



*NINDS Udall Centers of Excellence for  
Parkinson's Disease Research:  
University of Minnesota*

---

BIOSPECIMEN COLLECTION & PROCESSING

# Overview

---

1. Specimen uniformity and quality
2. Site Equipment
3. Procedures
  - Kit Ordering
  - Sample Labels
  - Sample Collection and Processing
  - Shipping Closures
4. Contact Information

# Specimen Uniformity and Quality

---

GENERAL REMINDERS

# Specimen Uniformity and Quality

---

Most biomarkers are sensitive to *time* and *temperature*

- Standardization of processing across sites is key
- Reference the *BioSEND Specimen Collection, Processing, and Shipment Manual* as needed
- Do not replace or supplement any kit components without first receiving approval from BioSEND/NINDS

Questions? Email [biosend@iu.edu](mailto:biosend@iu.edu)

# Site Equipment

---

*Sites will need to supply the following items:*

- Gloves
- Alcohol wipes
- Butterfly needles
- Tourniquet
- Gauze pads
- Bandages
- Microcentrifuge tube rack
- Sharps bin and lid
- Crushed ice
- Pipettes and pipette tips
- Centrifuge capable of maintaining 4°C
- -80°C Freezer
- Dry ice

# Biospecimen Collection Protocol

---

	BL
<b>Buffy coat</b> (2 aliquots)	X
<b>Plasma</b> (6 x 1.5ml)	X
<b>RNA</b> (2 x 2.5ml)	X

# Kit Ordering – Biosend.org


**NINDS BioSEND**


[Accessing Biospecimens](#)[Banking Samples](#)[Active Studies](#)[About BioSEND](#)

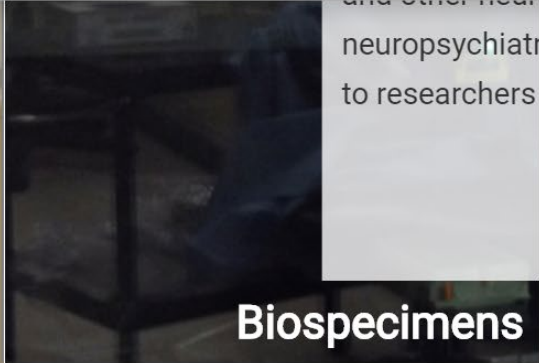
[AJPD Study Resources](#)[CHANGE-HD Study Resources](#)[DLB Study Resources](#)[DVRP Study Resources](#)[EpiBioS4Rx Study Resources](#)[LBD Study Resources](#)[LETBI Study Resources](#)

[MBPS Study Resources](#)[PBS Study Resources](#)[PHD3 Study Resources](#)[PSP Study Resources](#)[SBPD Study Resources](#)[CRC-SCA Study Resources](#)[READISCA Study Resources](#)

[SPARX3 Study Resources](#)[Udall Study Resources](#)[Holiday Closures](#)[Shipping Information](#)[Sample Shipment Form](#)

**About BioSEND**

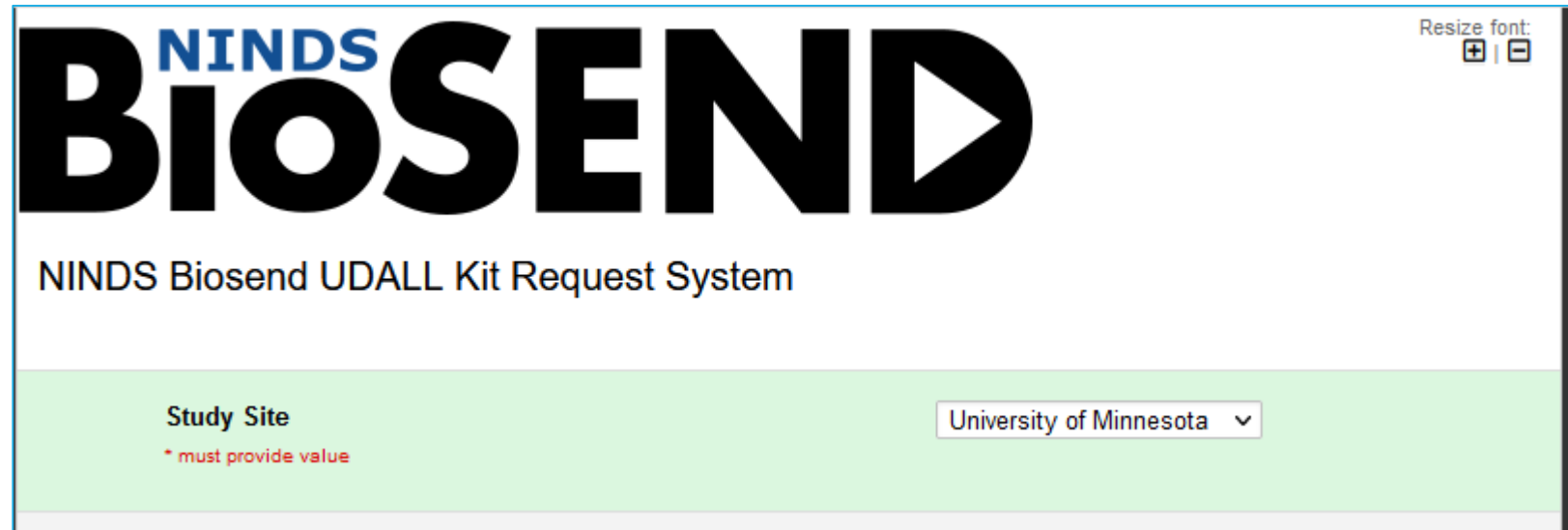
**Banking Samples**

**Biospecimens**

# BioSEND Kit Request Module

---

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



The screenshot shows the NINDS BioSEND UDALL Kit Request System interface. At the top, the logo "NINDS BioSEND" is displayed in large, bold letters, with "NINDS" in blue and "BioSEND" in black. 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. 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 drop-down menu currently showing "University of Minnesota" with a downward arrow.



# Confirm Shipping Info

## Confirm site information:

- Study site
- Shipping address
- Contact name
- Email
- Phone Number

Indiana University

Carolyn Dunifon  
Indiana University School of Medicine  
351 West 10th Street  
TK-217  
Indianapolis, IN 46202  
(317) 274-5751  
biosend@iu.edu

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

# Update Information

Provide corrected/updated information, as needed

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

# Kit Type

---

## Kit Type

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

\* must provide value

☐ Baseline Visit Kit

☐ Supplemental Kit

☐ Extra Supplies

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

Multiple kit types available

# Baseline Kits

---

- BioSEND creates ST numbers for baseline kits
- ST#s serve as the biorepository subject identifier
- Enter kit quantity

<b>Kit Type</b> <b>**Please allow two weeks for shipment**</b> <small>* must provide value</small>	<input checked="" type="checkbox"/> Baseline 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>
<b>Baseline Visit Kit Quantity</b> <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>

# Supplemental Kit

Contains a variety of  
extra kit components

## Kit Type

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

\* must provide value

☐ Baseline or Annual Visit Kit

☐ 6-Month Visit Kit

☒ Supplemental Kit

☐ Extra Supplies

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

## Supplemental Kit Quantity

\* must provide value

If you need more than 10 kits or labels, please use the file upload option or submit multiple requests.

## Comments

Expand

## 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 Vacutainer® - PAXGene® tubes (2.5 ml)
- 2 Monoject- Lavender-top EDTA tubes (10 ml)
- 2 Vacutainer® - Purple-top EDTA tubes (6 ml)
- 2 Vacutainer® - Red-top serum tubes (10 ml)
- 2 Disposable transfer pipettes (1ml)
- 2 Warning label packets

# Extra Supplies

Allows you to choose specific supplies and particular quantities

<b>Kit Type</b> **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	reset

# Submit Request

- Click “Submit” to send order to BioSEND; staff will confirm receipt of your order
- Please allow two week turn-around time for kit shipments
- If urgent request needed, please note date needed by in comments and email BioSEND

**NINDS BioSEND**  
Ninds Biosend LDB Kit Request System

Study Site: Scherzer, Clemens  
\* must provide value

Harvard Medical School - Scherzer, Clemens  
Kara Page  
65 Landsdowne St  
Rm #327  
Cambridge, MA 02139  
(617) 768-8677  
kjpage@partners.org  
ksburke@partners.org

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

Kit Type  
**\*\*Please allow two weeks for shipment\*\***  
\* must provide value

☐ Baseline or Annual Visit Kit  
☐ 6-Month Visit Kit  
☐ Supplemental Kit  
☐ Extra Supplies

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

Comments

Expand

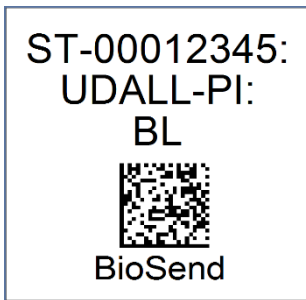
**Submit**

# Sample Labeling

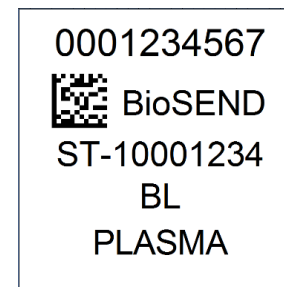
---

## Labels are provided by Indiana University

- Please check that all samples are properly labeled with correct specimen type and visit



Case Labels



Specimen Labels



# Case Label

---

ST-00012345:

UDALL-PI:

BL



BioSend



Subject Number



Study – PI & Visit



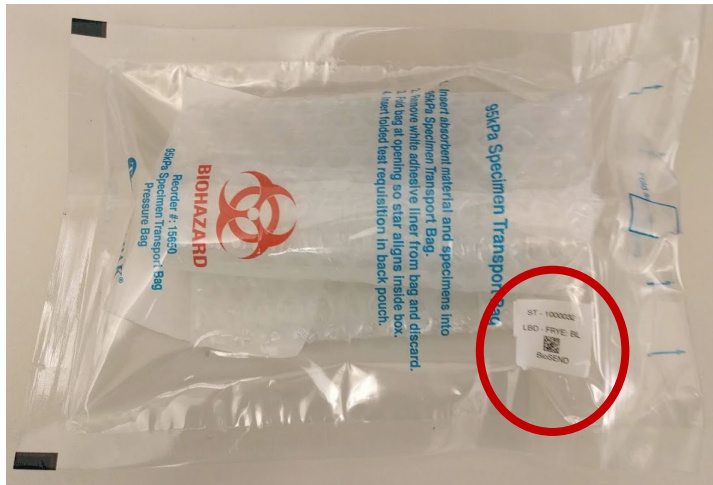
Biorepository Name

# Case Labels

---

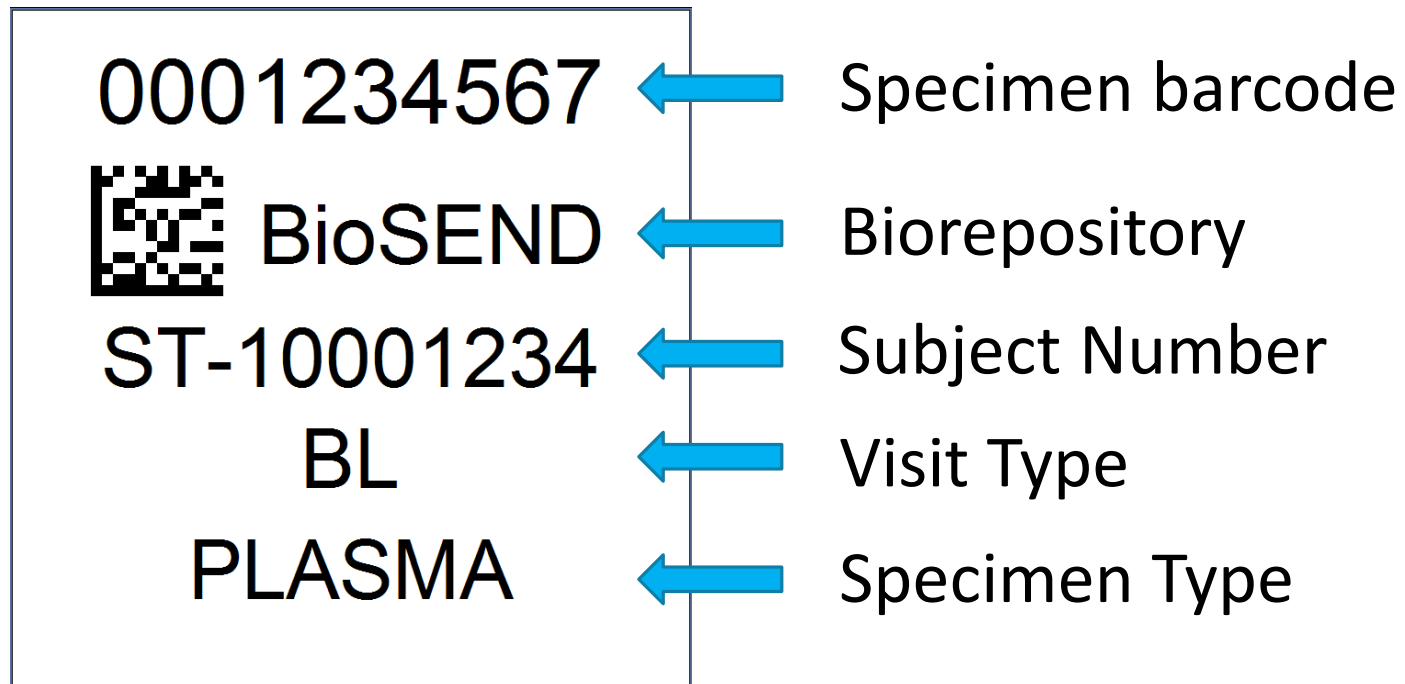
Case labels are placed:

- On the plastic biohazard bags
- On the lid of frozen shippers



# Specimen Label

---



# Sample Collection and Processing

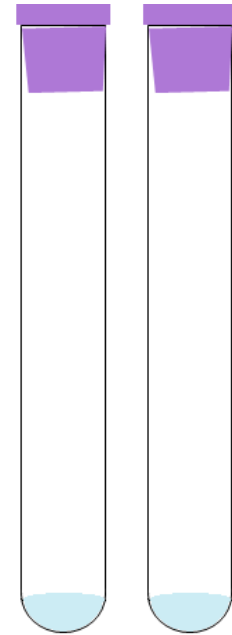
Blood Tube Draw Order

2,5ml PAXGene®



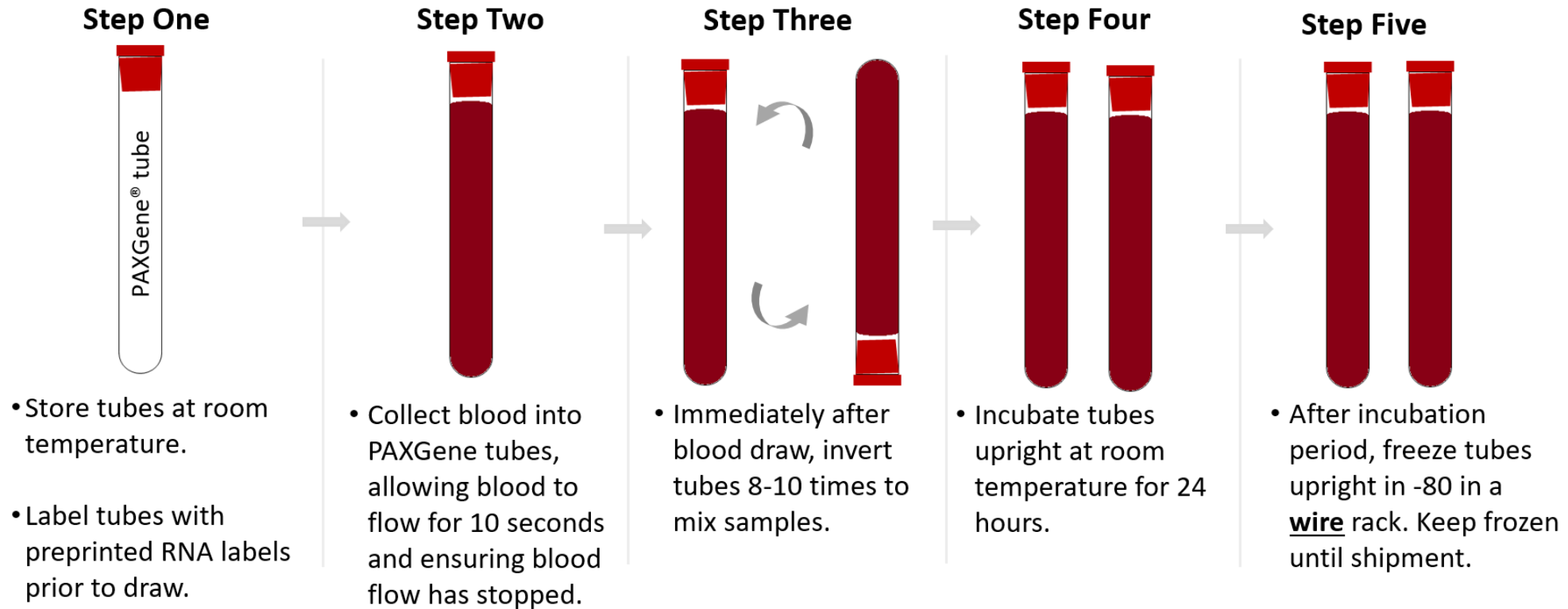
**1**

10ml EDTA

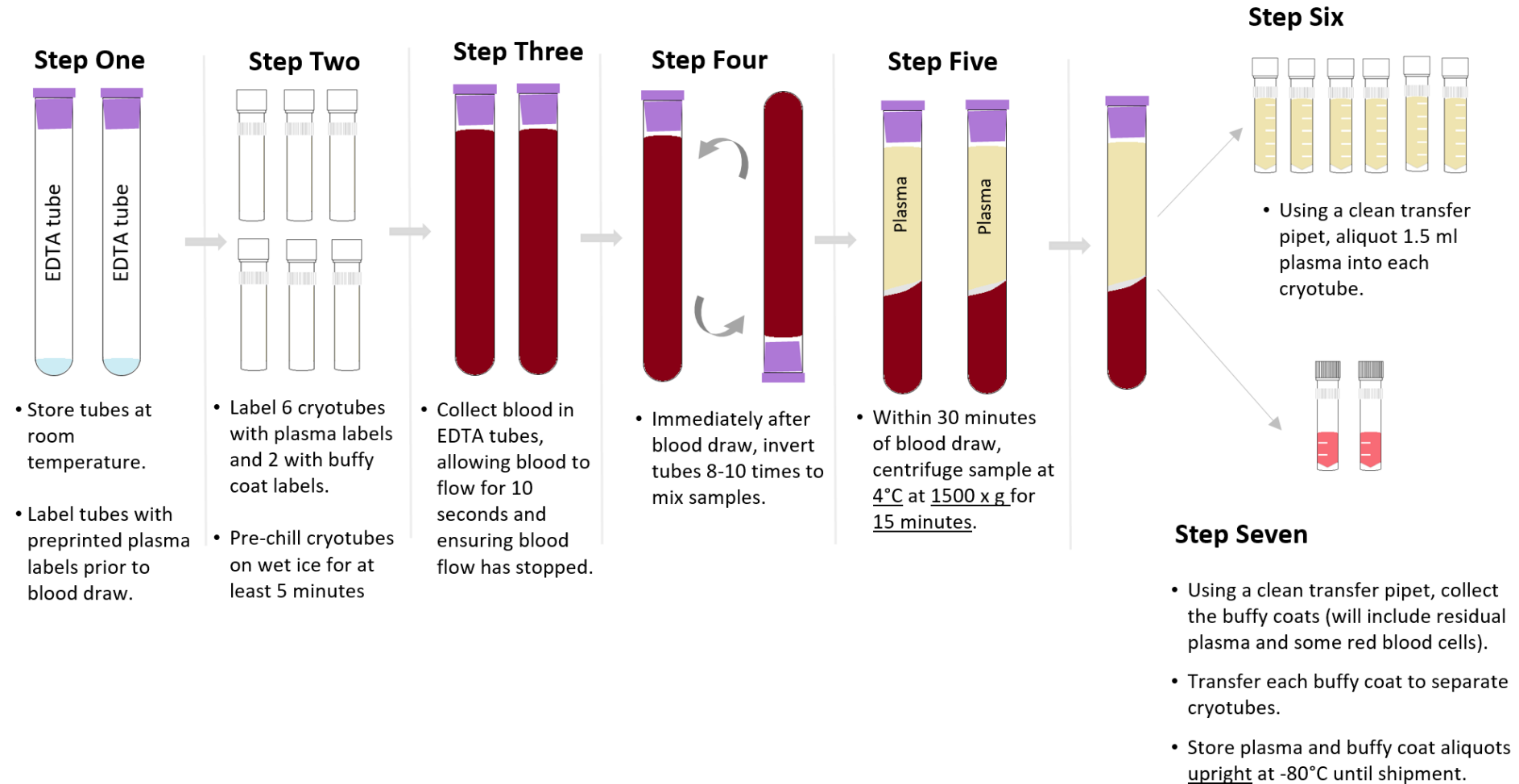


**2**

# Sample Collection and Processing: RNA



# Sample Collection and Processing: Plasma & Buffy Coat



# 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 & serum

---

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](http://www.bd.com/vacutainer/pdfs/techtalk/TechTalk_Jan2004_VS7167.pdf))

# Shipping Samples: Frozen

---

## Packing and Shipping Frozen Samples

- All other samples ship frozen
- Ship frozen samples on dry ice
- Frozen samples should be shipped **only** Monday through Wednesday
- Always fill carton to **top** with dry ice
- Do not pack shipment until the day of pickup



# Shipping Samples: Frozen

## Packing and Shipping Frozen Samples

- Shippers use approx. 10lbs of dry ice
- Place layer of dry ice in between cryoboxes



# Shipping Frozen Samples

---

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

***Samples should be received at BioSEND within 2 weeks of collection.***



# Shipping Samples

## Packing and Shipping Frozen Samples

Class 9 Dry Ice Label should not be covered with other stickers and must be completed, or courier will reject/return your package!

The image shows a Class 9 Dry Ice Label template. It features a large diamond shape with a black and white striped pattern. The label includes several text fields and instructions. Red arrows point to specific areas of the label, highlighting required information.

**Shipper's Declaration not Required.**  
Dry Ice amount must be in kilograms.  
Note: 2 lbs. = 1 kg.

**Airwaybills / airbills must have the following:**  
1. Dry Ice; 9; UN 1845  
2.  $\frac{\text{Number}}{\text{(Number pks)}} \times \frac{\text{wt}}{\text{(wt)}} \text{ Kg}$

**Net weight of dry ice in kg** (indicated by a red arrow pointing to the "kg." field)

**Dry Ice**            **kg.**

**Your name & address** (indicated by a red arrow pointing to the "Shipper's Name and Address" field)

**UN 1845**

**Shipper's Name and Address**

**Consignee Name and Address** (indicated by a red arrow pointing to the "Consignee Name and Address" field)


**9**

**IU information and address** (indicated by a red arrow pointing to the "Consignee Name and Address" field)

06426 1/01 RRD

# Shipping Samples

UPS resources available on BioSEND website






Accessing Biospecimens

Banking Samples

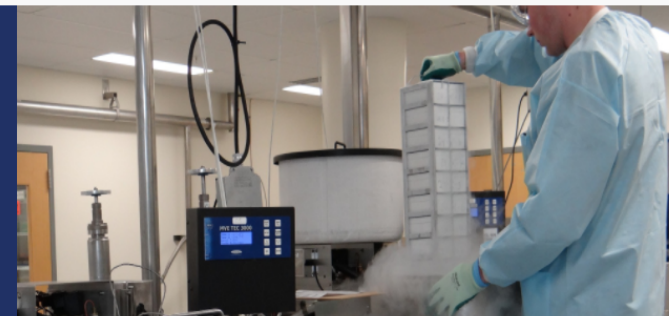
→ Active Studies

About BioSEND

AJPD Study Resources	MBPS Study Resources	SPARX3 Study Resources
CHANGE-HD Study Resources	PBS Study Resources	Udall Study Resources
DLB Study Resources	PHD3 Study Resources	Holiday Closures
DVRP Study Resources	PSP Study Resources	Shipping Information
EpiBioS4Rx Study Resources	SBPD Study Resources	Sample Shipment Form
LBD Study Resources	CRC-SCA Study Resources	Withdrawn Subject Notification
LETBI Study Resources	READISCA Study Resources	



## Shipping Information



# Shipping Samples

Links on this page to generate airwaybills, schedule pickups, request account, and view a guide for using the UPS ShipExec Thin Client system.

### Shipping Address

BioSEND  
Indiana University School of Medicine  
351 West 10th Street  
TK-217  
Indianapolis, IN 46202

### UPS Shipping Resources

To generate air waybills and schedule UPS pickups for shipments to BioSEND, please visit the UPS ShipExec™ Thin Client [website](#).

For instructions on how to use the UPS ShipExec™ Thin Client website, please refer to the [BioSEND UPS ShipExec™ Thin Client Guide](#)

To request a new user account for UPS ShipExec™ Thin Client or to request an update to your site's address in the system, please [use this form](#) to submit your request.

### Additional Resources

[Sample Submission Form](#)  
[UPS ShipExec™ Guide](#)

### Contact Us

[biosend@iu.edu](mailto:biosend@iu.edu)  
317-278-0594

# Shipping Samples: Frozen


---

Please notify BioSEND ahead of shipment


- Email [biosend@iu.edu](mailto:biosend@iu.edu) with copy of Sample Form and tracking number
- OR use Online Sample form on biosend.org



# Shipping Samples: Sample Form

[Accessing Biospecimens](#)[Banking Samples](#)[Active Studies](#)[About BioSEND](#)

## Morris K. Udall Centers of Excellence for Parkinson's Disease Research Active Study Page



Welcome Udall Study staff, coordinators, and PI's. This section encompasses study specific tools and resources for your reference. If you have any questions, comments, or new ideas please contact [biosend@iu.edu](mailto:biosend@iu.edu) or by phone directly at (317)278-0594.

### Study Resources

- Kit Request Module
- Study Specific Sample Notification Forms
- Udall Manual of Procedures

### Downloads


- [Sample Shipment Form \(pdf\)](#)
- [Rochester Manual](#)
- [UAB Manual](#)
- [Rochester Training Slides](#)
- [UAB Training Slides](#)

### Additional Resources

- [Online Sample Form](#)

# Shipping Samples: Sample Form

## 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

Coordinator

Telephone

Email

### Subject Information

Study

Clinical ID

GUID

Subject ID (ST# from labels)

Gender

Visit Type

### Sample Information

Date Sample(s) Shipped

FedEx Tracking Number

Draw Date	Specimen Type	# of Tubes Sent	Notation of Problems
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

# 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 any tubes are securely placed into the bubble wrap pouch and are placed in a separate bag from the cryobox
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 Samples: Closures

---

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

\*Please also consider weather when shipping. UPS will post service updates on their webpage. Please reach out to BioSEND if you are unsure if it is safe to ship.

# Non-Conformance Reporting

---

Most common non-conformance issues:

- Samples shipped for weekend/holiday delivery
- Sample form incomplete/inaccurate
- Unlabeled or mislabeled tube(s)
- Sample hemolysis



# Contacts

---

## Indiana University

General Questions/Shipment Notifications:

[biosend@iu.edu](mailto:biosend@iu.edu)

Biorepository Project Manager:

Claire Wegel

[cwegel@iu.edu](mailto:cwegel@iu.edu)

Tel: 317.278.6158

Biorepository Clinical Research Coordinator:

Carolyn Dunifon

[cdunifon@iu.edu](mailto:cdunifon@iu.edu)

Tel: 317.274.5751