

BioSpecimen Exchange for Neurological Disorders (BioSEND)

PREDICT-HD 3.0


Training Webinar- PHD3

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
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:

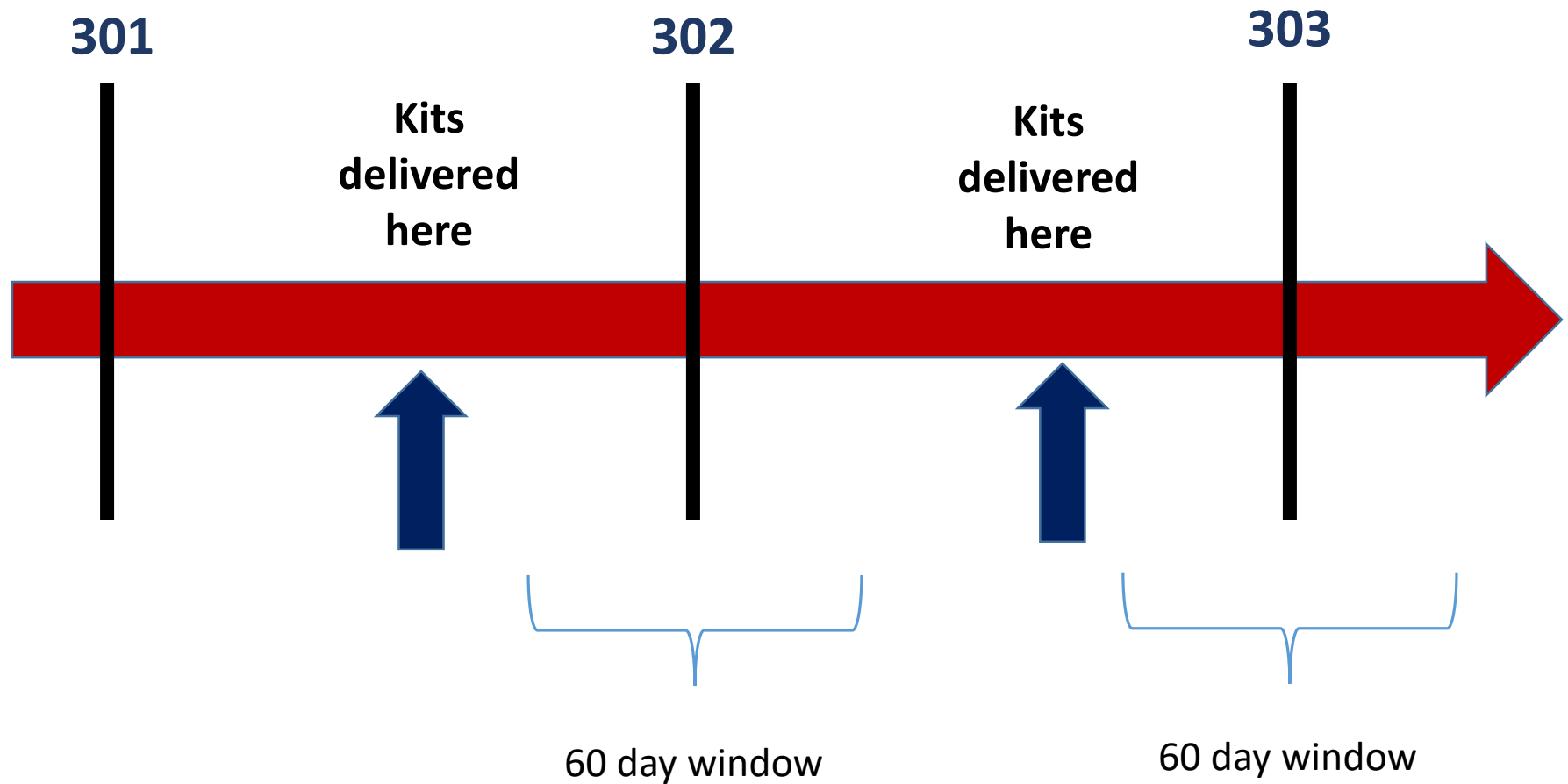
- Personal protective equipment
- Alcohol prep pads
- Butterfly needles and hubs
- Tourniquet
- Gauze pads
- Bandages
- Sharps bin and lid
- Microcentrifuge tube rack
- Test tube rack
- Crushed ice
- Pipettes and pipette tips
- 4°C Centrifuge
- -80°C Freezer
- Dry ice

Biospecimen Collection Protocol

All specimen types FROZEN

	301 (BL)	302 (12M)	303 (24M)
Whole Blood (1 x 6ml)	X	X	X
Plasma (12 x 1.5ml)	X	X	X
Buffy Coat (4 aliquots)	X	X	X
CSF (13 x 1.5ml)	X	X	X

Study Visit Protocol

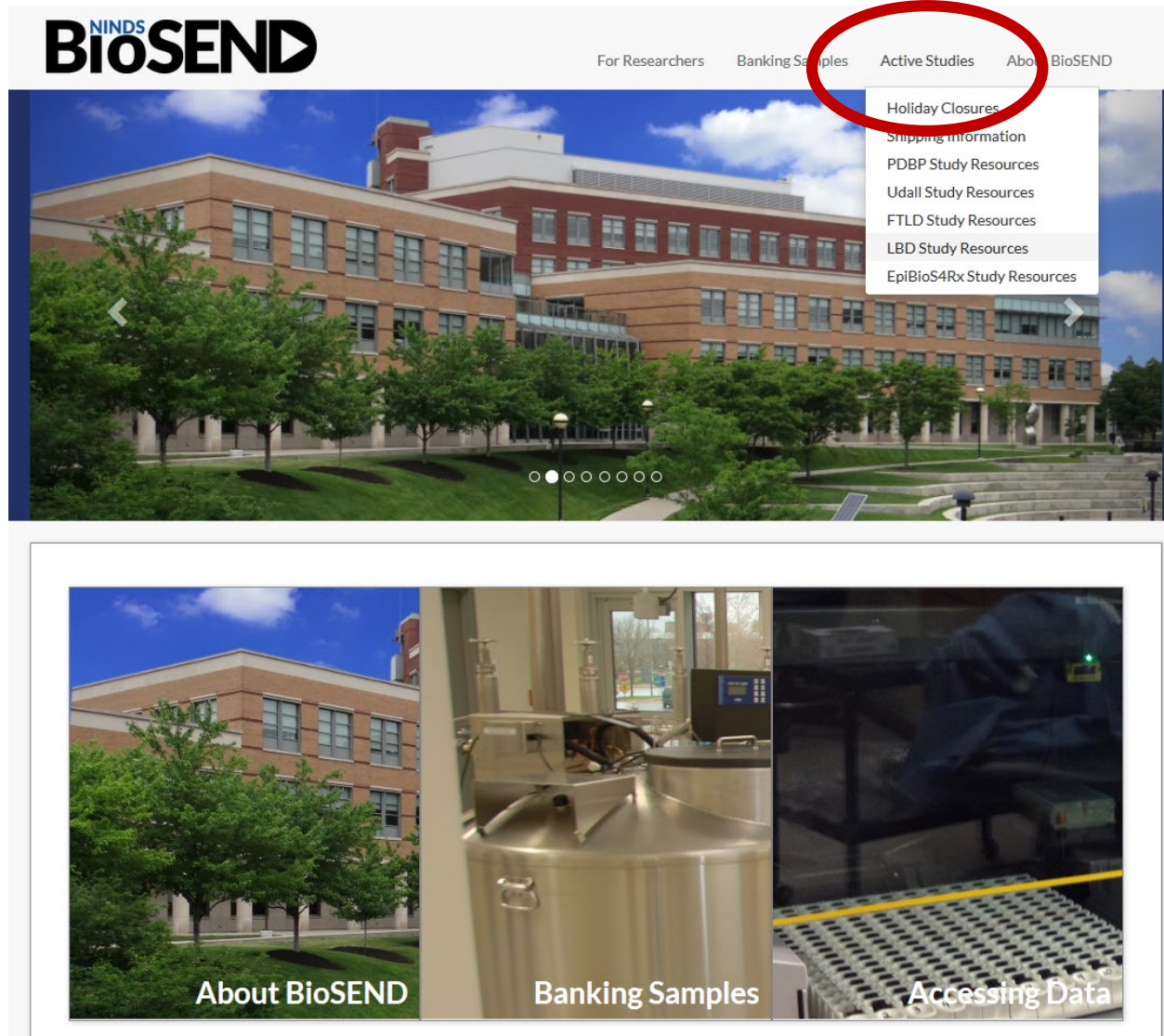


Study Visit Protocol

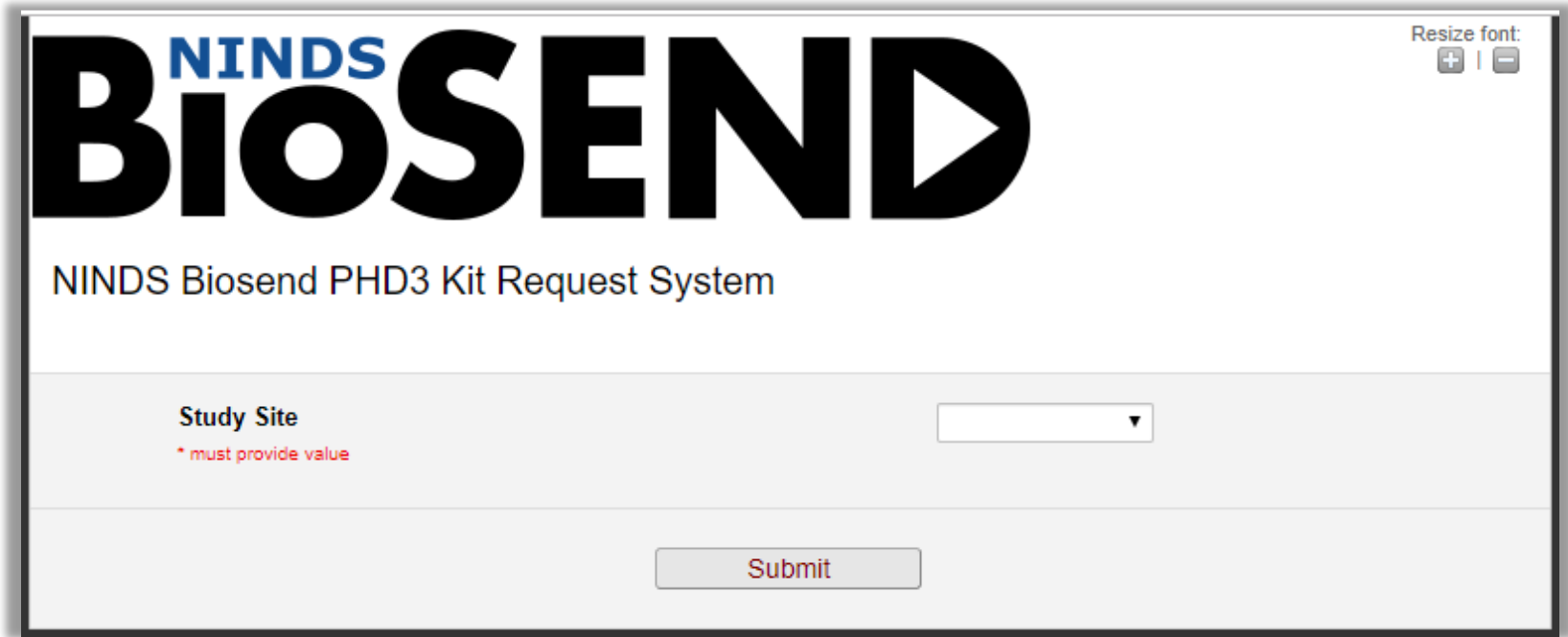
- After subject completes baseline visit, BioSEND sets up automated kit sending schedule for subject's subsequent visits
- Schedule gives 2 month window around the longitudinal study visit target (1 month on either side)
- BioSEND will send kits prior to start of study window
 - Reduces effort for study 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)

Requesting Kits

NINDS BioSEND Website



BioSEND Kit Request Module



The screenshot shows a web interface for the NINDS BioSEND PHD3 Kit Request System. At the top, the logo features "NINDS" in blue and "BioSEND" in large black letters, with the "D" stylized as a play button. Below the logo is the text "NINDS Biosend PHD3 Kit Request System". In the top right corner, there is a "Resize font:" label with plus and minus icons. The main form area has a light gray background. It contains a label "Study Site" with a red asterisk and the text "* must provide value" below it. To the right of the label is a white drop-down menu with a black downward arrow. At the bottom center of the form is a gray "Submit" button.

- <http://kits.iu.edu/biosend/PHD3>
- Choose your site PI from the drop-down list.

BioSEND Kit Request Module

NINDS Biosend PHD3 Kit Request System

Study Site <small>* must provide value</small>	<div>Paulsen, Jane</div>
University of Iowa Roland Zschiegner University of Iowa 500 Newton Road 1-405A MEB Iowa City, IA 52242 (319) 384-4912 roland-zschiegner@uiowa.edu	
Is the contact name above correct? <small>* must provide value</small>	<div><input type="radio"/> Yes</div> <div><input type="radio"/> No</div> <div>reset</div>
Is the shipping address above correct? <small>* must provide value</small>	<div><input type="radio"/> Yes</div> <div><input type="radio"/> No</div> <div>reset</div>
Is the e-mail address above correct? <small>* must provide value</small>	<div><input type="radio"/> Yes</div> <div><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.

- Typically, you will only need to order kits for the Baseline visit



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

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

Kit Type **Please allow two weeks for shipment** <small>* must provide value</small>	<input type="checkbox"/> Baseline Visit Kit <input checked="" 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 <small>* must provide value</small>	<input type="radio"/> 22 <input checked="" type="radio"/> 24 <small>reset</small>
Annual Visit Kit Quantity <small>* must provide value</small>	<input type="text" value="2"/> <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>	
Comments	<div></div> <p><small>Expand</small></p>

- Input subject/visit needed in Comments so correct labels are provided

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: 5 - Lavender-top EDTA tubes (10 ml) 5 - Purple-top EDTA tubes (6 ml) 10 - Purple cryogenic vials (2 ml) 10 - Grey cryogenic vials (2 ml) 5 - Disposable transfer pipettes (3ml) 2 - Conical tubes, 15ml 2 - Conical tubes, 50ml 2 - Cryobox, 25 slot 5 - Warning label packet 5 - Waybill 2 - Biohazard bags w/ absorbent sheet 5 - 3"x5" bubble bag 10 - Resealable tube pouches	

- 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 or Annual Visit Kit <input type="checkbox"/> 6-Month 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 reset
Cryobox	<input type="radio"/> 2 <input type="radio"/> 4 reset
Siliconized Sterile Cryogenic Vial (2 ml)	<input type="radio"/> 10 <input type="radio"/> 20 reset
FedEx return Airbill	<input type="radio"/> 2 <input type="radio"/> 4 reset
Lumbar Puncture Trays with Lidocaine	<input type="radio"/> 2 <input type="radio"/> 4 reset
Needles - Introducer	<input type="radio"/> 5

- 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.



The screenshot shows the NINDS Biosend PHD3 Kit Request System form. At the top is the NINDS BioSEND logo and the title "NINDS Biosend PHD3 Kit Request System". The form is divided into several sections. The first section, "Study Site", has a dropdown menu set to "Paulsen, Jane" and a red asterisk indicating a required field. The second section, "University of Iowa", has the name "Jane Paulsen" entered. The third section, "Is the contact name above correct?", has radio buttons for "Yes" and "No", with a red asterisk and a "reset" link. The fourth section, "Is the shipping address above correct?", has radio buttons for "Yes" and "No", with a red asterisk and a "reset" link. The fifth section, "Is the e-mail address above correct?", has radio buttons for "Yes" and "No", with a red asterisk and a "reset" link. The sixth section, "Kit Type", has a red asterisk and a note "**Please allow two weeks for shipment**". It includes checkboxes for "Baseline Visit Kit", "Annual Visit Kit", "Supplemental Kit", and "Extra Supplies". Below this is a note: "Please specify in comments if you need kits before the standard two week shipment time." The seventh section, "Comments", has a large text area and an "Expand" link. At the bottom, a "Submit" button is circled in red.

NINDS BioSEND

NINDS Biosend PHD3 Kit Request System

Study Site Paulsen, Jane ▼
* must provide value

University of Iowa
Jane Paulsen

Is the contact name above correct? ☐ Yes ☐ No
* must provide value reset

Is the shipping address above correct? ☐ Yes ☐ No
* must provide value reset

Is the e-mail address above correct? ☐ Yes ☐ No
* must provide value reset

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.

Comments

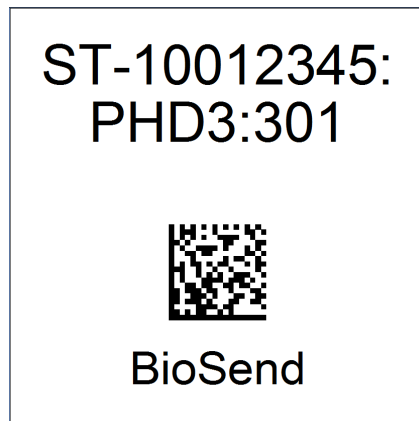
Expand

Submit

Labels

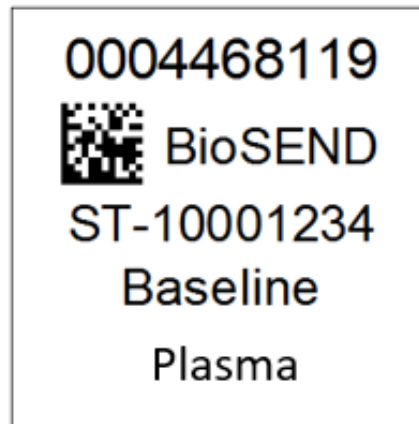
Types of Labels

Case Label



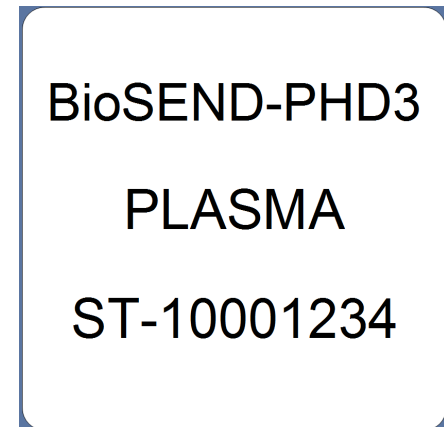
Identify study and Visit

Collection Tube Label



For collection tubes

Aliquot Label



For cryovials; will come
pre-labeled

Case Label

ST-10012345:
PHD3:301



BioSend



Subject Number



Study



Visit

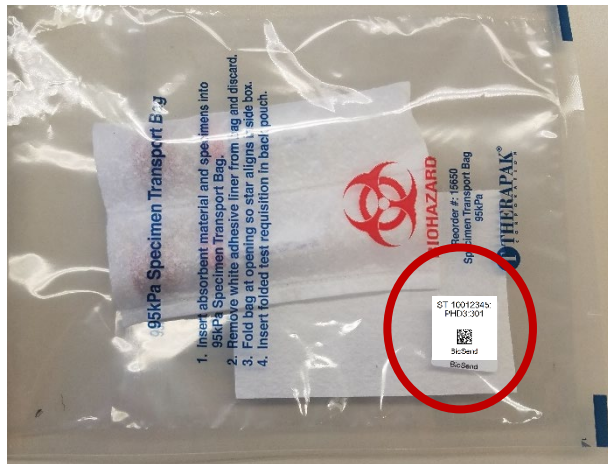


Biorepository Name

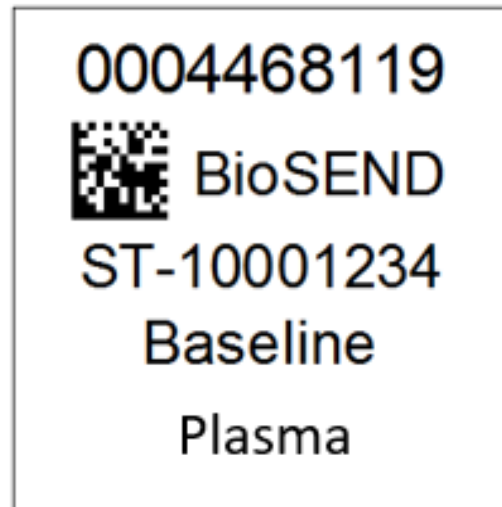
Case Labels

Case labels are placed:

- On the plastic biohazard bag of the cryovial transport box.
- On the plastic biohazard bag for the EDTA tube.
- *On the lid of frozen shippers*



Collection Tube Label



← **Biospecimen Number**

← **Subject Number**

← **Visit Type**

← **Specimen Type**

Aliquot Tube Label

BioSEND-PHD3

PLASMA

ST-10001234



Study Abbreviation



Specimen Type



Subject Number

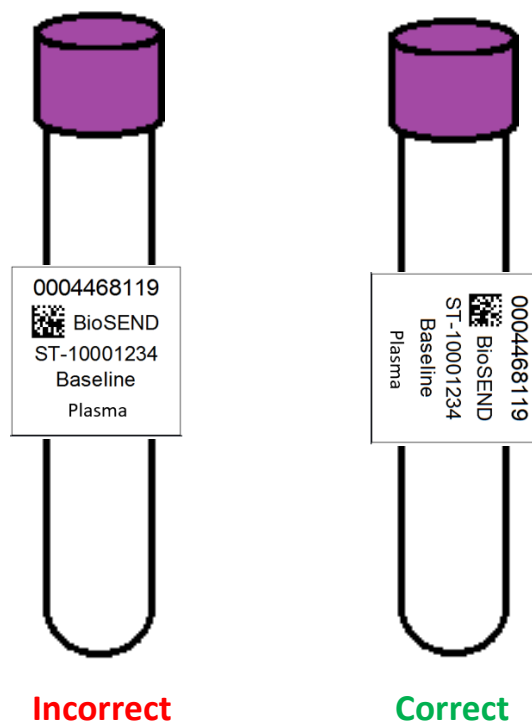
*Note: The tube itself will have a unique barcode printed in both 2D format (on bottom of tube) and human readable format (alongside of tube).

Collection Tube Labels

Collection Tube Labels are placed on:

- All collection tubes

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



Aliquot Labels

- Cryovials will be pre-labeled, but please verify that you are using the correct cryovial for the correct specimen type

Grey cryovials are used for
Buffy Coat and CSF aliquots



BioSEND-PHD3
CSF
ST-10001234

OR

BioSEND-PHD3
BUFFY COAT
ST-10001234

Purple cryovials are used for
plasma aliquots



BioSEND-PHD3
PLASMA
ST-10001234

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 RNA and whole blood specimens, please freeze samples upright in a non-styrofoam rack
 - For plasma, buffy coat, serum, 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

Calculate Speed >>

<< Calculate RCF

Speed

Speed 3663 rpm



****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 6 ml (**purple top**) blood collection for DNA
2. EDTA 10 ml (**lavender top**) blood collection for plasma and buffy coat



**EDTA
(Whole Blood)**



**EDTA
(Plasma)**

Whole Blood (6 ml Lavender Top Tube)



Step One



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

Step Two



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

Step Three



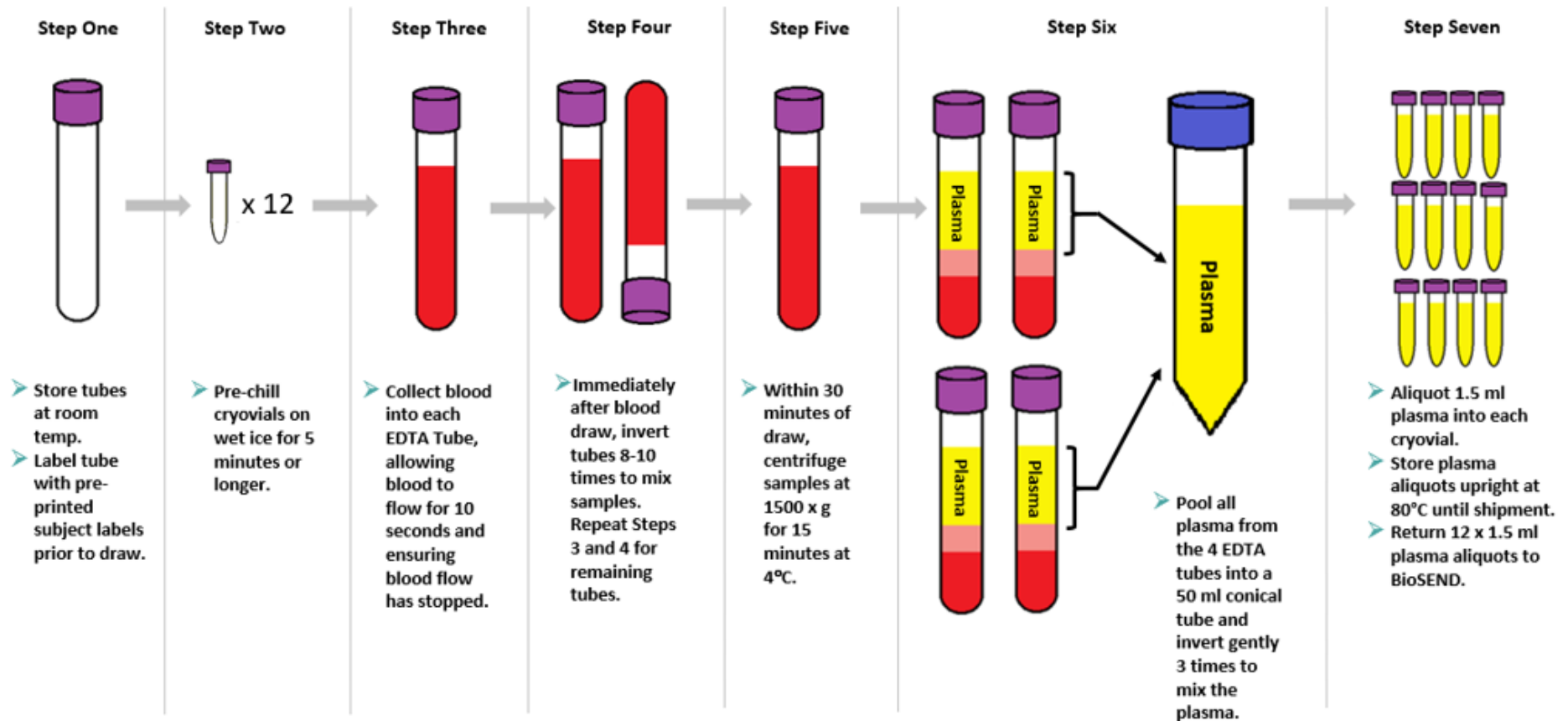
- Immediately after blood draw, invert tubes three times to mix samples.

Step Four

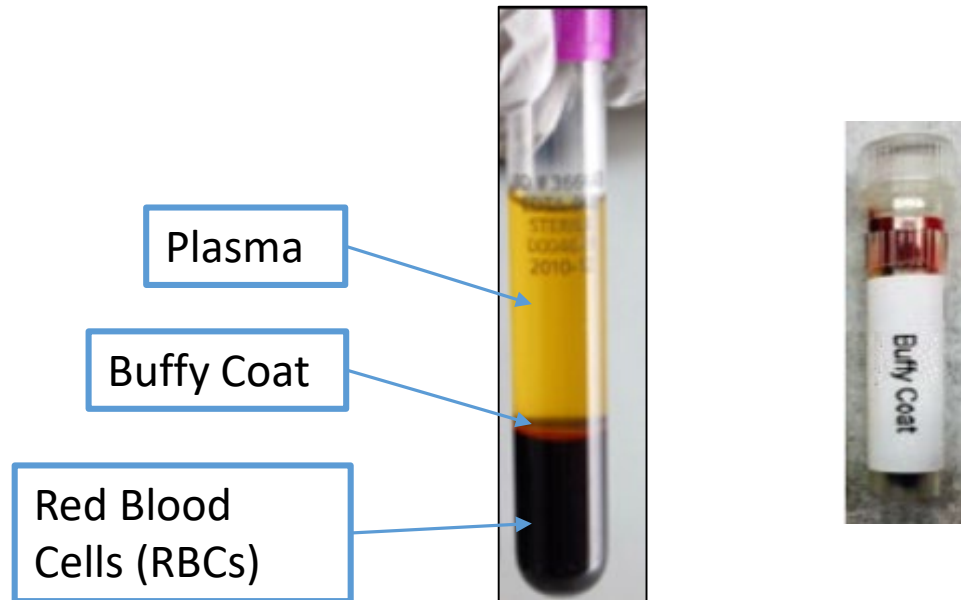


- Transfer to -80°C freezer. Store upright and keep frozen until shipment BioSend.

Plasma Preparation (10ml Purple EDTA Tubes)



Buffy Coat Collection



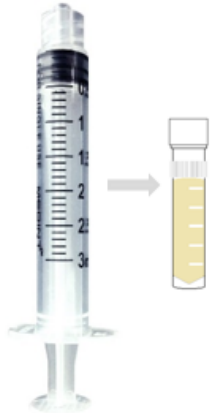
Collect the buffy coat layer using the transfer pipet provided. Residual plasma as well as some RBCs will be included in this collection. A buffy coat will be reddish in color due to RBCs. Freeze buffy coats upright on dry ice or -80 freezer. Store in -80 freezer until shipment to BioSEND.

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)
 - **Do NOT** pre-chill aliquot tubes

CSF Collection and Preparation

Step One



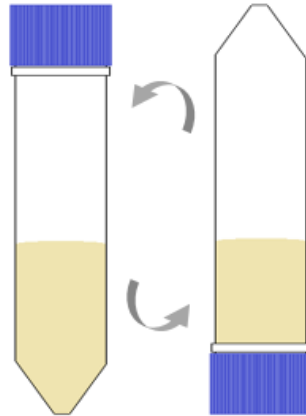
- Collect CSF into the 3ml luer lock syringe or by gravitational pull.
- Dispense 1-2 ml into clear-capped cryovial.
- Send to local lab for testing.

Step Two



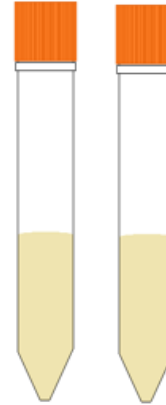
- Collect CSF into the 5ml luer lock syringe or by gravitational pull
- Transfer sample into 50 ml conical tube.

Step Three



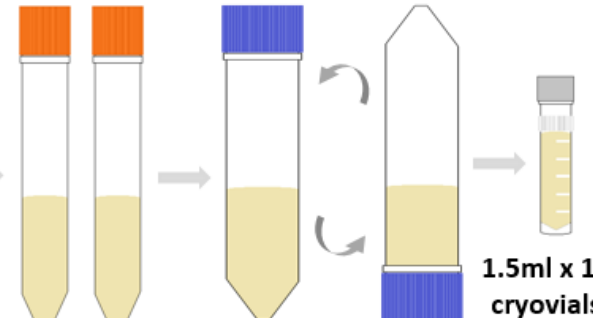
- Immediately after collection, gently invert the 50 ml conical tube 3-4 times to mix the sample.

Step Four



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

Step Five

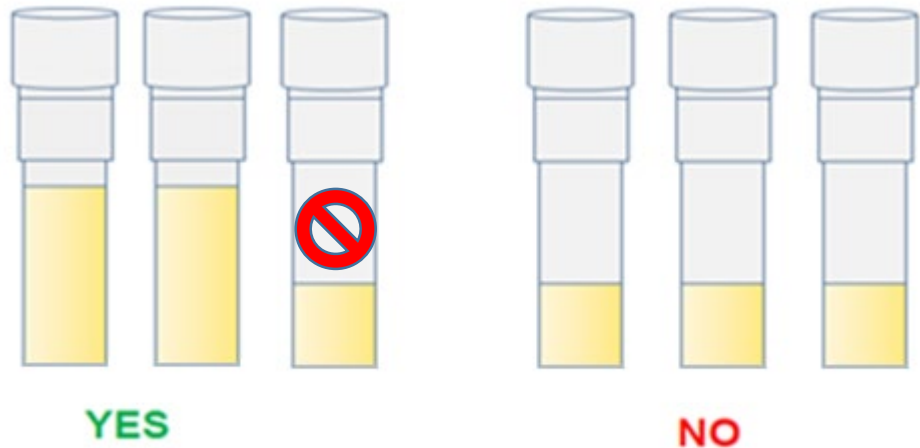


- Using a clean transfer pipette, transfer CSF from both 15 ml conical tubes into a 50 ml conical tube, leaving the debris in the bottom.
- Gently invert the 50 ml conical tube 3-4 times to mix the sample.
- Aliquot 1.5 ml into the grey capped cryovials.
- Store CSF aliquots upright at -80°C until shipment to BioSEND.

1.5ml x 13
cryovials

Plasma, Buffy Coat and CSF Aliquots

- Fill cryovials to 1.5ml
- Over-filled vials may burst in freezer
- Ship material to BioSEND
 - 12 Plasma aliquots
 - 2 Buffy Coat
 - 13 CSF aliquots
- Do NOT send residual volumes to BioSEND



Blood Collection: Troubleshooting

Issue #1: Collection 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 collection tubes from supplemental kit nearby during blood draw to replace “bad” tubes. These can also be requested through the Kit Request Module.
- 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, whole blood and 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



Place CSF and Plasma
in cryobox

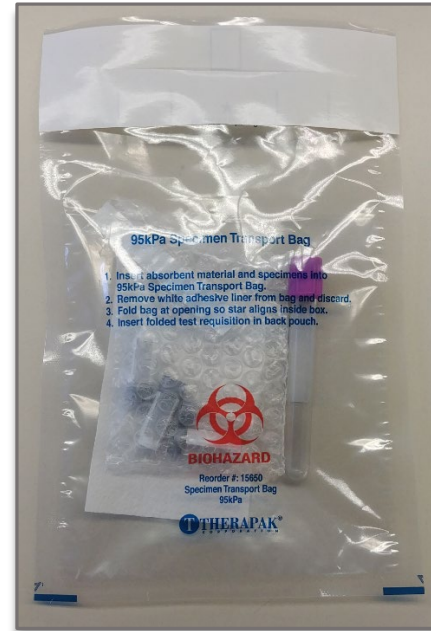


Place cryobox in
biohazard bag with
absorbent sheet,
seal, and label with
case label.

Packaging and Shipping Frozen Samples



Place Whole Blood
and buffy coats in
bubble wrap
pouches and seal



Place in second
biohazard bag with
absorbent sheet,
seal, and label with
case label.

Packaging and Shipping Frozen Samples



Place approx. 2-3 inches
of dry in bottom of
shipper



Place biohazard bags upright in box



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

Clinical Identifier:

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:

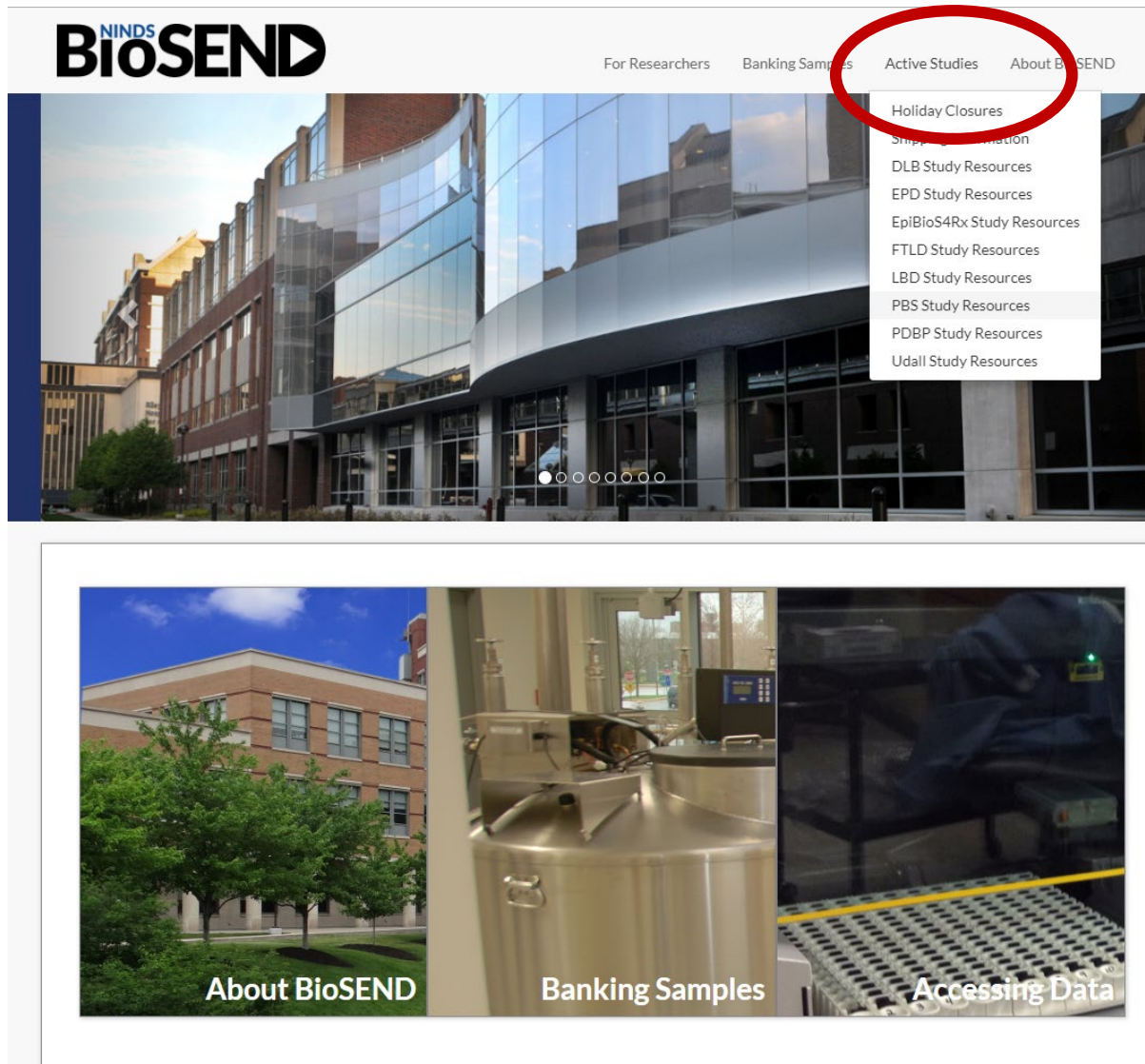
FedEx Tracking Number:

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

NINDS BioSEND Website



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

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?