



## Rochester Udall Training Webinar

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BIOSPECIMEN COLLECTION & PROCESSING

# Overview

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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

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GENERAL REMINDERS

# Specimen Uniformity and Quality

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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

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*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

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|                             | BL |
|-----------------------------|----|
| <b>DNA</b><br>(6ml)         | X  |
| <b>Whole Blood</b><br>(6ml) | X  |
| <b>Plasma</b><br>(6 x 1ml)  | X  |
| <b>Serum</b><br>(6 x 1ml)   | X  |
| <b>RNA</b><br>(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

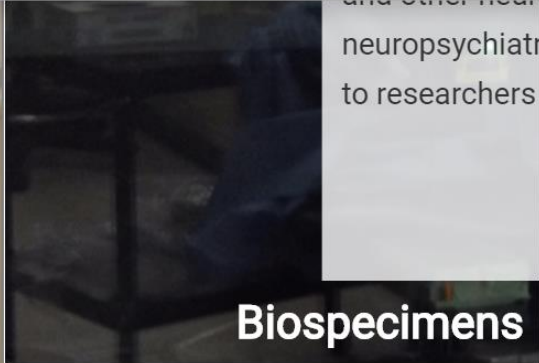
Holiday Closures

Shipping Information

Sample Shipment Form

**About BioSEND**

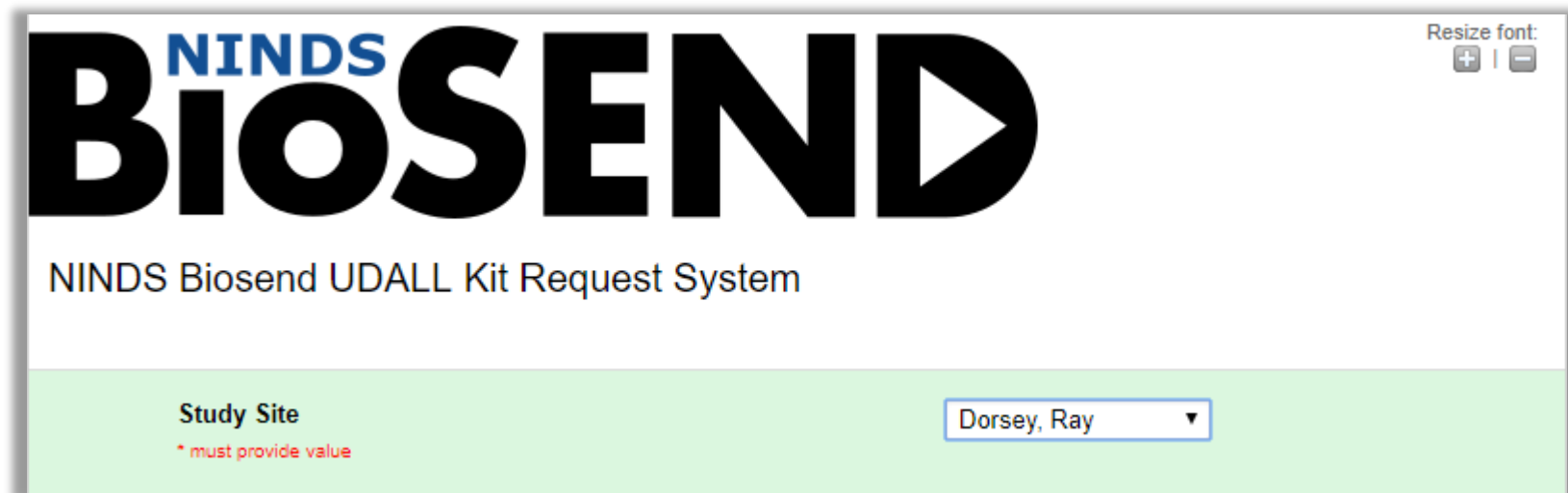
**Banking Samples**

**Biospecimens**

# BioSEND Kit Request Module

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- <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 features "NINDS" in blue and "BioSEND" in large black letters, with a play button icon integrated into the "D". Below the logo, the text "NINDS Biosend UDALL Kit Request System" is displayed. In the top right corner, there is a "Resize font:" label with plus and minus icons. The main form area has a light green background and contains a "Study Site" label with a red asterisk and the text "\* must provide value". To the right of this label is a drop-down menu currently showing "Dorsey, Ray" 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><br><small>* must provide value</small>     | <input type="radio"/> Yes<br><input checked="" type="radio"/> No | reset |
| <b>New Contact Name</b><br><small>* must provide value</small>                       | <input type="text"/>   |       |
| <b>Is the shipping address above correct?</b><br><small>* must provide value</small> | <input type="radio"/> Yes<br><input checked="" type="radio"/> No | reset |
| <b>New Shipping Address</b><br><small>* must provide value</small>                   | <div><input type="text"/></div> <div>Expand</div>                |       |
| <b>Is the e-mail address above correct?</b><br><small>* must provide value</small>   | <input type="radio"/> Yes<br><input checked="" type="radio"/> No | reset |
| <b>New e-mail Address</b><br><small>* must provide value</small>                     | <input type="text"/>   |       |

# Kit Type

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## 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><br>**Please allow two weeks for shipment**<br><small>* must provide value</small> | <input checked="" type="checkbox"/> Baseline or Annual Visit Kit<br><input type="checkbox"/> 6-Month Visit Kit<br><input type="checkbox"/> Supplemental Kit<br><input type="checkbox"/> Extra Supplies<br><small>Please specify in comments if you need kits before the standard two week shipment time.</small> |
| <b>CSF Sprotte® Needle Gauge</b><br><small>* must provide value</small>                           | <input type="radio"/> 22<br><input type="radio"/> 24<br><a href="#">reset</a>  |
| <b>Baseline or Annual Visit Kit Quantity</b><br><small>* must provide value</small>               | <input type="text"/><br><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><br>**Please allow two weeks for shipment**<br><small>* must provide value</small> |  | <input type="checkbox"/> Baseline or Annual Visit Kit<br><input type="checkbox"/> 6-Month Visit Kit<br><input type="checkbox"/> Supplemental Kit<br><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<br><input type="radio"/> 4   | reset  |
| Cryobox   | <input type="radio"/> 2<br><input type="radio"/> 4   | reset  |
| Siliconized Sterile Cryogenic Vial (2 ml)   | <input type="radio"/> 10<br><input type="radio"/> 20 | reset  |
| FedEx® return Airbill   | <input type="radio"/> 2<br><input type="radio"/> 4   | reset  |
| Lumbar Puncture Trays with Lidocaine  | <input type="radio"/> 2<br><input type="radio"/> 4   | reset  |
| Needles - Introducer  | <input type="radio"/> 5                              | reset  |

# Multiple Orders

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

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

# 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 Labelling


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**Labels are provided by Indiana University**

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

ST-00012345:  
UDALL-PI:  
BL  
  
BioSend

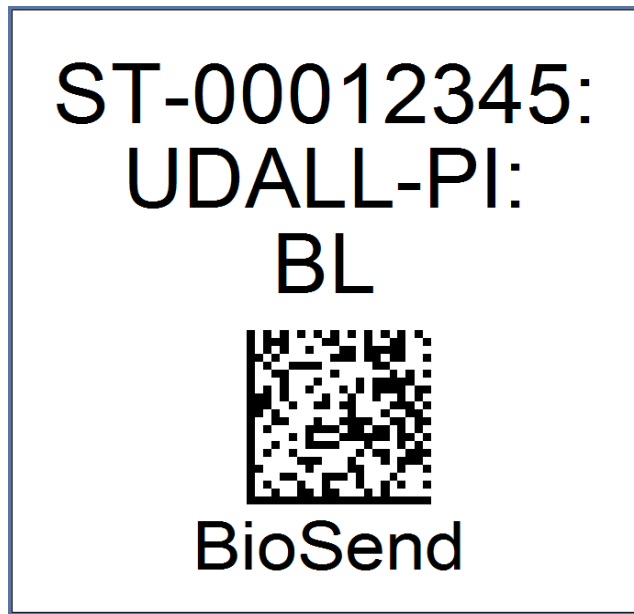
Case Labels

0001234567  
 BioSEND  
ST-10001234  
BL  
PLASMA

Specimen Labels

# Case Label

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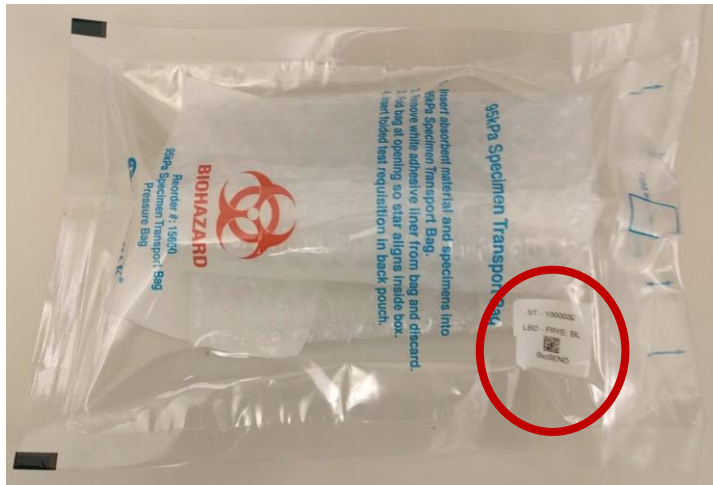
- ← Subject Number
- ← Study – PI & Visit
- ← Biorepository Name

# Case Labels

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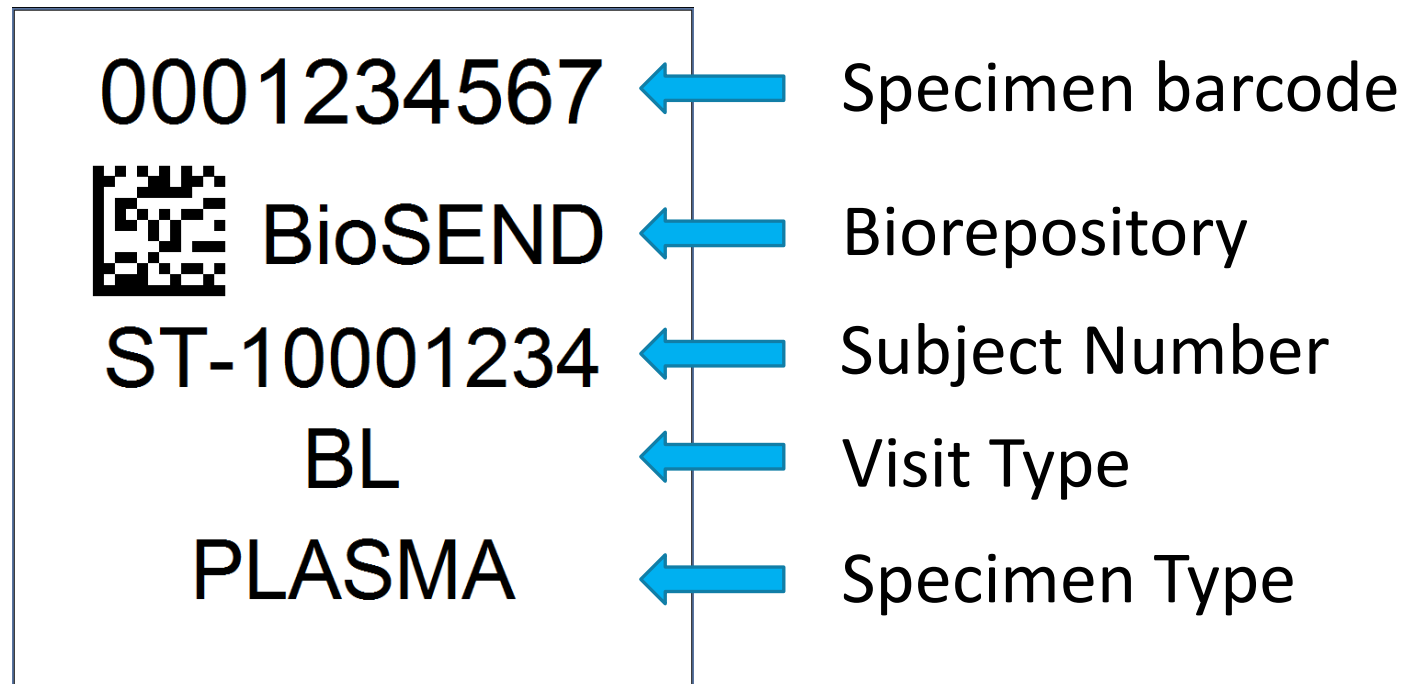
Case labels are placed:

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



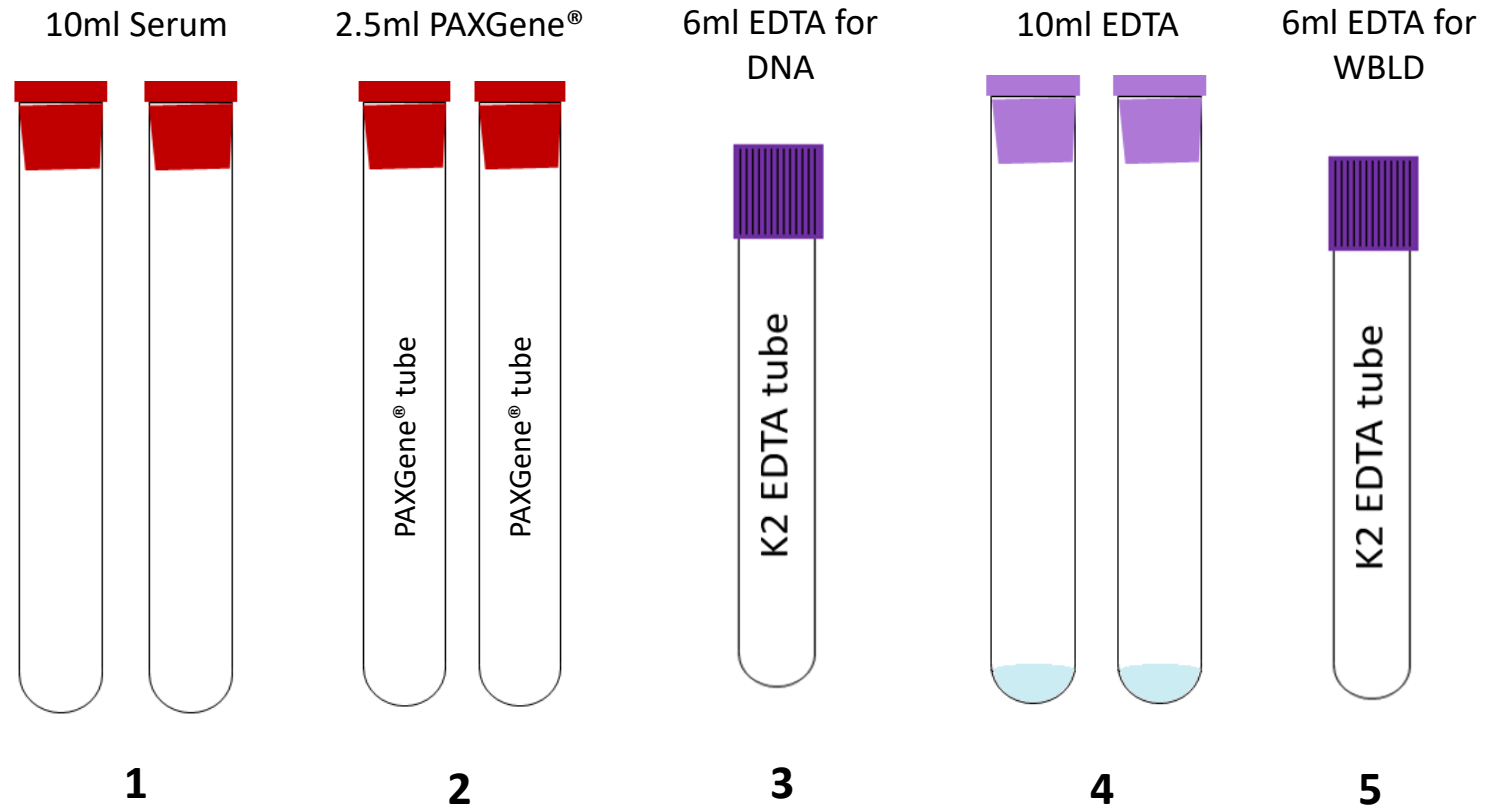
# Specimen Label

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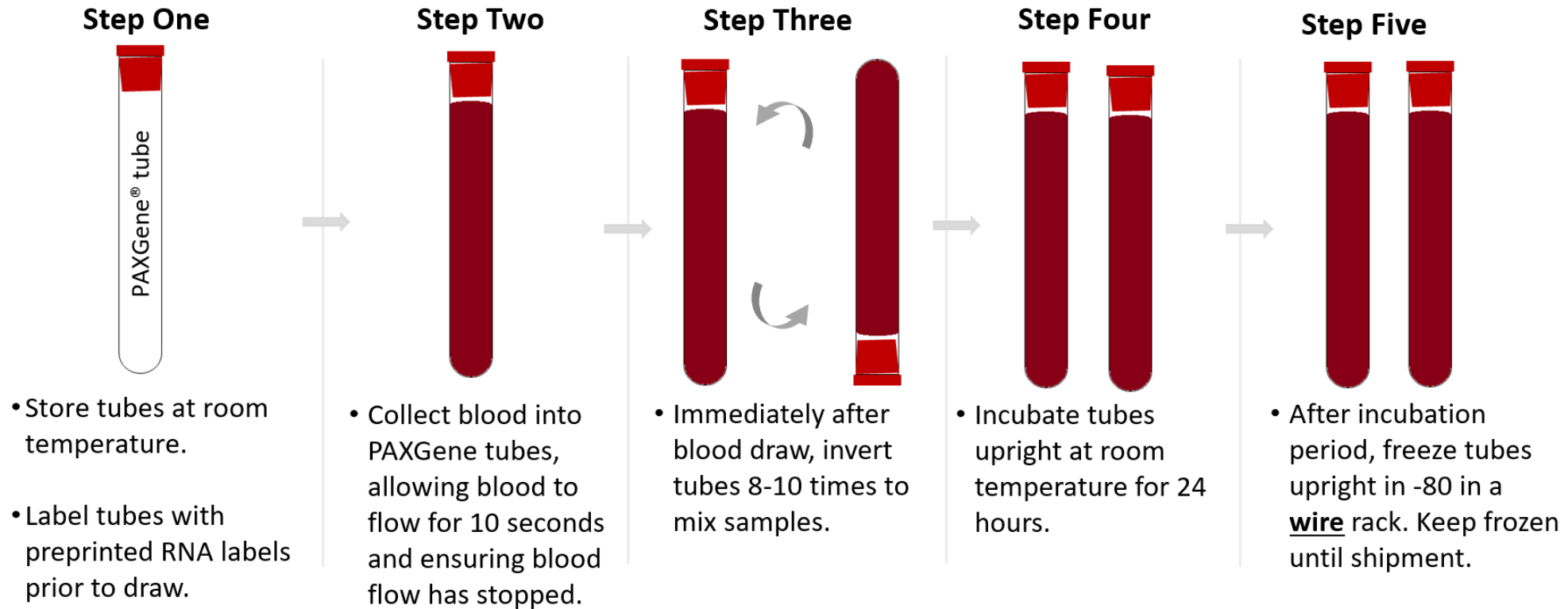
# Sample Collection and Processing

Blood Tube Draw Order

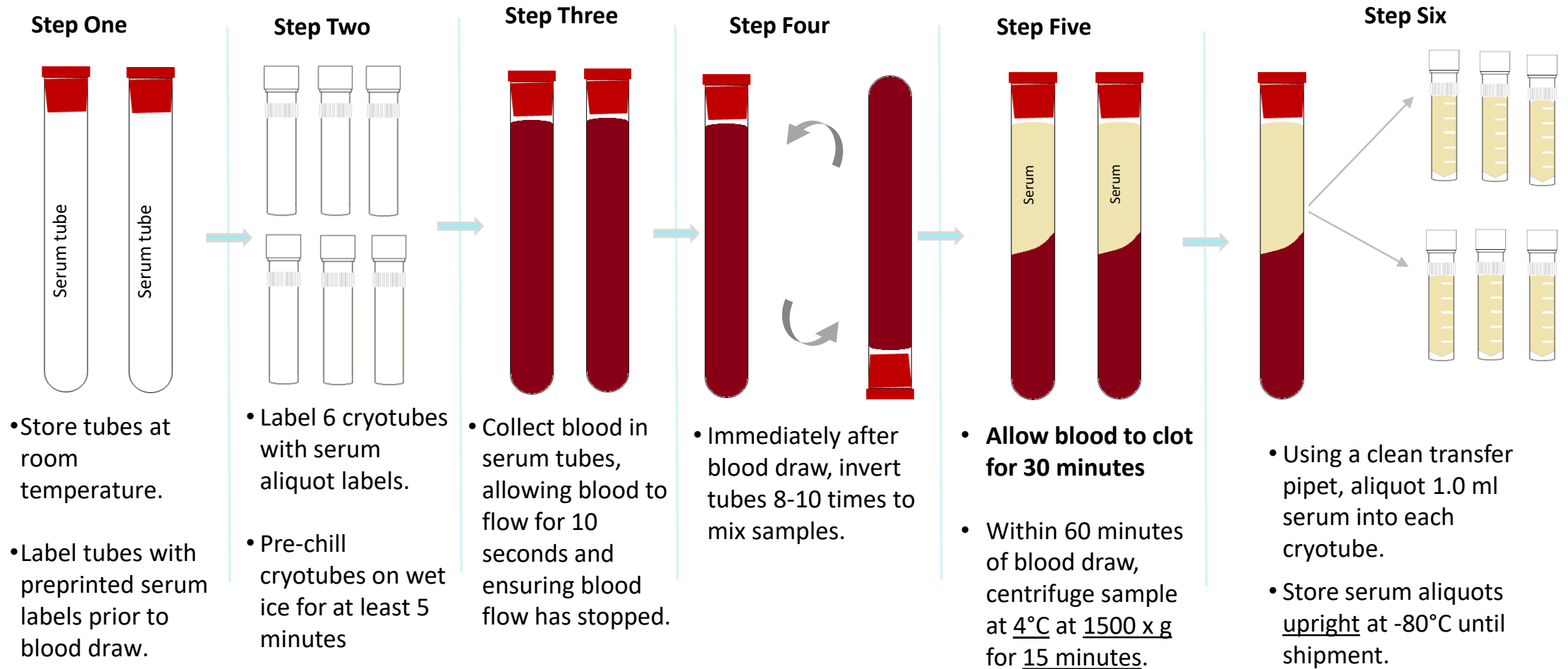


# Sample Collection and Processing: RNA

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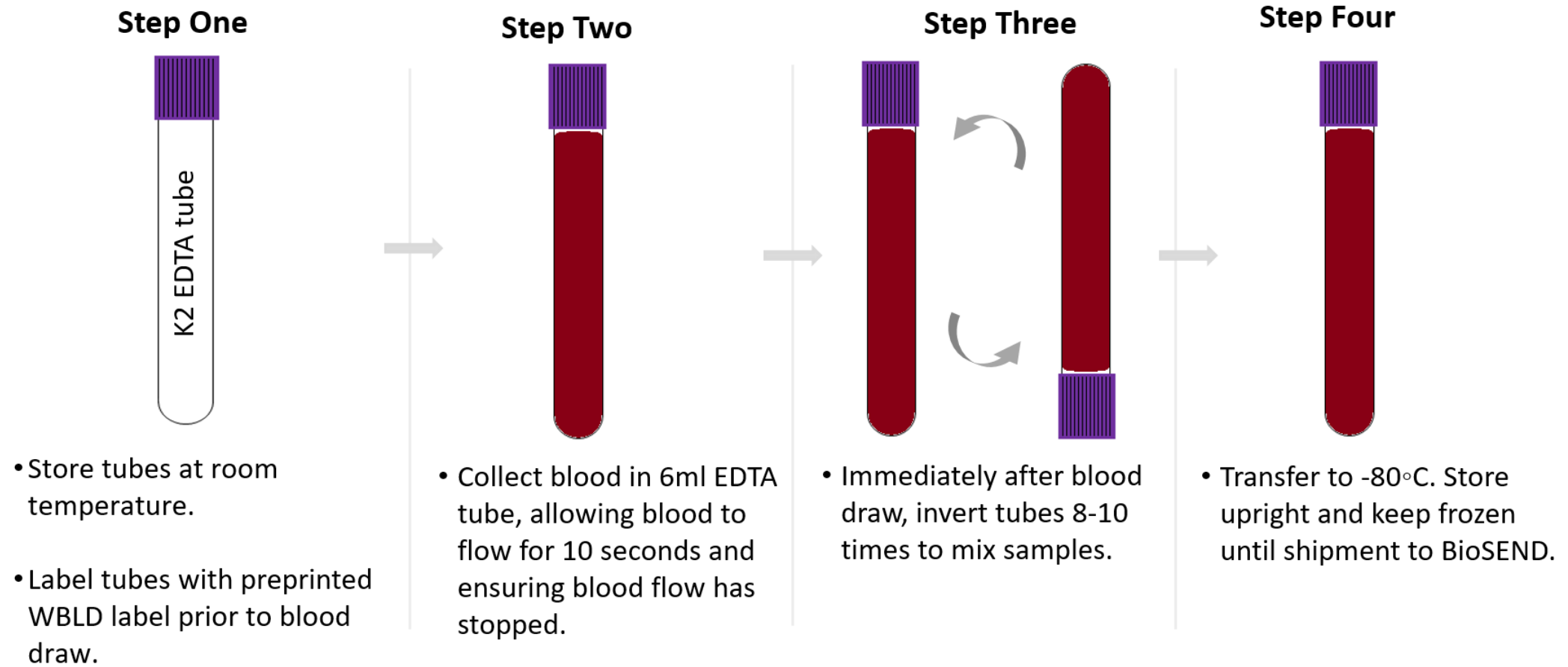


# Sample Collection and Processing: Serum



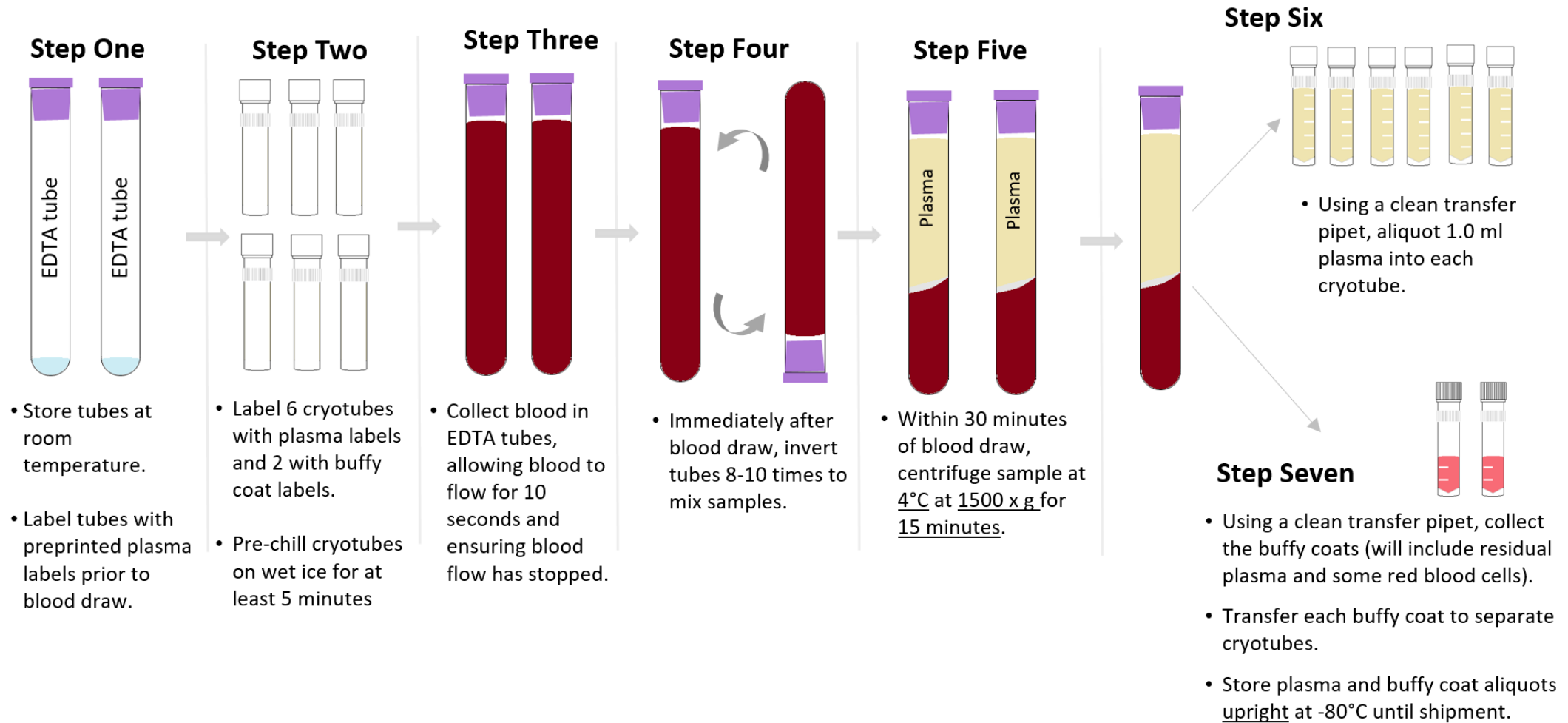
# Sample Collection and Processing: DNA

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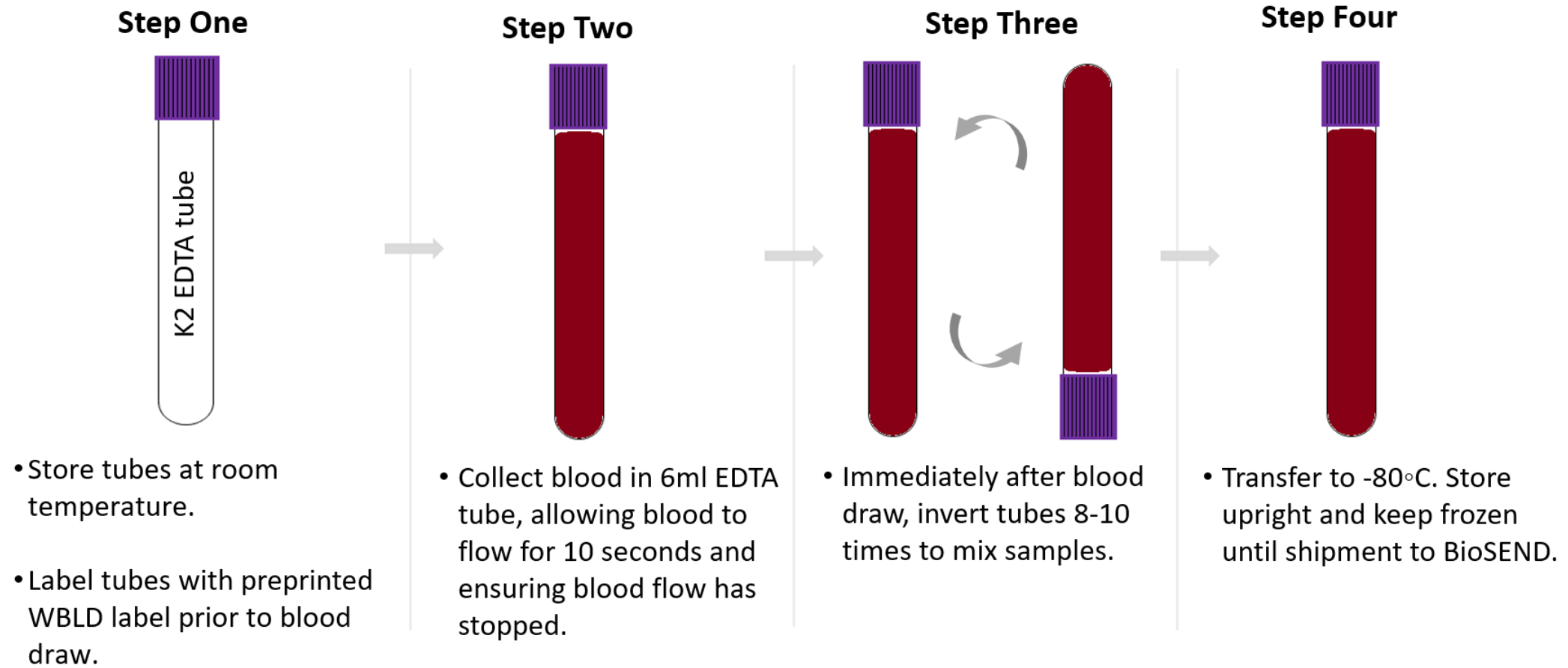


# Sample Collection and Processing: Plasma & Buffy Coat



# Sample Collection and Processing: Whole Blood

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# Blood Collection: Troubleshooting

## Issue #1: Collection tube with little/no vacuum

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**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 & serum

| 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 |
| 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  |

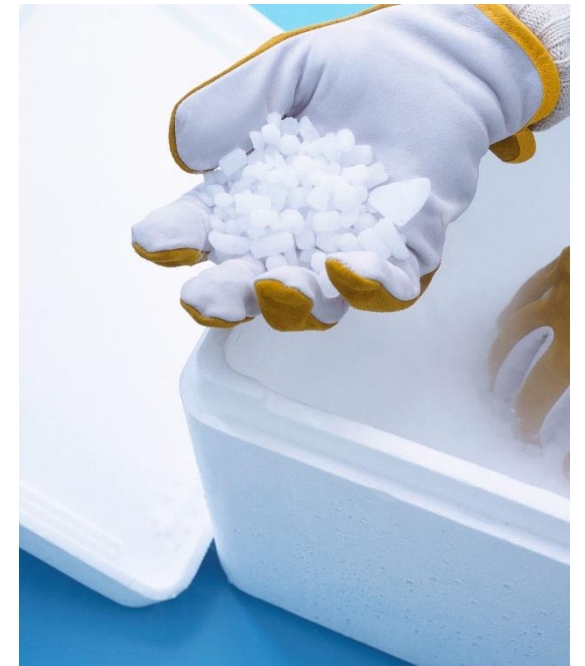
Reference: BD's "Tech Talk" newsletter, Vol. 2, No. 2, October 2003  
([http://www.bd.com/vacutainer/pdfs/techtalk/TechTalk\\_Jan2004\\_VS7167.pdf](http://www.bd.com/vacutainer/pdfs/techtalk/TechTalk_Jan2004_VS7167.pdf))

# Shipping Samples: Frozen

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## 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 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!

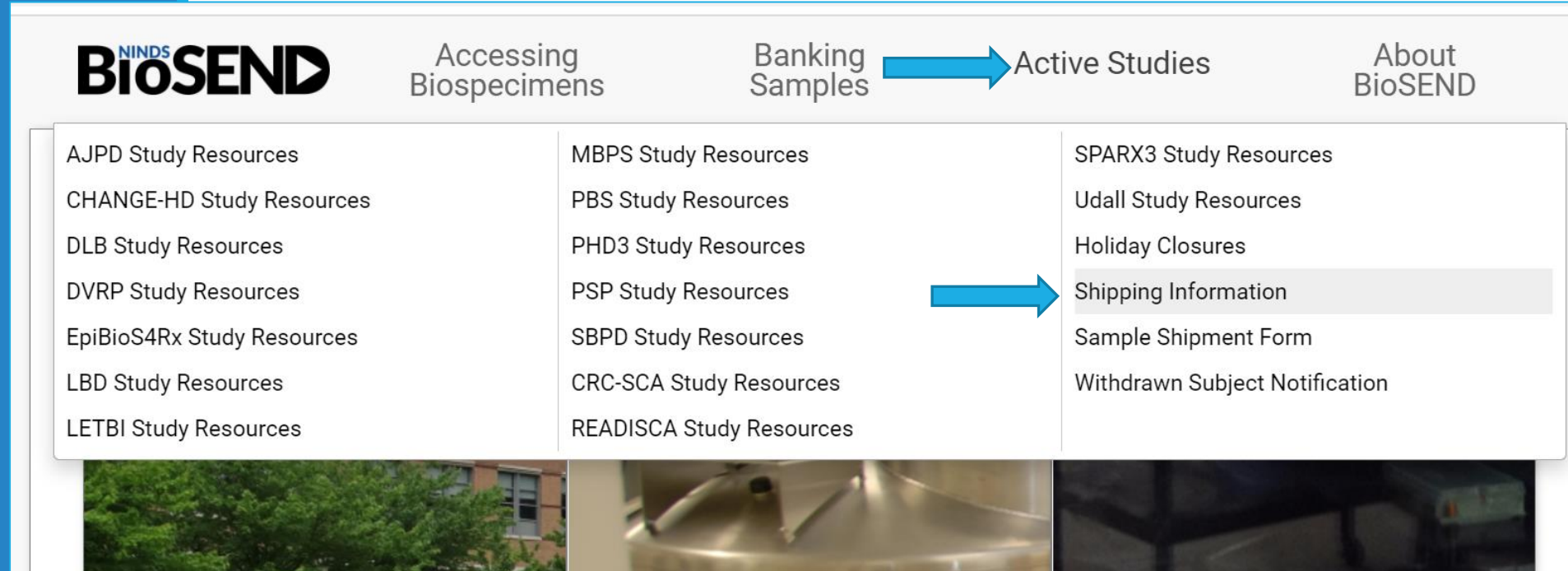
The image shows a Class 9 Dry Ice Label template. It features a large diamond shape with a black and white striped pattern. The label includes the following text and fields:

- 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 "Dry Ice" field)
- Dry Ice            kg.
- Your name & address (indicated by a red arrow pointing to the "Shipper's Name and Address" field)
- Shipper's Name and Address
- UN 1845
- Consignee Name and Address (indicated by a red arrow pointing to the "Consignee Name and Address" field)
- 9
- 06426 1/01 RRD



# Shipping Samples

UPS resources available on BioSEND website

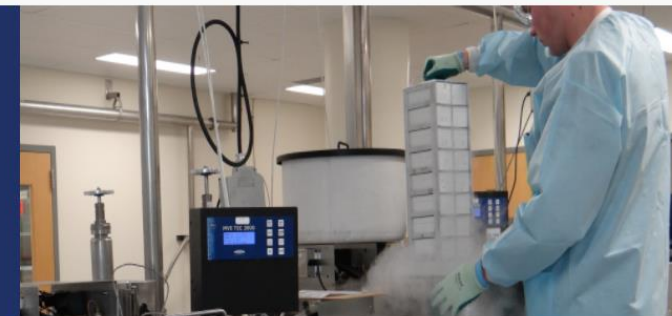


The screenshot shows the NINDS BioSEND website navigation bar and a dropdown menu. The navigation bar includes the BioSEND logo, 'Accessing Biospecimens', 'Banking Samples', 'Active Studies' (highlighted with a blue arrow), and 'About BioSEND'. The dropdown menu lists various study resources and shipping-related links. 'Shipping Information' is highlighted with a blue arrow.

| Accessing Biospecimens   | Banking Samples   | Active Studies  | About BioSEND |
|--|---|---|---------------|
| <ul style="list-style-type: none"><li>AJPD Study Resources</li><li>CHANGE-HD Study Resources</li><li>DLB Study Resources</li><li>DVRP Study Resources</li><li>EpiBioS4Rx Study Resources</li><li>LBD Study Resources</li><li>LETBI Study Resources</li></ul> | <ul style="list-style-type: none"><li>MBPS Study Resources</li><li>PBS Study Resources</li><li>PHD3 Study Resources</li><li>PSP Study Resources</li><li>SBPD Study Resources</li><li>CRC-SCA Study Resources</li><li>READISCA Study Resources</li></ul> | <ul style="list-style-type: none"><li>SPARX3 Study Resources</li><li>Udall Study Resources</li><li>Holiday Closures</li><li><b>Shipping Information</b></li><li>Sample Shipment Form</li><li>Withdrawn Subject Notification</li></ul> |               |

Below the navigation bar, there are three small images: a green tree, a close-up of a metal container, and a dark image of a sample shipment box.

## 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


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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

## 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"/> |

# Shipping Frozen Samples

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

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



# Packaging & Shipping Troubleshooting

## Issue: Broken/Damaged Tubes

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| 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                               |

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# Shipping Samples: Closures

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| 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

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Most common non-conformance issues:

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





# Contacts

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## 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