

BioSpecimen Exchange for Neurological Disorders (BioSEND)


Training Webinar
CRC-SCA

BioSEND Training Webinar Overview

1. Study Reminders
2. Site Equipment
3. Biospecimen Collection Protocol
4. 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
- Pipettes and pipette tips
- 4°C Centrifuge
- -80°C Freezer
- Crushed/wet ice
- Dry ice

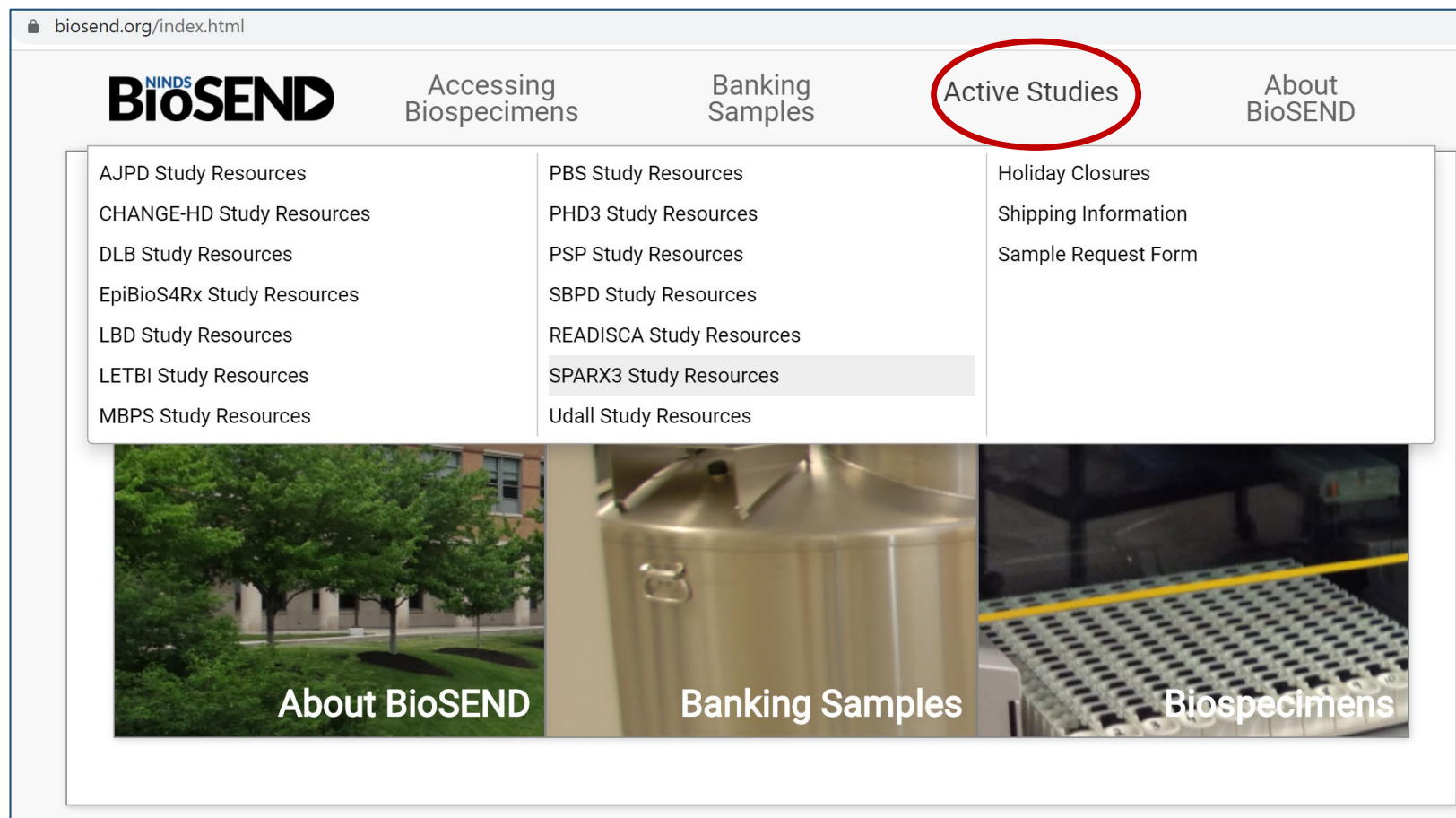
Biospecimen Collection Protocol

All specimen types FROZEN

	BL
Serum (6 x 1ml)	X
Plasma (6 x 1ml)	X
Buffy Coat (2 aliquots)	X
CSF (10 x 1ml)	X

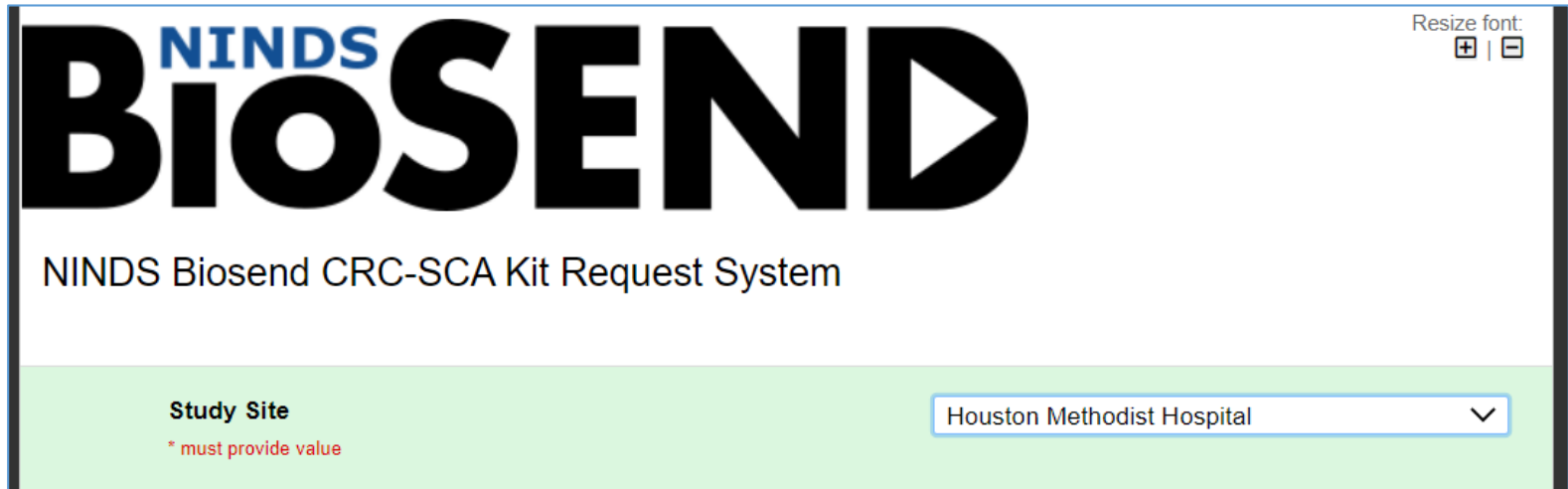
Requesting Kits

NINDS BioSEND Website



<https://www.biosend.org/>

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 CRC-SCA 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 "Houston Methodist Hospital" selected and a downward arrow icon.

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

BioSEND Kit Request Module

University of Colorado

Katherine Balfany
University of Colorado Denver Anschutz Medical Campus
Department of Physical Therapy
13121 E 17th Ave. Mail Stop C244
Aurora, CO 80045

Katherine.balfany@cuanschutz.edu
Phone Office: 303.724.9101
Phone Cell: 608.317.6222

Confirm site information:

- Study site
- Shipping address
- Contact name
- Email

Is the contact name above correct?

* must provide value

☐ Yes
☐ No

reset

Is the shipping address above correct?

* must provide value

☐ Yes
☐ No

reset

Is the e-mail address above correct?

* must provide value

☐ Yes
☐ No

reset

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>Option to correct/update contact and shipping address, if needed</div> <input type="text"/>	
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"/>	

BioSEND Kit Request Module: Kit Type

Kit Type

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

* must provide value

- ☐ Baseline/Standard Visit Kit
- ☐ CSF Kit
- ☐ Supplemental Kit
- ☐ Extra Supplies

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

Multiple kit types available

BioSEND Kit Request Module: Baseline Kit

Kit Type **Please allow two weeks for shipment** * must provide value	<input checked="" type="checkbox"/> Baseline/Standard Visit Kit <input type="checkbox"/> CSF 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>
Baseline/Standard Visit Kit Quantity * must provide value	<input type="text"/>
Are you requesting kits for subject(s) previously seen in READISCA? * must provide value	<input type="radio"/> Yes <input checked="" type="radio"/> No <small>reset</small>

- BioSEND creates ST-Numbers for baseline kits that serve as the biorepository subject identifier
- If subject was not seen in READISCA, BioSEND will generate a new ST-Number for your kit(s)

BioSEND Kit Request Module: Baseline Kit

Kit Type **Please allow two weeks for shipment** * must provide value	<input checked="" type="checkbox"/> Baseline/Standard Visit Kit <input type="checkbox"/> CSF 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>
Baseline/Standard Visit Kit Quantity * must provide value	<input type="text"/>
Are you requesting kits for subject(s) previously seen in READISCA? * must provide value	<input checked="" type="radio"/> Yes <input type="radio"/> No <small>reset</small>
Please enter ST-Number subject(s) were assigned in READISCA: * must provide value	<input type="text"/> <small>Expand</small> <small>The CRC-SCA ST-Number will be the same as subjects' READISCA ST-Number</small>

- If subject was seen in READISCA and already has an ST-Number, the same ST-Number will be used for the subject's CRC-SCA visit

BioSEND Kit Request Module: CSF Kit

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

- CSF labels are included with the specimen labels in all Baseline kits

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: 10 - Purple-top EDTA tubes (Plastic, 10 ml) 10 - Purple cryogenic vials (2 ml) 10 - Grey cryogenic vials (2 ml) 10 - Disposable transfer pipettes (3ml) 2 - Cryobox, 25-slot 5 - Biohazard bag with absorbent sheet 5 - Shipping label packet (incl. waybill)	

- Contains a variety of extra kit components

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>	
Resealable Tube Pouches	<input type="radio"/> 2 <input type="radio"/> 4 reset
Cryobox	<input type="radio"/> 2 <input type="radio"/> 4 reset
Cryogenic Vial (2 ml) - Grey	<input type="radio"/> 10 <input type="radio"/> 20 reset
Cryogenic Vial (2 ml) - Purple	<input type="radio"/> 10 <input type="radio"/> 20 reset
FedEx® return Airbill	<input type="radio"/> 2 <input type="radio"/> 4 reset
Shipping Container for Dry Ice Shipments (includes shipping labels & airbill)	<input type="radio"/> <input type="radio"/>

- 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/Standard Visit Kit
- ☒ CSF 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.

NINDS BioSEND
NINDS Biosend SPARX3 Kit Request System

Study Site: Northwestern University

Northwestern University
Contact Name
Shipment Address
Email
Phone

Is the contact name above correct?
* must provide value

Is the shipping address above correct?
* must provide value

Is the e-mail address above correct?
* must provide value

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

Submit

Labels

Types of Labels

Case Label

ST-10000123:
CRC-SCA:BL



BioSend

Identify study and Visit

Specimen Label

0001234567



BioSEND

ST-10001234

BL

PLASMA

For collection tubes

Case Label

ST-10000123:
CRC-SCA:BL



BioSend



Subject Number



Study and Visit



Biorepository Name

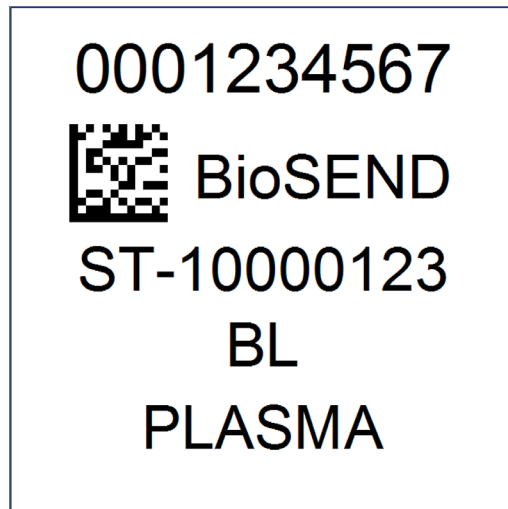
Case Labels

Case labels are placed:

- On the biohazard bag of the cryobox.
- *On the lid of frozen shippers*



Specimen Label



Unique Barcode



Subject Number



Visit Type



Specimen Type

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 buffy coat 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

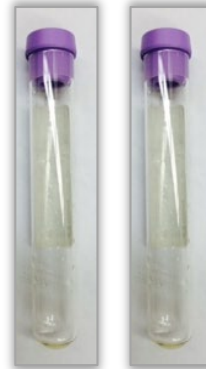
****The 3663 rpm speed was calculated using a hypothetical radius of 10 cm and a RCF of 1500 x g.***

Order of Specimen Collection

1. Serum **10 ml (red top)** blood collection for serum
2. EDTA **10 ml (lavender top)** blood collection for plasma and buffy coat



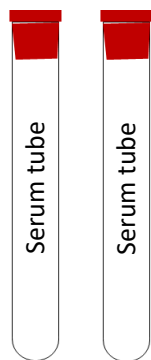
Serum



EDTA, 10ml
(Plasma and
Buffy Coat)

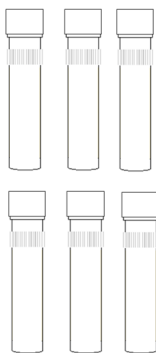
Serum Preparation –10 ml Serum (Red Top) Tube

Step One



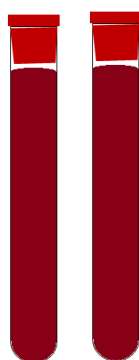
- Store tubes at room temperature.
- Label tubes with preprinted serum labels prior to blood draw.

Step Two



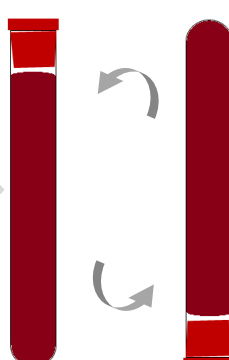
- Label 6 cryotubes with serum aliquot labels.
- Pre-chill cryotubes on wet ice for at least 5 minutes

Step Three



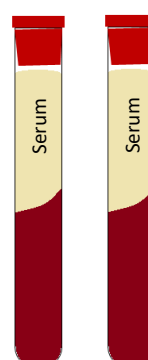
- Collect blood in serum tubes, allowing blood to flow for 10 seconds and ensuring blood flow has stopped.

Step Four



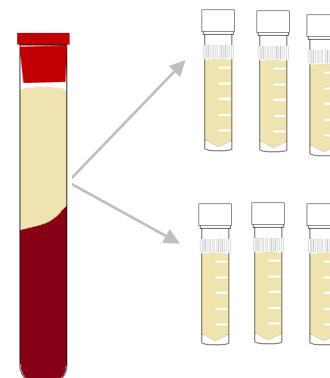
- Immediately after blood draw, invert tubes 8-10 times to mix samples.

Step Five



- Allow blood to clot for 30 minutes
- Within 60 minutes of blood draw, centrifuge sample at 4°C at 1500 x g for 15 minutes.

Step Six

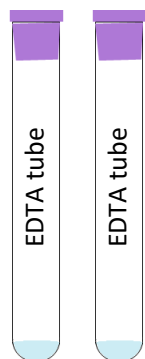


- Using a clean transfer pipet, aliquot 1.0 ml serum into each cryotube.
- Store serum aliquots upright at -80°C until shipment.

Plasma Preparation –10 ml EDTA (Purple Top) Tube



Step One



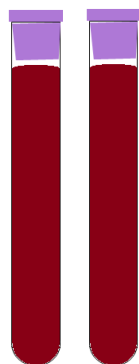
- Store tubes at room temperature.
- Label tubes with preprinted plasma labels prior to blood draw.

Step Two



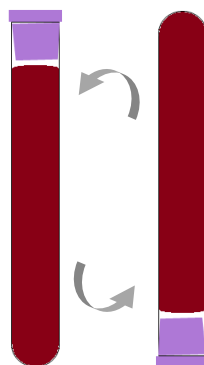
- Label 6 cryotubes with plasma aliquot labels.
- Pre-chill cryotubes on wet ice for at least 5 minutes

Step Three



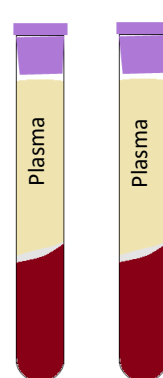
- Collect blood in EDTA tubes, allowing blood to flow for 10 seconds and ensuring blood flow has stopped.

Step Four



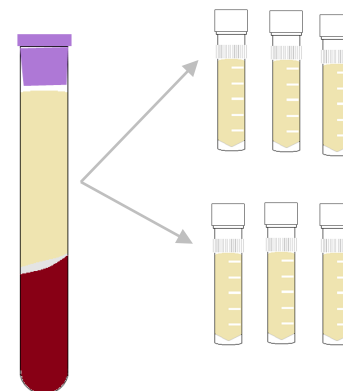
- Immediately after blood draw, invert tubes 8-10 times to mix samples.

Step Five



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

Step Six

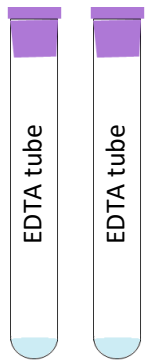


- Using a clean transfer pipet, aliquot 1.0 ml plasma into each cryotube.
- Store plasma aliquots upright at -80°C until shipment.

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

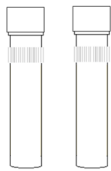


Step One



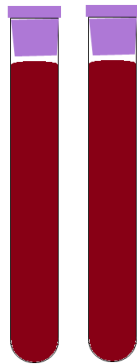
- Store tubes at room temperature.
- Label tubes with preprinted plasma labels prior to blood draw.

Step Two



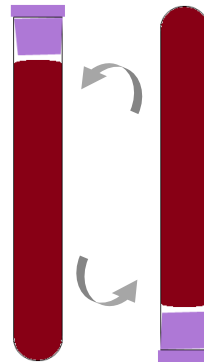
- Label 2 cryotubes with buffy coat aliquot labels.
- Pre-chill cryotubes on wet ice for at least 5 minutes.

Step Three



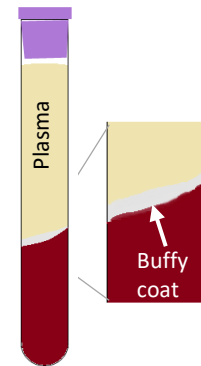
- Collect blood in EDTA tubes, allowing blood to flow for 10 seconds and ensuring blood flow has stopped.

Step Four



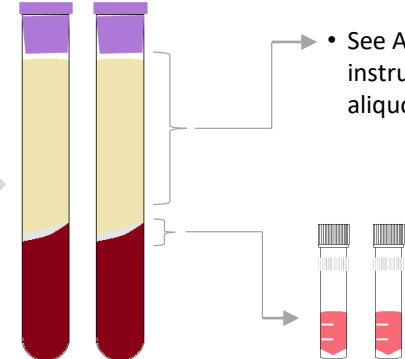
- Immediately after blood draw, invert tubes 8-10 times to mix samples.

Step Five



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

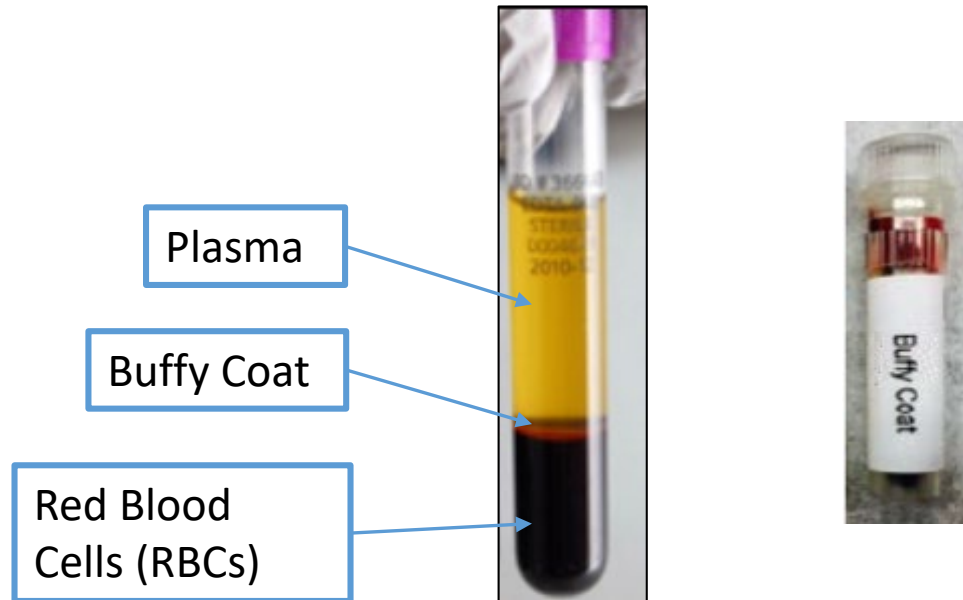
Step Six



- Using a clean transfer pipet, collect the buffy coat (may contain residual plasma and RBCs).
- Transfer the buffy coat from one EDTA into a cryotube. Transfer the buffy coat from the second EDTA into a second cryotube.
- Store buffy coat aliquots upright at -80°C until shipment.

• See Appendix B for instruction on aliquoting plasma

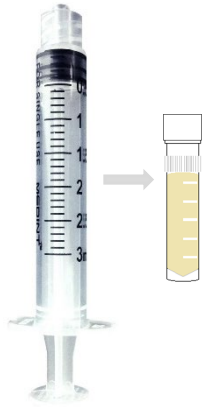
Buffy Coat Collection



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.

CSF Collection and Preparation

Step One



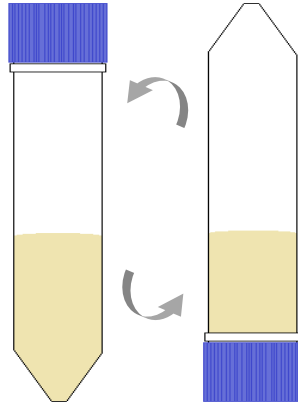
- Collect CSF into the 3ml luer lock syringe or by gravitational pull.
- Dispense 1-2 ml into cryovial.
- Send to local lab for testing, if applicable.

Step Two



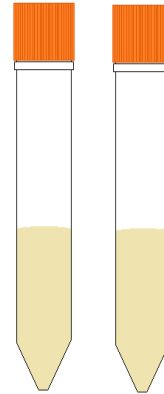
- Collect CSF into the 5ml luer lock syringe or by gravitational pull
- Transfer sample into 50 ml conical tube.

Step Three



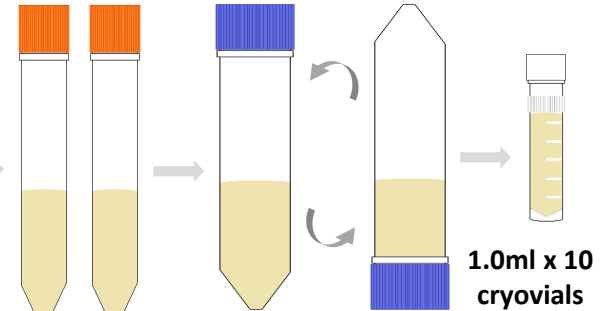
- Immediately after collection, gently invert the 50 ml conical tube 3-4 times to mix the sample.

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.

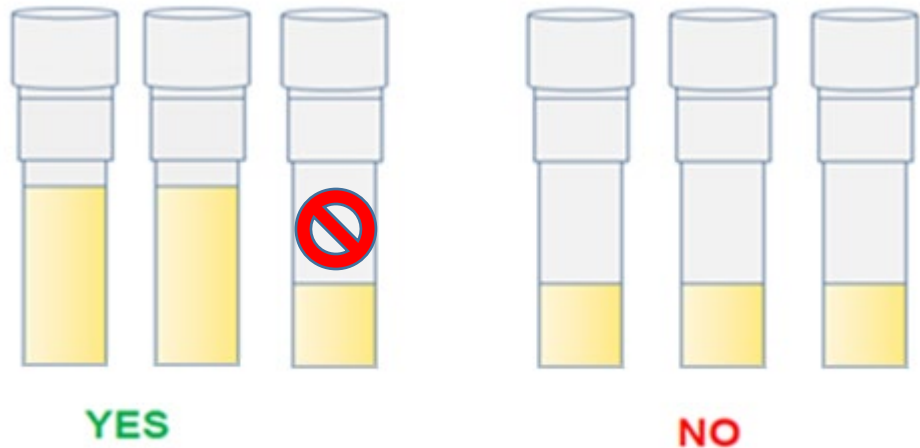
Step Five



- 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 1.0 ml into the cryovials.
- Store CSF aliquots upright at -80°C until shipment to BioSEND.

Serum, Plasma, and CSF Aliquots

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



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

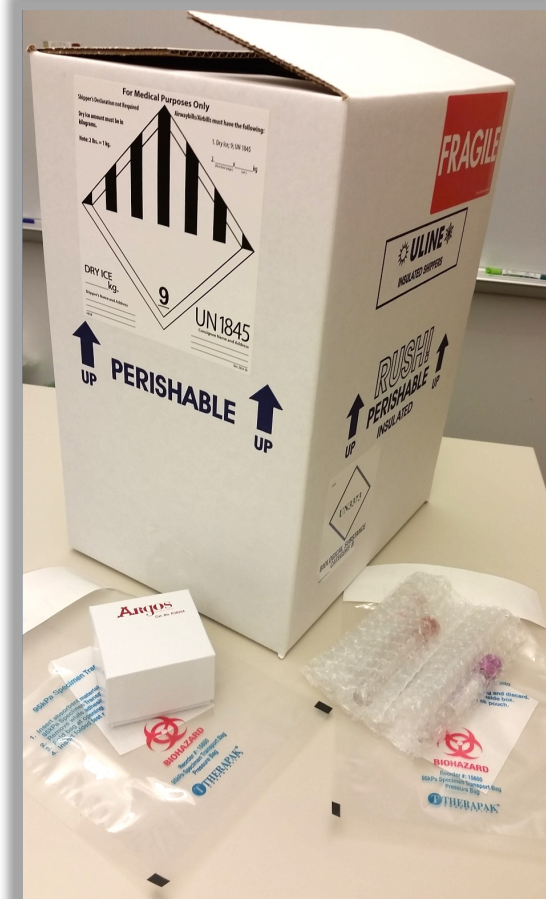
Cause: Sample Processing Methods	Corrective Actions
Vigorous mixing/shaking	Gently invert blood collection tube when mixing additive with specimen, follow guidelines in Biologics Manual regarding number of times to invert each type of tube
Exposure to excessive heat or cold	Keep samples at ambient temp
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, and whole blood
- **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

1. Place serum/plasma/buffy coat/CSF cryovials in cryobox and seal lid. Label cryobox with case label.
2. Place cryobox in biohazard bag with absorbent sheet, seal, and label with case label.



Packaging and Shipping Frozen Samples



Place approx. 2-3 inches
of dry ice 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 aliquots.
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

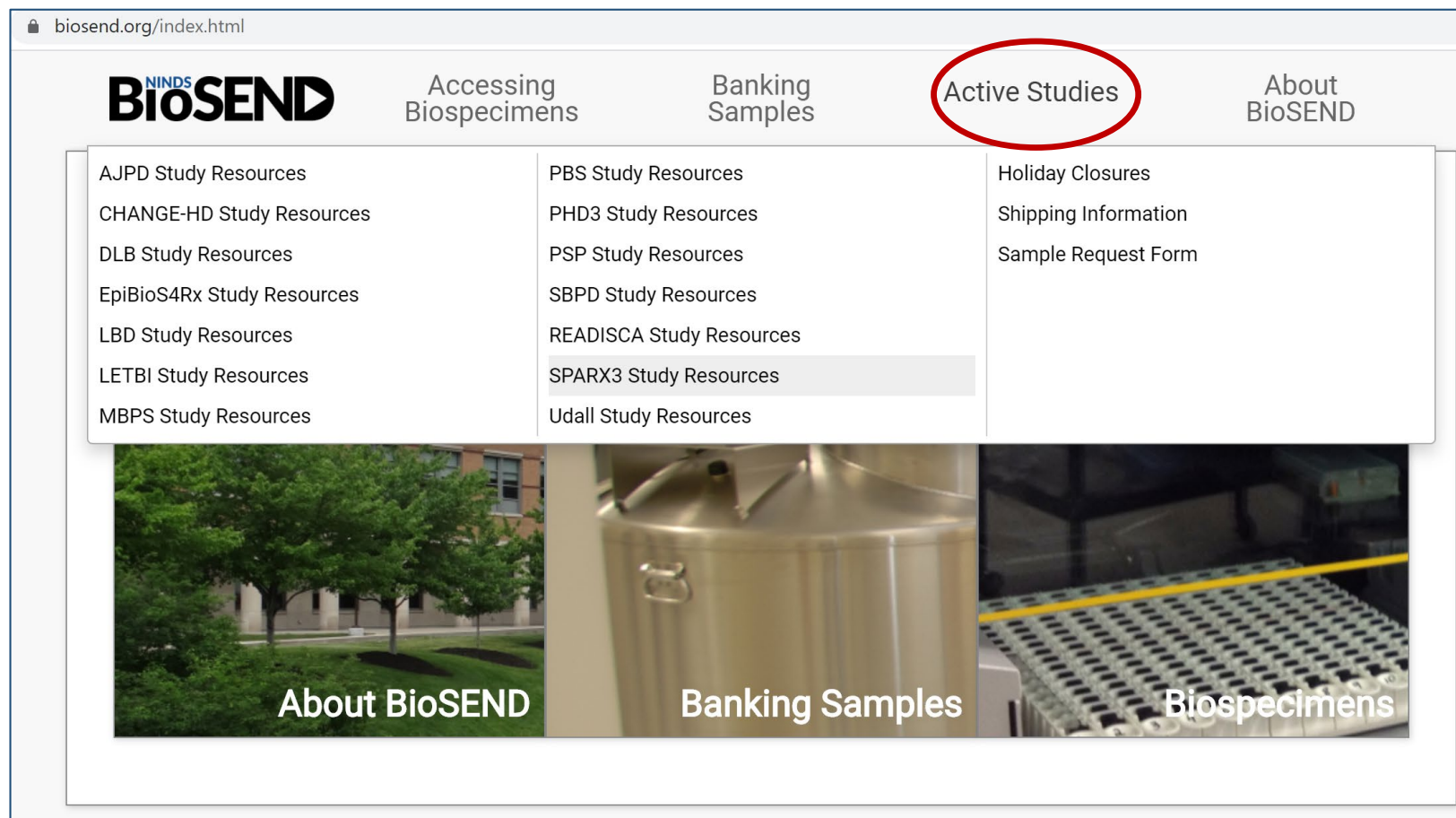
- Hold packaged samples in a -80°C freezer until pickup.
- ***Samples should be received at BioSEND within 2 weeks of collection.***



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 ID:		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. <u>Ensure all frozen shipments are completely filled with dry ice.</u>			
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			

NINDS BioSEND Website



<https://www.biosend.org/>

Sample Shipment Notification Form, Online

NINDS
BioSEND


Accessing
Biospecimens

Banking
Samples

Active Studies

About
BioSEND

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

Coordinator

Telephone

Email

Subject Information

Study

Clinical ID

GUID

Subject ID (ST# from labels)

Subject ID (ST#)

Gender

Visit Type

Age (In Years)

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.**

Downloads

Sample Shipment Form (pdf)
Sample Shipment Form (xlsx)

Additional Resources

Shipping Information

Contact Us

biosend@iu.edu
317-278-0594

Sample Information

Date Sample(s) Shipped

FedEx Tracking Number

07/27/2017

FedEx Tracking #

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

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

Note that BioSEND has extended closures surrounding the Thanksgiving, Christmas, and New Year's Holidays. BioSEND will send notification of these dates prior to the holiday season.

BioSEND Contact Information

- Questions?

Please contact:

- General Email: biosend@iu.edu
- Project Manager: Claire Wegel (cwegel@iu.edu)
- Coordinator: Carolyn Dunifon (cdunifon@iu.edu)

Questions?