

ST-10000123

BL

DNA



Biospecimen Number



Study = BioSEND



Subject Number



Visit Type



Specimen Type

Collection and Aliquot Tube Label

Collection and Aliquot Tube Labels are placed on:

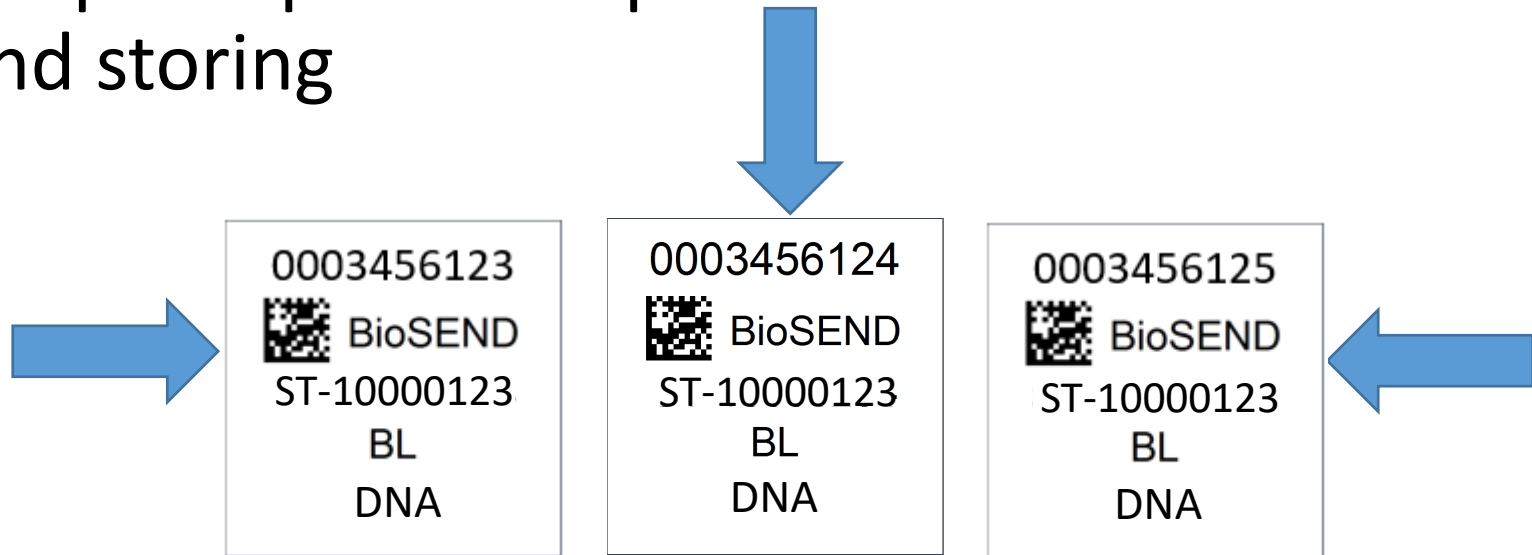
- All collection tubes
- All aliquot tubes (Cryovials)

Be sure that the tube has the correct specimen type on the label



Aliquot Labels

- Keep samples in sequential order when labeling and storing



Sample Collection & Processing

Reminders:

- Collection of biospecimen blood samples should be from subjects who have been fasting for 8 hours or more. If fasting is not feasible, follow suggested low-fat diet.
- G force \neq RPM
- All specimens should be frozen and stored UPRIGHT
 - For plasma, buffy coat and CSF aliquots, please freeze samples upright in the cryobox provided

Calculating Centrifugation Speed

<https://www.eppendorf.com/CA-en/centrifuge-speed-calculator/>

Centrifuge Calculator

Rotational Speed and centrifugal force

To calculate the relative centrifugal force at the given rotor speed and given rotor radius, please enter the values in the appropriate fields and press the Calculate RCF key.

The Calculate Speed key provides information on the required rotational speed at the given relative centrifugal force and the given rotor radius.

Please specify centrifuge and rotor or enter rotor's radius directly

5810/5810 R

Rotors for 5810/5810 R

- 30-place fixed-angle rotor for 1.5-2.0 ml tubes (F-45-30-11)
- 30-place Aerosol-tight fixed-angle rotor for 1.5-2.0 ml tubes (FA-45-30-11)
- 6 x 85 ml High-speed fixed-angle rotor (F-34-6-38)

= Radius 10 cm

Relative centrifugal force (RCF)

RCF 1500 x g

Speed

Speed 3663 rpm

Calculate Speed >>

<< Calculate RCF

****The 3663 rpm speed was calculated using a hypothetical radius of 10 cm and a RCF of 1500 x g.***

Order of Specimen Collection

1. EDTA 10 ml (lavender top) blood collection for plasma and buffy coat

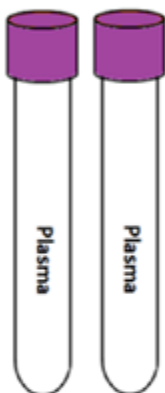


**EDTA
(Plasma)**

Plasma and Buffy Coat Preparation (10ml Lavender Top Tube)



Step One



- Store tubes at room temperature.
- Label tubes with pre-printed subject labels prior to blood draw.

Step Two



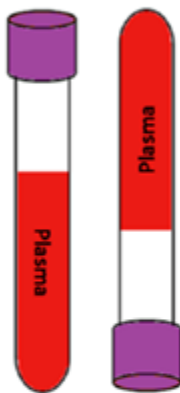
- Label 6 cryovials for plasma and 2 cryovials for buffy coat with pre-printed subject labels prior to blood draw.
- Pre-chill cryovials on wet ice for 5 minutes or longer.

Step Three



- Collect blood in Plasma Tube allowing blood to flow for 10 seconds and ensuring blood flow has stopped.

Step Four



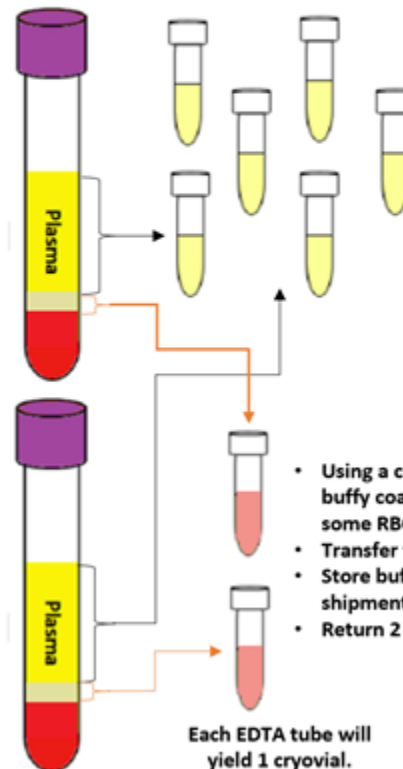
- Immediately after blood draw, invert tubes 8-10 times to mix samples.
- *Repeat steps three and four for second tube.*

Step Five



- Within 30 minutes of blood draw, centrifuge samples at 1500 x g for 15 minutes at 4°C.

Step Six and Seven

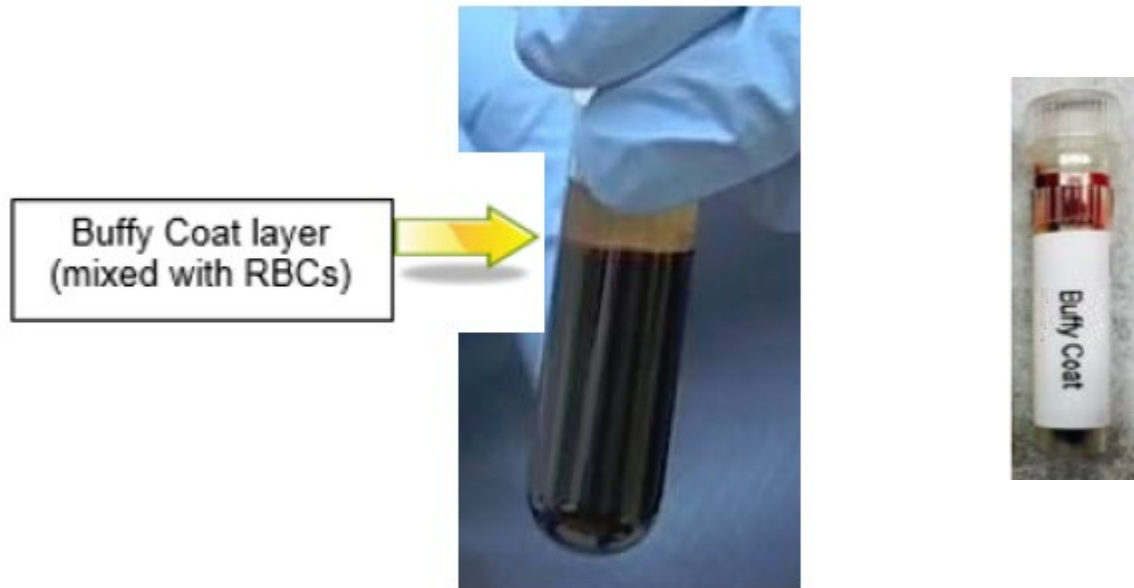


- Aliquot 1.0 mL of plasma into each cryovial tube.
- Store plasma aliquots at -80°C until shipment.
- Return 6 X 1.0 mL aliquots to BioSend

- Using a clean transfer pipette, collect the buffy coat (may have residual plasma and some RBCs included).
- Transfer the buffy coat into a cryovial tube.
- Store buffy coat aliquots at -80°C until shipment.
- Return 2 X 1.0 mL aliquots to BioSend

Each EDTA tube will yield 1 cryovial.

Buffy Coat Collection



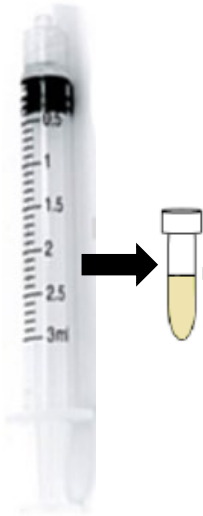
Collect the buffy coat layer using the transfer pipet provided. Residual plasma as well as some RBCs will be included in this collection. A buffy coat will be reddish in color due to RBCs.

Lumbar Puncture Procedure

- 24g or 22g spinal needle provided in custom LP tray
- Prepare transfer and aliquot tubes (NOT in LP tray but in kit)
 - **Label first!**
 - **Do NOT** pre-chill aliquot tubes

CSF Preparation Processing

Step One



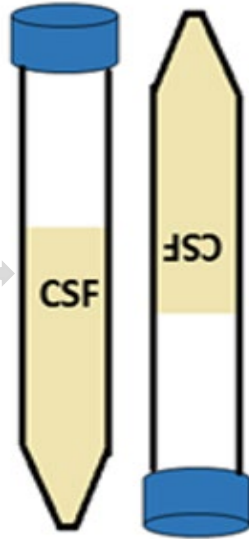
- Collect CSF into the 3 mL luer lock syringe or by gravitational pull.
- Dispense 1-2 mL in a cryovial.
- Send to local lab for testing.

Step Two



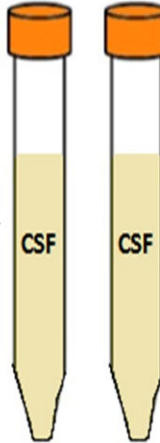
- Collect CSF into 6 mL luer lock syringe or by gravitational pull.
- Collect approved volume into 50 mL conical tube.

Step Three



- Immediately after collection, invert 50 mL conical tube 3-4 times to mix sample.

Step Four



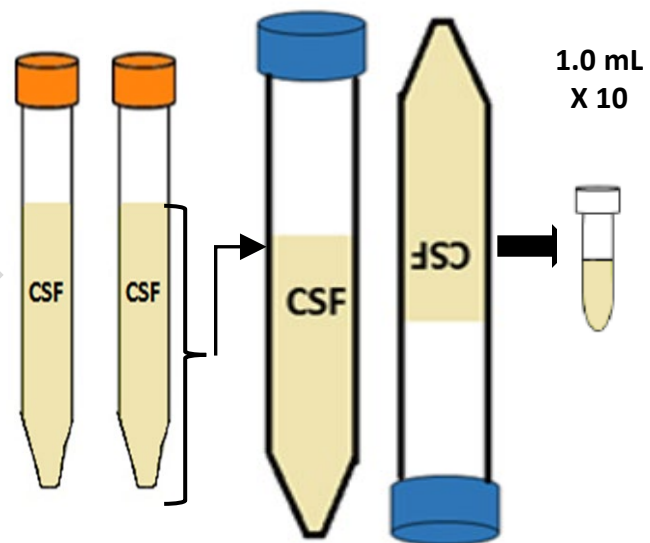
- Transfer CSF into 2 15 mL conical tubes.
- Within 15 minutes of collection, centrifuge samples at room temperature at 2000 x g for 10 minutes.

Step Five



- Label tubes with pre-printed subject labels prior to collection.

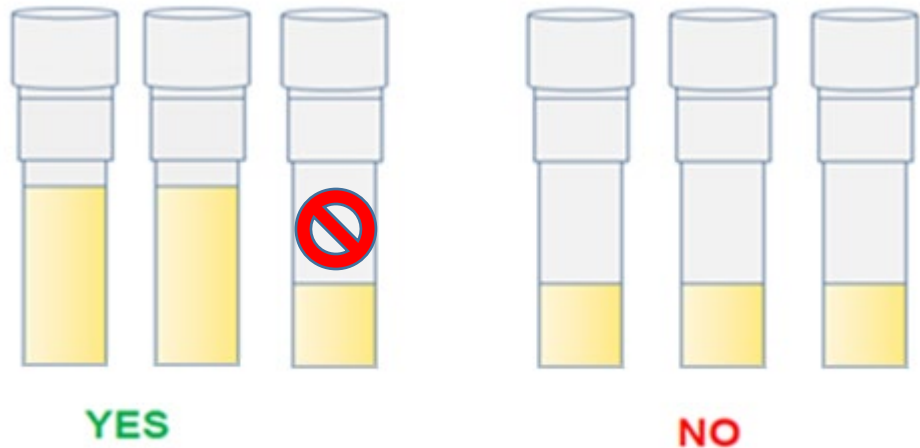
Step Six



- Using a clean transfer pipette, transfer CSF from both 15 mL conical tubes into a NEW 50 mL conical tube leaving the debris in the bottom.
- Mix the 50 mL conical tube gently by inverting 3-4 times.
- Aliquot 1.0 mL into 10 cryovials, Aliquot residual mL in last cryovial (for site use).
- Store CSF aliquots at -80°C until shipment.
- Return 10 1.0 mL aliquots to BioSend.

Plasma, Buffy Coat & CSF Aliquots

- Fill cryovials to 1ml
- Over-filled vials may burst in freezer
- Ship material to BioSEND
 - 6 Plasma aliquots
 - 2 Buffy Coat aliquots
 - 10 CSF aliquots
- Do NOT send residual volumes to BioSEND



Blood Collection: Troubleshooting

Issue #1: Vacutainer tube with little/no vacuum

- Always check expiration dates before beginning blood draw and discard expired tubes
 - *Tubes expire on last day of month printed on tube*
- Store tubes at ambient temperature
 - *Extreme temperatures can affect vacuum*
- Keep extra vacutainer tubes from supplemental kit nearby during blood draw to replace “bad” tubes
- If frequent occurrence, report tube type and lot numbers to Indiana University

Blood Collection: Troubleshooting

Issue #2: Hemolyzed (pink/red) plasma

Cause: Blood Collection Methods	Corrective Action
Improper venipuncture site	Draw from median cubital, basalic, and cephalic veins from antecubital region of arm
Prolonged tourniquet use	Tourniquet should be released after no more than 1 min, excessive fist clenching should be avoided
Not allowing alcohol to dry on skin before venipuncture	Without touching, allow the venipuncture site to air dry
Lumen of needle too close to inner wall of vein (indicated by slow blood flow)	
Use of too large/small bore needle resulting in excess force applied to blood	Avoid using too small/large needle. Needle size dependent on the subject's physical characteristics & amount of blood to be drawn. Most commonly used sizes are 19 – 23.
Pulling/pushing plunger too fast while drawing/transferring blood	Avoid drawing the syringe plunger too forcefully when collecting blood
	Ensure all blood collection assemblies are fitted securely, to avoid frothing

Blood Collection: Troubleshooting

Issue #2: Hemolyzed (pink/red) plasma

Cause: Sample Processing Methods	Corrective Actions
Vigorous mixing/shaking	Gently invert blood collection tube when mixing additive with specimen, follow guidelines in Biologics Manual regarding number of times to invert each type of tube
Not allowing serum to clot for recommended time	Serum tubes without clot activator should be allowed to clot for 60 min in a vertical position
Exposure to excessive heat or cold	Keep samples at ambient temp
Prolonged contact of serum/plasma with cells	Do not store uncentrifuged samples beyond recommended time

Reference: BD's "Tech Talk" newsletter, Vol. 2, No. 2, October 2003
(http://www.bd.com/vacutainer/pdfs/techtalk/TechTalk_Jan2004_VS7167.pdf)

Sample Shipment

Frozen Samples

- All samples are shipped frozen
 - Plasma, Buffy Coat & CSF
- **Ship Monday-Wednesday Only via FedEx Priority Overnight**
- Schedule FedEx pickup
- Email Sample Record and Shipment Notification Form including FedEx tracking number **AHEAD OF SHIPMENT**



Packaging and Shipping Frozen Samples



Pack bags, place upright & side-by-side



FILL dry ice to top of box

Packaging & Shipping Troubleshooting

Issue: Broken/Damaged Tubes

Cause	Preventative Action
Over filling tubes	Fill tubes to suggested volume. If any sample still remains, place in an additional tube
Improper packaging	Ensure the tubes are securely placed into the bubble wrap pouch and are placed in a separate bag from the boxed plasma, serum, and CSF.
Rough shipping conditions	Extra bubble wrap may be needed to pad blood tubes
Extreme changes in temperature (ambient→freezer; freezer→dry ice)	Wrapping the tubes in bubble wrap before freezing may help slow the cooling process

Shipping Frozen Samples

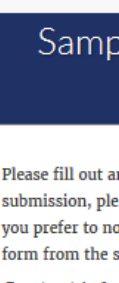
- Hold packaged samples in a -80°C freezer until pickup.
- ***Samples should be received at BioSEND within 2 weeks of collection.***



Sample Shipment Notification Form

Sample Record and Shipment Notification			
Study:	<input type="text"/>		
Site Name:	<input type="text"/>	Principal Investigator:	<input type="text"/>
Coordinator:	<input type="text"/>	Telephone:	<input type="text"/>
		Email:	<input type="text"/>
<u>Please list only ONE subject per Sample Record Summary and Shipment Notification Form</u>			
Study ID:	<input type="text"/>	Subject ID (ST# from pre-printed labels):	<input type="text"/>
Gender:	<input type="text"/>	Visit Type:	<input type="text"/>
Age in Years:	<input type="text"/>	Plus Months:	<input type="text"/>
<p>Instructions: Ship Frozen Shipments Monday- Wednesday ONLY! Ambient Shipments (purple-top EDTA tube) may be shipped Monday- Thursday (preferably Monday- Wednesday) provided they are received at Indiana University within five days of collection. This form must be completed for shipment of all research samples. Notify Indiana University (email preferred) and the DMR in advance of shipment using contact information below. Place a copy in the shipment box and file a copy of the completed form in the study binder. <u>Ensure all frozen shipments are completely filled with dry ice.</u></p>			
Date Sample(s) Shipped:	<input type="text"/>	FedEx Tracking Number:	<input type="text"/>
In the table below, please indicate the date of specimen collection and number of tubes/aliquots submitted.			
Completed by Submitter/Site			
Dates of Draw	Specimen Type	Number of Tubes/ Aliquots sent to BioSEND	Notation of Problems
	DNA		
	RNA		
	Buffy Coat		
	Plasma		
	Serum		
	CSF		
	Whole Blood		
Contact Information: Indiana University; Email: bioSEND@iu.edu Ph: 317-278-0594			

Sample Shipment Notification Form, Online



For Researchers Banking Samples A

Sample Record and Shipment Notification

Please fill out and submit this form when shipping samples to BioSEND. After submission, please print a copy of the form to include with your submission. If you prefer to not use the online system, you may download a pdf version of this form from the sidebar to the right.

Contact Information

<p>Site Name/Number</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Columbia University</div> <p>Coordinator</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Coordinator</div>	<p>Principal Investigator</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Marder, Karen/Honig, Lawrence</div> <p>Telephone</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;"></div> <p>Email</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;"></div>
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Subject Information

<p>Study</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">LBD</div> <p>Gender</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;"></div> <p>Age (In Years)</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Age</div>	<p>GUID</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">GUID</div> <p>Visit Type</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;"></div> <p>Plus Months</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Plus Months</div>	<p>Subject ID (ST# from labels)</p> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;">Subject ID (ST#)</div>
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Ship Frozen Shipments Monday-Wednesday ONLY! Ambient Shipments (purple-top EDTA tube) may be shipped Monday-Thursday (preferably Monday- Thursday) provided they are received at Indiana University within five days of collection. This form must be completed for shipment of all research samples. This form will serve as notification to Indiana University and the DMR of sample shipment. Place a copy in the shipment box and file a copy of the completed form in the study binder. Ensure all frozen shipments are filled with dry ice.

Sample Information

Date Sample(s) Shipped

FedEx Tracking Number

07/27/2017

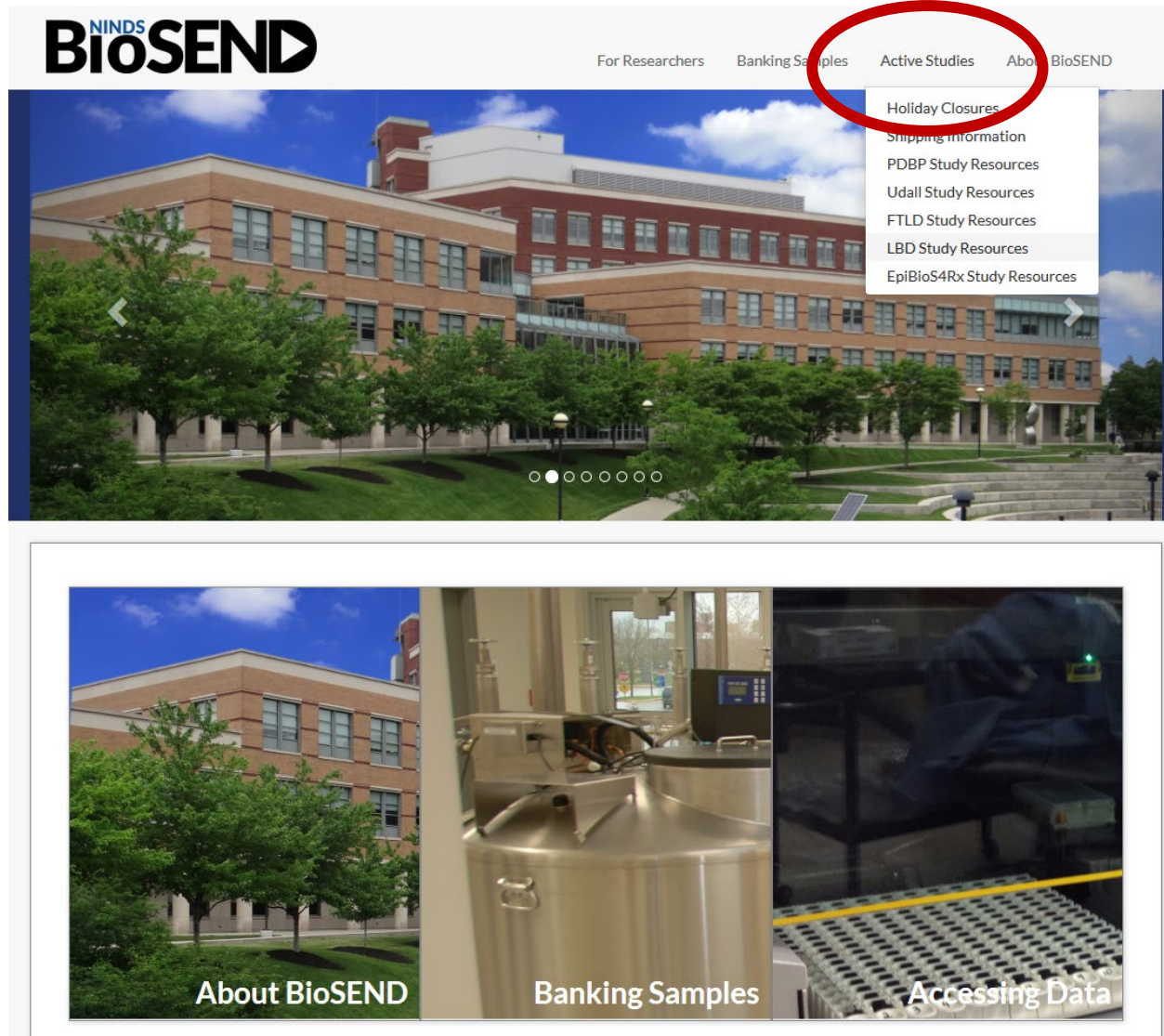
FedEx Tracking #

Draw Date	Specimen Type	# of Tubes Sent	Notation of Problems
Draw Date	DNA	# of Tubes	Notation of Problems
Draw Date	RNA	# of Tubes	Notation of Problems
Draw Date	Plasma	# of Tubes	Notation of Problems
Draw Date	Serum	# of Tubes	Notation of Problems
Draw Date	CSF	# of Tubes	Notation of Problems
Draw Date	Whole Blood	# of Tubes	Notation of Problems
Draw Date	Buffy Coat	# of Tubes	Notation of Problems

Reset Sample Form

Submit Sample Form

NINDS BioSEND Website



Holiday Closures

Date	Holiday
January 1	New Year's Day
3 rd Monday in January	Martin Luther King, Jr Day
4 th Monday in May	Memorial Day
July 4	Independence Day (observed)
1 st Monday in September	Labor Day
4 th Thursday in November	Thanksgiving
4 th Friday in November	Friday after Thanksgiving
December 25	Christmas Day

BioSEND Contact Information

- Questions?

Please contact: Claire Wegel (cwegel@iu.edu)

- Email: biosend@iu.edu

Questions?