

BioSpecimen Exchange for Neurological Disorders (BioSEND)


SBPD Training Webinar

BioSEND Training Webinar Overview

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

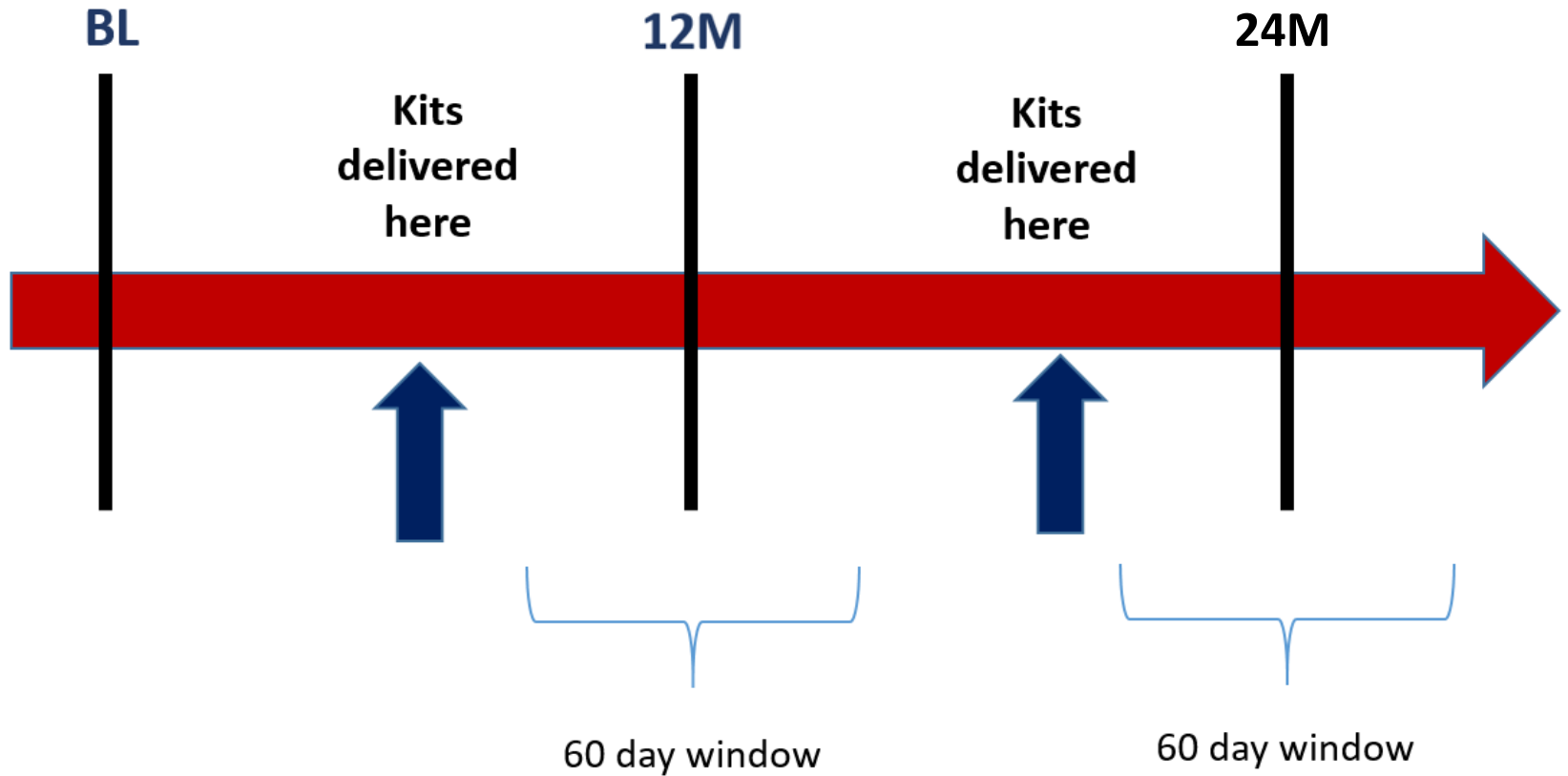
The following items are to be supplied by the site:

- 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
- 4°C Centrifuge
- -80°C Freezer
- Dry ice

SBPD Biospecimen Collection Protocol

	BL	12M	24M
Whole blood (6ml)	X	X	X
Buffy Coat (2 aliquots)	X	X	X
Plasma (6 x 1ml)	X	X	X
RNA (2 x 2.5ml)	X	X	X

Study Visit Protocol



Study Visit Protocol

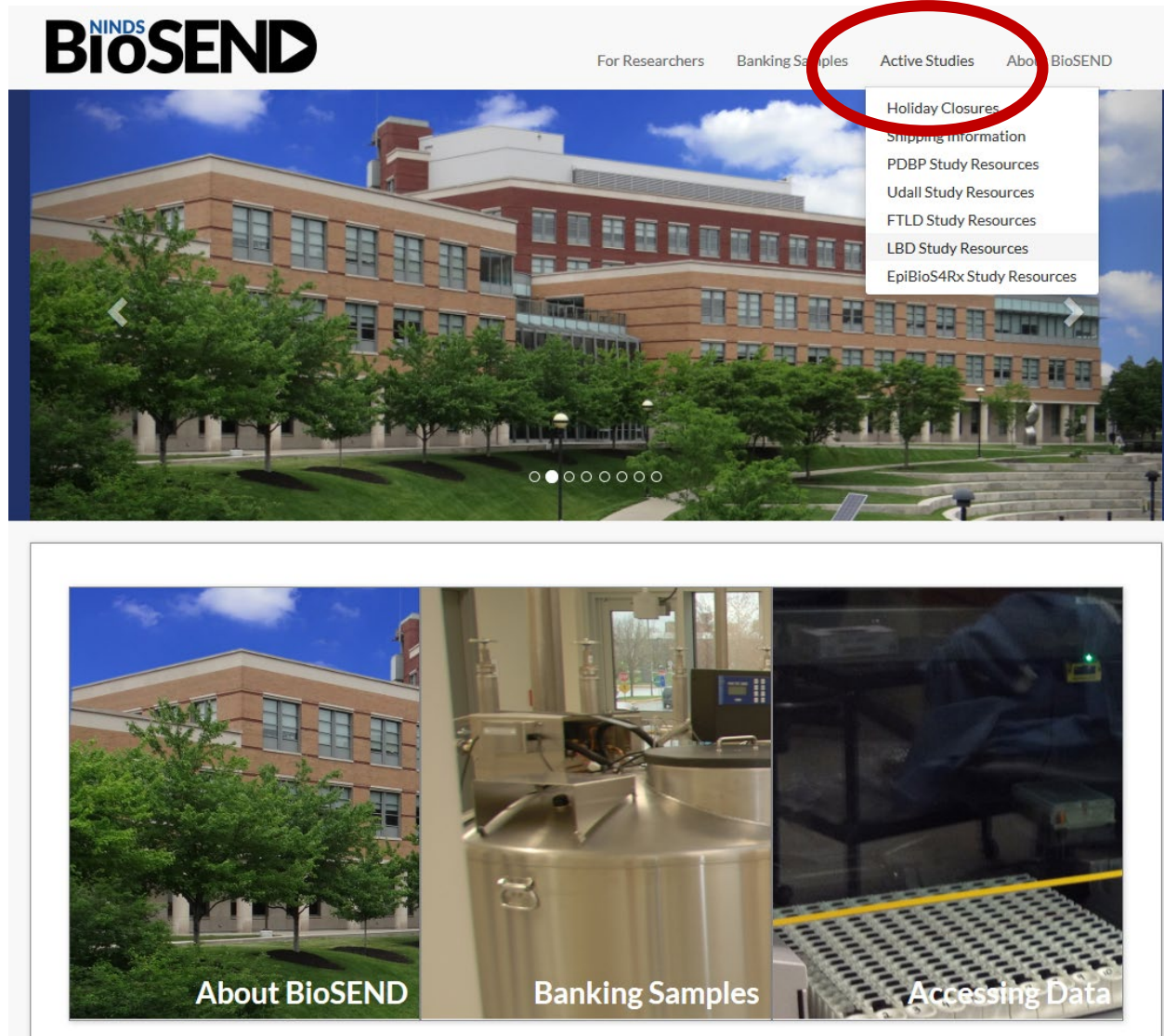
- After subject completes baseline visit, BioSEND sets up automated kit sending schedule for subject's subsequent visits
- Schedule gives 2 month window around the longitudinal study visit target (1 month on either side)
- BioSEND will send kits prior to start of study window
 - Reduces effort for study coordinators
 - Sites only need to order kits if visit will occur **AHEAD** of the study visit window
- All study visit target dates are determined from Baseline Visit (not from last study visit date)

Study Visit Protocol

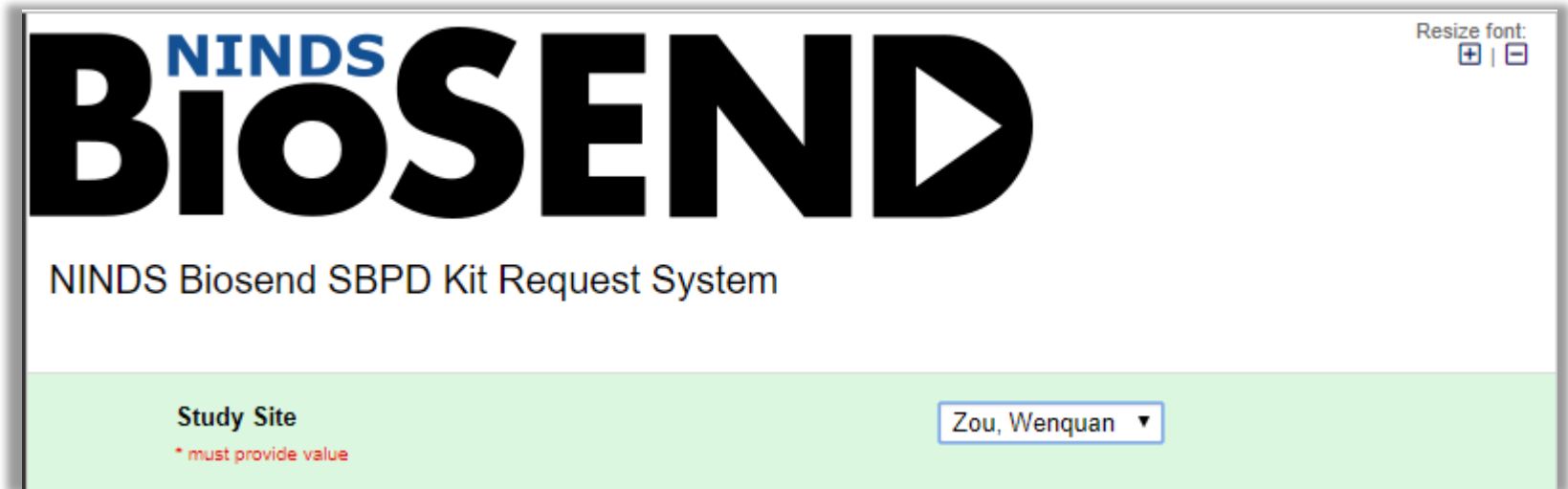
- Automated kits will be shipped to you on a monthly basis. For example, if a subject's visit window opens in October, you will receive the kit for that subject at the end of September.

Requesting Kits

NINDS BioSEND Website



BioSEND Kit Request Module



The screenshot shows the NINDS BioSEND SBPD Kit Request System interface. At the top, the NINDS BioSEND logo is displayed in large, bold letters. Below the logo, the text "NINDS Biosend SBPD 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 with the text "Zou, Wenquan" and a downward arrow.

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

BioSEND Kit Request Module

Case Western Reserve University Dr. Wenquan Zou Institute of Pathology Adelbert Road, Room #403 Cleveland, OH 44106 216-368-8993 wxz6@case.edu		
Is the contact name above correct? <small>* must provide value</small>	<input type="radio"/> Yes <input type="radio"/> No	reset
Is the shipping address above correct? <small>* must provide value</small>	<input type="radio"/> Yes <input type="radio"/> No	reset
Is the e-mail address above correct? <small>* must provide value</small>	<input type="radio"/> Yes <input type="radio"/> No	reset

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

- ☒ 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.

Baseline Visit Kit Quantity

* must provide value

- BioSEND creates ST numbers for baseline kits
- Enter kit quantity

BioSEND Kit Request Module: Annual Visits

Only use this if the subject will be seen ahead of a study visit window

Baseline or 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>	
Attachment:  BioSEND Kit IDs Template.xlsx (0.01 MB)	
<p>If you are using the provided template to upload Biorepository IDs and Visits, please upload your template file here.</p>	
Upload document	
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-0012346"/> <small>e.g. ST-00012345</small>
2nd Kit Visit Month	<input type="text" value="36 Month"/>

- If requesting a follow-up visit kit, you must provide us with time point and ST number of the kit you are requesting. Not doing so will delay your shipment, as we cannot complete your request without this information.

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" value="1"/>
Comments	<div></div> <div>Expand</div>
Each Supplemental Kit Contains: EDTA tube, 10ml (glass) - 3 EDTA tube, 6ml (plastic) - 3 PAXgene tube, 2.5ml - 3 Siliconized cryotubes, 2ml - 20 Disposable pipette, 3ml - 5 15ml conical (for mixing plasma) - 3 Resalable tube pouches - 9 Cryobox, 25 slot - 2 Biohazard bag w/ absorbent sheet- 5 UN3373, dry ice, and fragile stickers - 3 each	

- 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"/> 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
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** <small>* must provide value</small>	<input checked="" type="checkbox"/> Baseline Visit Kit <input checked="" 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>
Baseline Visit Kit Quantity <small>* must provide value</small>	<input type="text"/>
Annual Visit Kit Quantity <small>* must provide value</small>	<input type="text"/> <small>Please provide ST number and visit month.</small>

- 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.

NINDS BioSEND Resize font:  

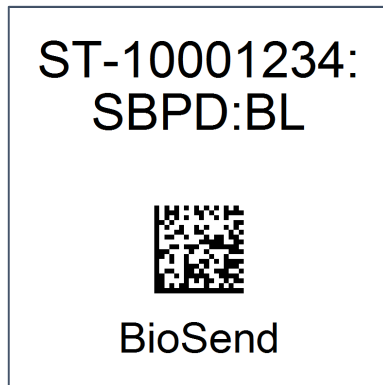
NINDS Biosend SBPD Kit Request System

Study Site <small>* must provide value</small>	Zou, Wenquan ▼
Case Western Reserve University Dr. Wenquan Zou Institute of Pathology Adelbert Road, Room #403 Cleveland, OH 44106 216-368-8993 wxz6@case.edu	
Is the contact name above correct? <small>* must provide value</small>	<input checked="" type="radio"/> Yes <input type="radio"/> No reset
Is the shipping address above correct? <small>* must provide value</small>	<input checked="" type="radio"/> Yes <input type="radio"/> No reset
Is the e-mail address above correct? <small>* must provide value</small>	<input checked="" type="radio"/> Yes <input type="radio"/> No reset
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 type="checkbox"/> Extra Supplies <small>Please specify in comments if you need kits before the standard two week shipment time.</small>
Comments	<div></div> Expand
<div>Submit</div>	

Labels

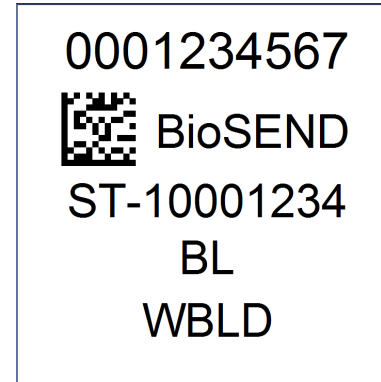
Types of Labels

Case Label



Identify study

Specimen Label



Identify individual biospecimens

Case Label

ST-10001234:
SBPD:BL



BioSend



Subject Number



Study



Visit

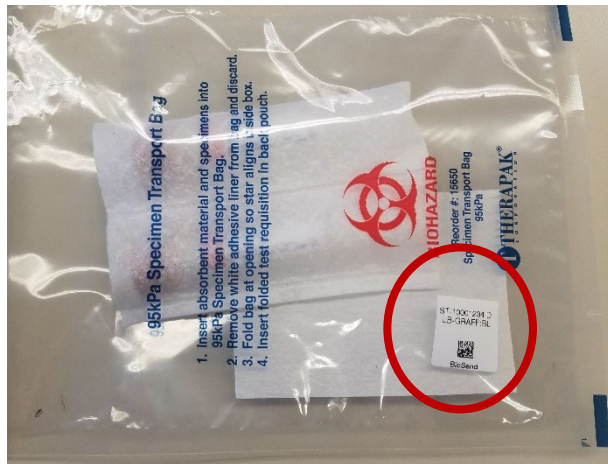


Biorepository Name

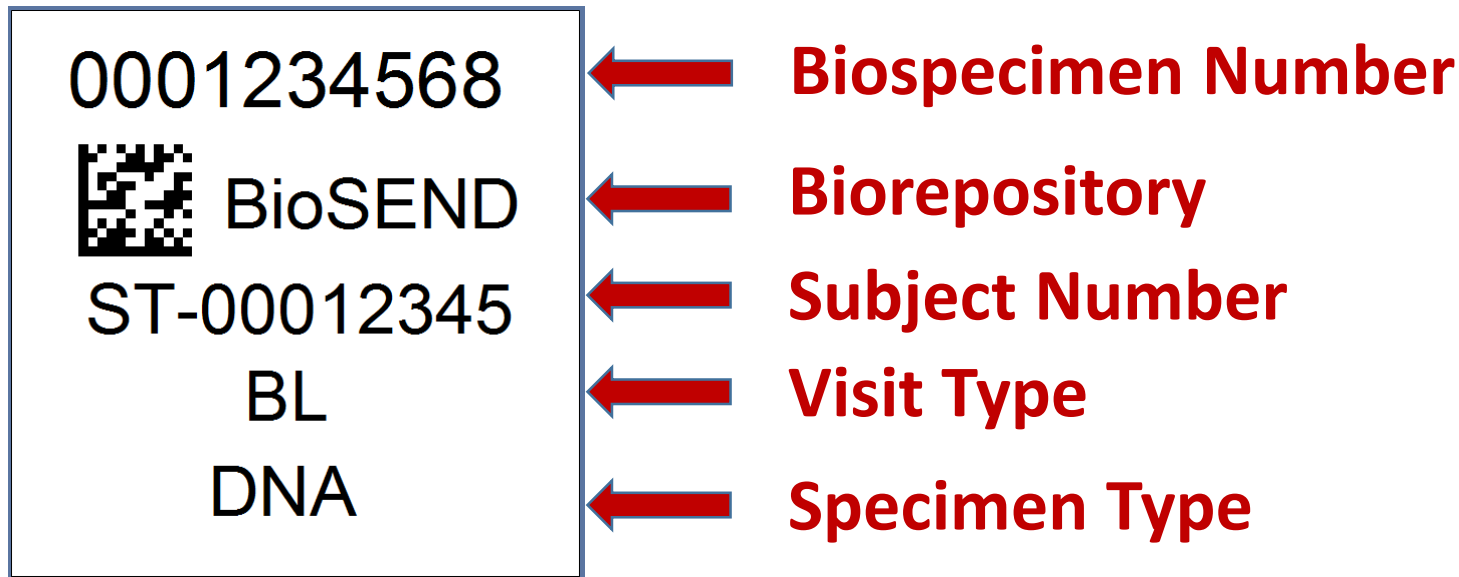
Case Labels

Case labels are placed:

- On the plastic biohazard bag of the cryovial transport box.
- On the plastic biohazard bag for the PAXgene™ tubes.
- *On the lid of frozen shippers*



Collection and Aliquot Tube Label

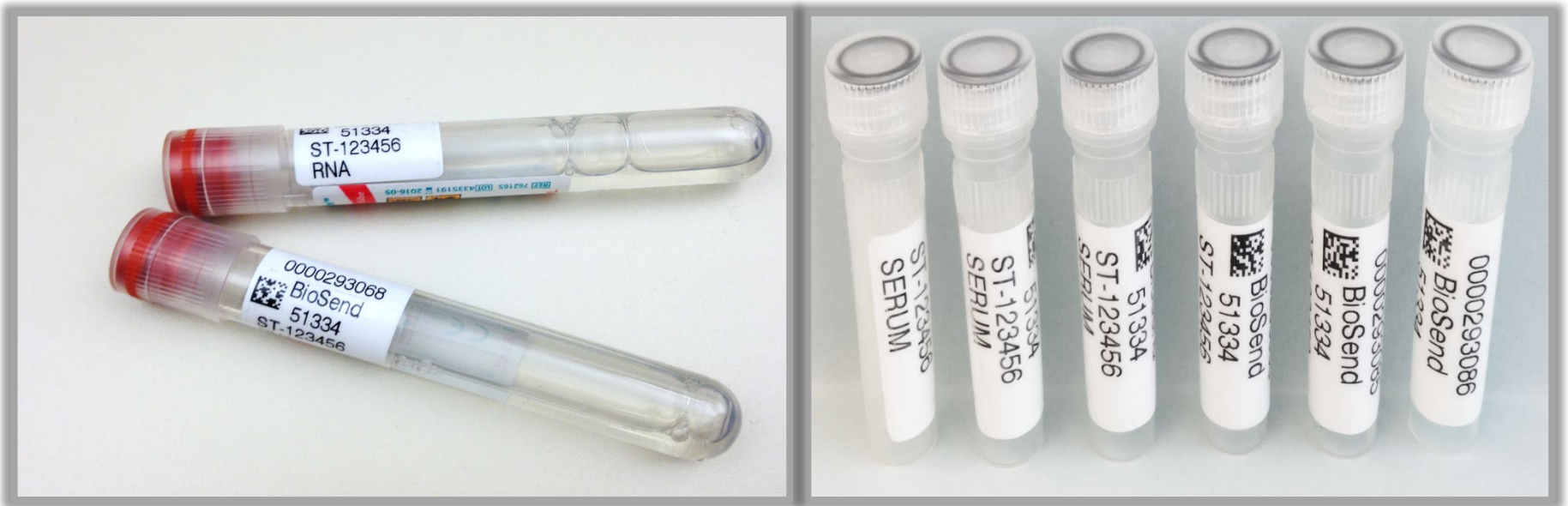


Collection and Aliquot Tube Label

Collection and Aliquot Tube Labels are placed on:

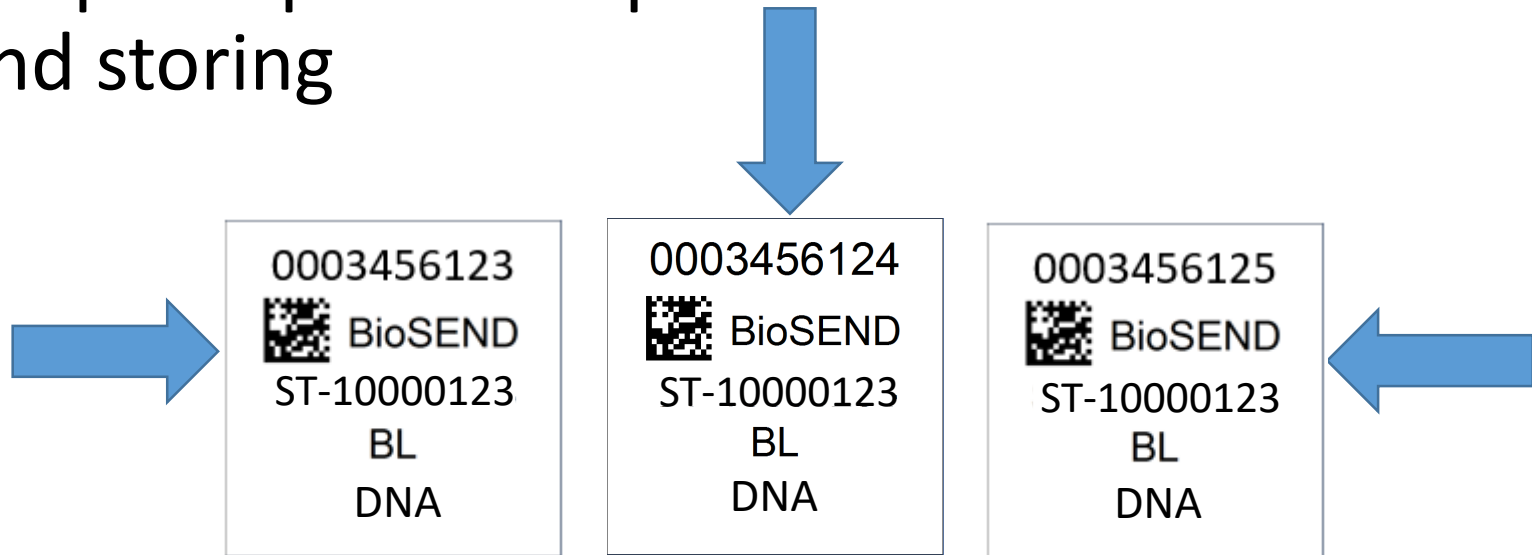
- All collection tubes
- All aliquot tubes (Cryovials)

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 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

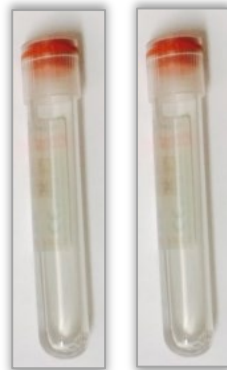
Calculate Speed >>

<< 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

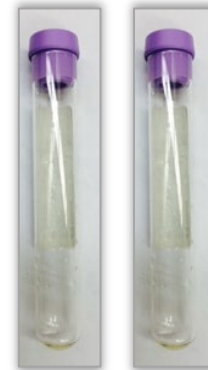
1. PAXgene™ tube for RNA
2. EDTA **6 ml (purple top)** blood collection for whole blood (banking)
3. EDTA **10 ml (lavender top)** blood collection for plasma and buffy coat



PAXgene[®]
(RNA)



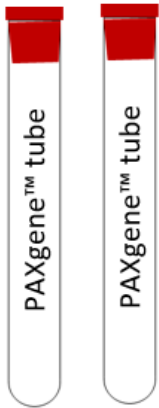
EDTA
(DNA)



EDTA
(Plasma)

PAXgene™ Preparation (2.5ml Tube)

Step One



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

Step Two



- Collect blood in tube, allowing blood to flow for 10 seconds and ensuring blood flow has stopped.

Step Three



- Immediately after blood draw, invert tubes 8-10 times to mix samples.

Step Four



- Incubate tubes upright at room temperature for 24 hours before freezing samples.

Step Five



- After hour incubation at room temperature, store tubes at -80°C in a wire rack until shipment.

Whole Blood Preparation – 6 ml K2 EDTA (Purple Top) Tube



Step One



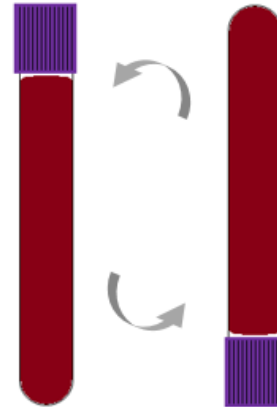
- Store tubes at room temperature.
- Label tubes with preprinted DNA label prior to blood draw.

Step Two



- Collect blood in K2 EDTA tube, allowing blood to flow for 10 seconds and ensuring blood flow has stopped.

Step Three



- Immediately after blood draw, invert tubes 8-10 times to mix samples.

Step Four



- Transfer to -80°C freezer. Store upright and keep frozen until shipment.

Plasma Preparation –10 ml EDTA (Purple Top) Tube



Step One



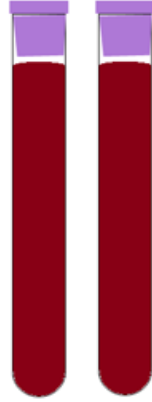
- Store tubes at room temperature.
- Label tubes with preprinted plasma labels prior to blood draw.

Step Two



- Label 6 cryotubes with plasma aliquot labels.
- Pre-chill cryotubes on wet ice for at least 5 minutes

Step Three



- Collect blood in EDTA tubes, allowing blood to flow for 10 seconds and ensuring blood flow has stopped.

Step Four



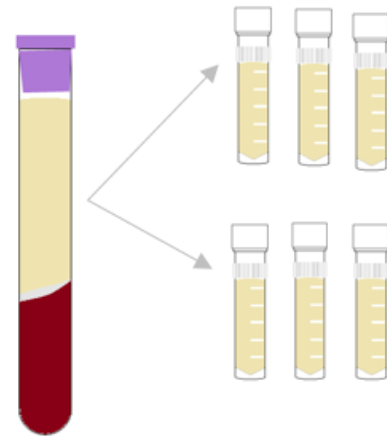
- Immediately after blood draw, invert tubes 8-10 times to mix samples.

Step Five



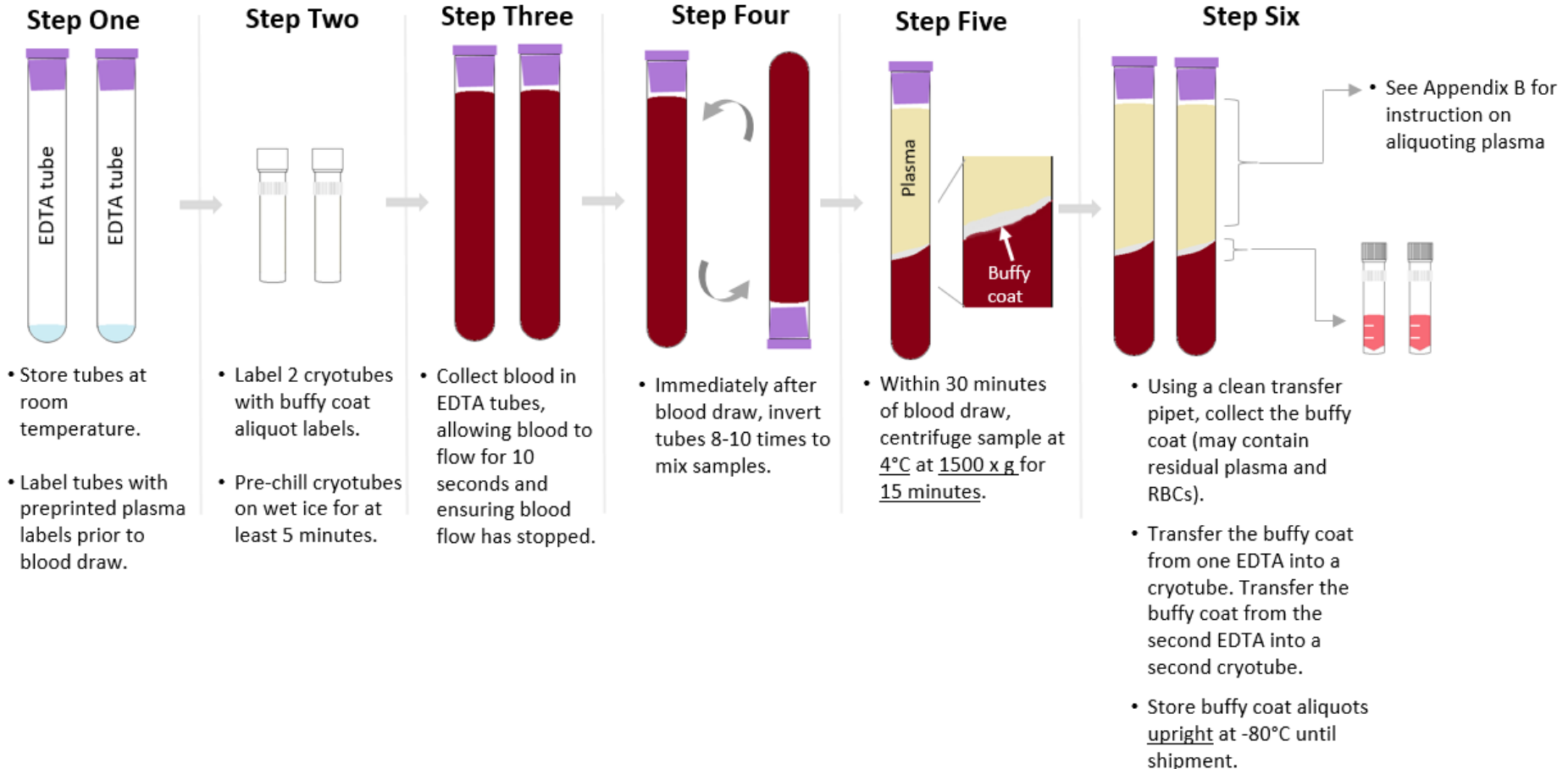
- Within 30 minutes of blood draw, centrifuge sample at 4°C at 1500 x g for 15 minutes.

Step Six



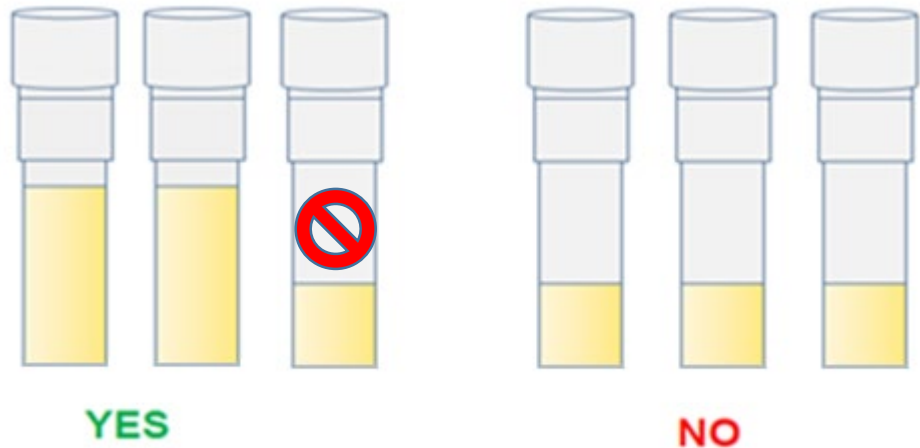
- Using a clean transfer pipet, aliquot 1.0 ml plasma into each cryotube.
- Store plasma aliquots upright at -80°C until shipment.

Buffy Coat Preparation –10 ml EDTA (Purple Top) Tube



Plasma Aliquots

- Fill cryovials to 1ml
- Over-filled vials may burst in freezer
- Ship material to BioSEND
 - 6 Plasma aliquots
 - 2 Buffy Coats
 - 2 RNA Tubes
 - 1 Whole Blood
- Do NOT send residual volumes to BioSEND



Blood Collection: Troubleshooting

Issue #1: Blood draw 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 blood 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) serum and 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) serum and plasma

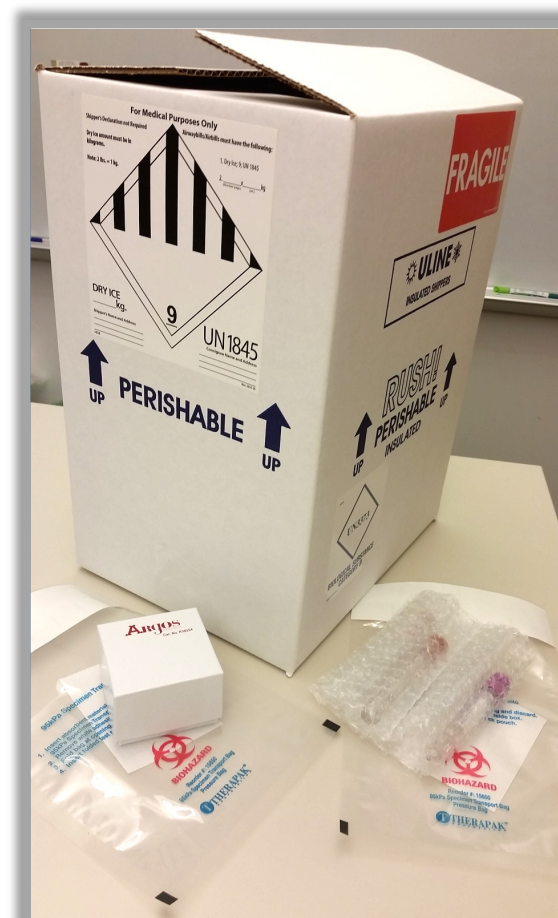
Cause: Sample Processing Methods	Corrective Actions
Vigorous mixing/shaking	Gently invert blood collection tube when mixing additive with specimen, follow guidelines in Biologics Manual regarding number of times to invert each type of tube
Not allowing serum to clot for recommended time	Serum tubes without 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)

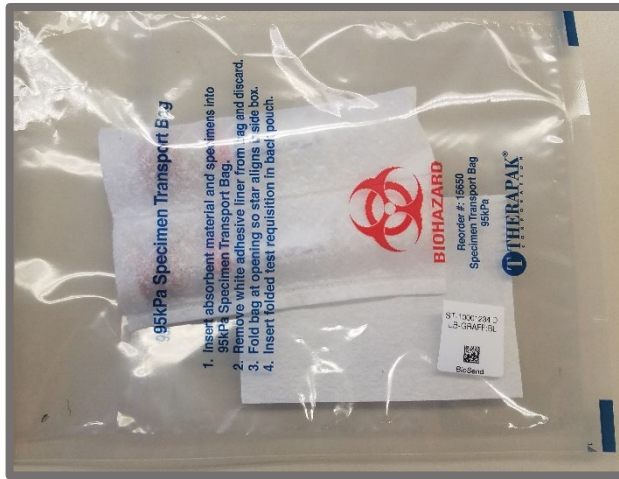
Sample Shipment

Frozen Samples

- **All samples are shipped frozen**
 - Plasma, Buffy Coats, Whole Blood for DNA extraction, and PAXgene™
- **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:

Site Name:

Principal Investigator:

Coordinator:

Telephone:

Email:

Please list only ONE subject per Sample Record Summary and Shipment Notification Form

GUID:

Subject ID (ST# from pre-printed labels):

Gender:

Visit Type:

Age in Years:

Plus Months:

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. Ensure all frozen shipments are completely filled with dry ice.

Date Sample(s) Shipped:

FedEx Tracking Number:

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
Data Management Resource (DMR); Email: PDBP-OPS@mail.nih.gov

Sample Shipment Notification Form, Online

NINDS


BioSEND

For Researchers

Banking Samples

At

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

Site Name/Number

Principal Investigator

Columbia University

Marder, Karen/Honig, Lawrence

Coordinator

Telephone

Email

Coordinator

Telephone

Email

Subject Information

Study

GUID

Subject ID (ST# from labels)

LBD

GUID

Subject ID (ST#)

Gender

Visit Type

Age (In Years)

Plus Months

Age

Plus Months

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

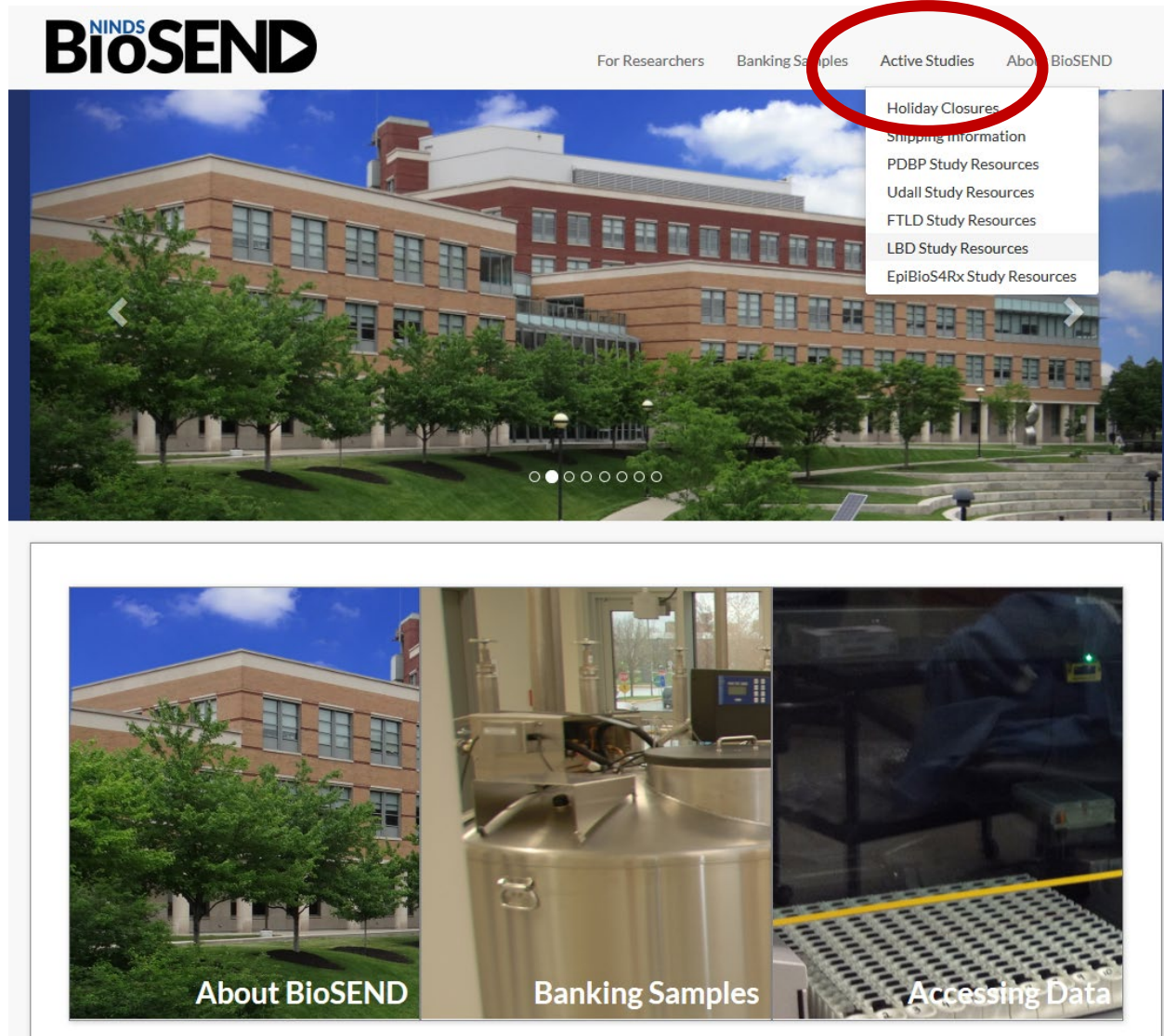
FedEx Tracking #

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?