Longitudinal Investigation for Enhancing Down Syndrome Research (LIFE-DSR) Study of the Down Syndrome – Clinical Trials Network in collaboration with The National Centralized Repository for Alzheimer’s Disease and Related Dementias (NCRAD)

Blood-Based Biospecimen Training Slides
Contact Information

• Questions?

Please contact NCRAD Coordinators at:
  • Phone: 1-800-526-2839 or 317-274-7546
  • E-mail: alzstudy@iu.edu or wilmesk@iu.edu
  • Website: www.ncrad.org
Training Overview:

• Blood-Based Collection Schedule
• Kit Request Module
• Specimen Labels
• Handling/Processing Study Specimens
• Sample Shipping
• NCRAD Website
• Questions?
# Blood Based Collection Schedule

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>12M</th>
<th>24M</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Buffy Coat</strong>*</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Plasma</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*Buffy coats can be used to extract DNA.*
Kit Request Module

http://kits.iu.edu/lifedsr
Kit Request Module

• An initial stock of kits will be delivered prior to the designated site specific start date.

• Kits and individual supplies are available to order:
  • LIFE-DSR Blood-Based Kit
  • Frozen Blood Shipping Supply Kit
  • Blood-Based Supplemental Supply Kit
  • Individual Supplies
NCRAD Kit Request Module

**LIFE-DSR Kit Request System**

1. Choose your site from the drop down list
2. The coordinator name and contact information will appear
3. Verify that this information is accurate, correct if necessary

<table>
<thead>
<tr>
<th>Site</th>
<th>202 Cincinnati Children's Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTN: Anna Esbensen, Kellie Ramsdale</td>
<td></td>
</tr>
<tr>
<td>Clinic Research Coordinator</td>
<td></td>
</tr>
<tr>
<td>3430 Burnet Ave</td>
<td></td>
</tr>
<tr>
<td>MLC 4002</td>
<td></td>
</tr>
<tr>
<td>Cincinnati, OH 45229</td>
<td></td>
</tr>
<tr>
<td>Phone: 513-636-0674</td>
<td></td>
</tr>
<tr>
<td>Email: <a href="mailto:Kellie.ramsdale@cchmc.org">Kellie.ramsdale@cchmc.org</a></td>
<td></td>
</tr>
</tbody>
</table>

- Is the contact name above correct? (Yes/No)
- Is the shipping address above correct? (Yes/No)
- Is the e-mail address above correct? (Yes/No)
# Kits Available

<table>
<thead>
<tr>
<th>Kit Category</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFE-DSR Blood-Based Kit Qty</td>
<td></td>
</tr>
<tr>
<td>LIFE-DSR Blood-Based Supplemental Supply Kit Qty</td>
<td></td>
</tr>
<tr>
<td>LIFE-DSR Frozen Blood Shipping Supply Kit Qty</td>
<td></td>
</tr>
</tbody>
</table>

**Do you need Extra Supplies?**

- Yes
- No

*must provide value*

**Comments**

[Expand]

[Submit]
**Study Visit Kits**

- Indicate the quantity needed of each kit
- Once selected, kit components of the chosen kit will appear at the bottom of the screen (Pictured)
- Click “Submit” to turn in your request.
- The IU staff will notify you that your request has been received and address any issues.
- **Note: You can order more than one type of kit in a single kit request**

<table>
<thead>
<tr>
<th>LIFE-DSR Blood-Based Kit Qty</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFE-DSR Blood-Based Supplemental Supply Kit Qty</td>
<td></td>
</tr>
<tr>
<td>LIFE-DSR Frozen Blood Shipping Supply Kit Qty</td>
<td></td>
</tr>
<tr>
<td>Do you need Extra Supplies?</td>
<td>Yes</td>
</tr>
<tr>
<td><em>must provide value</em></td>
<td>No</td>
</tr>
<tr>
<td>Comments</td>
<td></td>
</tr>
</tbody>
</table>

**Each LIFE-DSR Blood-Based Kit Contains:**

- 1: Microcentrifuge tube box (holds up to 25 microcryovials)
- 16: Pre-printed Collection and Aliquot Tube Label
- 3: Pre-printed Kit Number Label
- 4: Labels for handwritten Site and LEADS ID
- 2: Disposable graduated transfer pipette
- 3: Cryovial tube (2.0 ml) with blue cap
- 3: Cryovial tube (2.0 ml) with clear cap
- 9: Cryovial tube (2.0 ml) with lavender cap
- 3: EDTA (Lavender-Top) Blood Collection Tube (10 ml)
NCRAD Kit Request Module: When It Must be Used

• Each site will be responsible for ordering kits (labels included) and maintaining supplies on site for scheduled participants

• To order, sites will use the Indiana University online kit ordering module: http://kits.iu.edu/lifedsr

• Allow a minimum of 2 weeks for your order to be processed and delivered.
Specimen Labels
Label Type Summary

1. Kit Number Labels
2. Collection and Aliquot Tube Labels
   • Differ by specimen type
3. LIFE-DSR ID Labels
Kit Number Labels

- Used to track patient samples and provide quality assurance
- Will be placed on the following locations:
  1. Biological Sample and Shipment Notification Form
  2. Outside cryobox that houses aliquot tubes during storage and shipment

Provided by NCRAD in the kits
Collection and Aliquot Tube Labels

- Specimen Number (assigned by NCRAD)
- Study Name
- Sample Type
- Kit # (assigned by NCRAD) unique to the subject and visit
Collection Tubes - Blood

Label 1: Collection Tube Label

- Collection/Aliquot tube label
  - place barcode near top

- LIFE-DSR ID label

Label 2: LIFE-DSR ID Label

- All collection tubes will have two labels
  - The Collection Tube Labels
  - The handwritten LIFE-DSR ID Label
**LIFE-DSR ID Label**

- Subjects will be identified by their LIFE-DSR ID
- The LIFE-DSR ID may only be available shortly before the visit
- Sites will be responsible for handwriting this onto the provided labels
  - Must use Fine point permanent marker
  - Each site will receive 4 markers in initial kit supply
Aliquot Tube Labels – Plasma and Buffy Coat

- Collection and Aliquot tube label only
- Please place barcode near cap
Labeling Biologic Samples

Please...

• Label all collection and aliquot tubes *before* cooling, collecting, processing or freezing samples.

• Label only *one* subject’s tubes at a time to avoid mix-ups.

• Wrap the label around the tube *horizontally*. Label position is important for *all* tube types.

• Make sure the label is completely adhered by rolling between your fingers.
Handling/Processing Study Specimens
# Site Required Equipment

## Blood Collection/Safety Equipment

1. **PPE**
   - Lab Coat, Safety Glasses
2. Tourniquet
3. Alcohol Prep Pad
4. Gauze Pad
5. Butterfly Needles
6. Bandage
7. Sharps Bin and Lid

## Processing/Storage Equipment

1. Centrifuge capable of $\geq 2000$ rcf with refrigeration to $4^\circ C$
2. -80$^\circ C$ Freezer
3. Wet Ice Bucket
## Sample Collection - Blood

<table>
<thead>
<tr>
<th>Tube Type</th>
<th>Number of Tubes Drawn</th>
<th>Tube Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. EDTA (Lavender-Top) Tube (10 ml)</td>
<td>x3</td>
<td><img src="image_url" alt="Tube Image" /></td>
</tr>
</tbody>
</table>
## Aliquot Cap Colors

<table>
<thead>
<tr>
<th>Cap Color</th>
<th>Sample Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lavender Cap</td>
<td>Plasma</td>
</tr>
<tr>
<td>Blue Cap</td>
<td>Plasma Residual (&lt;1.5ml)</td>
</tr>
<tr>
<td></td>
<td>(Document Specimen Number and Volume of Residual Aliquot on Sample Form)</td>
</tr>
<tr>
<td>Clear Cap</td>
<td>Buffy Coat</td>
</tr>
</tbody>
</table>
Plasma and Buffy Coat Preparation (10ml Lavender-Top Tube x 3)

**Step One**
- Store tubes at room temperature.
- Label tubes with preprinted labels prior to blood draw.

**Step Two**
- Collect blood in EDTA Tubes allowing blood to flow for 10 seconds and ensuring blood flow has stopped.

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

**Step Four**
- Place thoroughly mixed tubes on wet ice until centrifugation begins.

**Step Five**
- Centrifuge samples at 2000 x g at 4°C for 10 minutes.
- Samples need to be spun, aliquoted, and in the freezer within 1 hour from the time of collection.

**Step Six**
- Pool all plasma from the 3 EDTA tubes into a 50ml conical tube and invert gently 3 times to mix the plasma.

**Step Seven**
- Adhere preprinted labels to the lavender cap cryovials.
- Aliquot 1.5 ml into each cryovial tube.
- If a residual aliquot is created, document specimen number and volume on Sample Notification Form. Store plasma aliquots at -80°C until shipment.

**Step Eight**
- Adhere preprinted labels to the clear cap cryovials.
- Using a clean pipette tip, collect theuffy coats (may have residual plasma and some RBCs included).
- Transfer the Buffy coats into the cryovial tubes.
- Store Buffy coat aliquots at -80°C until shipment.
EDTA Tube (Plasma Collection)

Plasma Aliquots
(10 possible)

- Plasma
- BUFFY COAT
- Red Blood Cells

Close up view of 2.0 ml cryovial
EDTA Tube (Buffy Coat Collection)

Important Note:
- Buffy Coat aliquots will be distinguished from the plasma aliquots through a clear cap.
Sample Shipping
## Blood Sample Shipment Summary

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>LIFE-DSR</th>
<th>Processing/ Aliquoting</th>
<th>Tubes to NCRAD</th>
<th>Ship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole blood (Lavender-Top EDTA) for isolation of plasma &amp; buffy coat (for DNA extraction)</td>
<td>1.5 ml plasma aliquots per 2.0 ml cryovial (lavender cap) ; residual volume placed in 2.0 ml cryovial with blue cap</td>
<td>Up to 10</td>
<td>Frozen</td>
<td>Monday-Wednesday</td>
</tr>
<tr>
<td></td>
<td>1 ml buffy coat aliquot per 2.0 ml cryovial (clear cap)</td>
<td>3</td>
<td>Frozen</td>
<td>Monday-Wednesday</td>
</tr>
</tbody>
</table>
Frozen Sample Shipping

• Ship Monday-Wednesday Only
  • Plasma and Buffy Coat

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

• Batch Samples together
  • 5 cryoboxes
  • Batch shipping should be performed quarterly or as a full shipment of specimens accumulates, whichever is sooner.
Frozen Shipping - Cryoboxes

Place cryobox in one Biohazard Bag.
Shipping Frozen Samples

• Schedule UPS

• *Send Biological Sample and Shipment Notification Form to IU (US) ahead of shipment*
  
  • Email: alzstudy@iu.edu
  
  • Fax: 317-278-1100
Frozen Shipping – Dry Ice Requirements

- Fully cover the cryoboxes with about 2 inches of dry ice in the provided shipper.

- Each Styrofoam shipper must contain about 45 lbs (20 kg) of dry ice.
Frozen Shipping – Dry Ice Requirements

Dry Ice label should not be covered with other stickers and must be completed or the shipping carrier will reject/return your package!

Net weight of dry ice in kg

Contains 20.4 kg of Dry Ice
Shipping Regulations and Training

PLEASE NOTE:

• All study personnel responsible for shipping should be certified in biospecimen shipping.

• It is the responsibility of each site to ensure that the appropriate training has been provided and conducted in regards to IATA shipping.
UN3373 Biological Substance, Category B Training

• Biological Substance, Category B are specimens being transported for “investigational purposes”
• Recommend: investigator sites document training of category B/dangerous goods
• We recommend establishing a record of your staff’s training and date of instruction
• The training records must be made available upon request by the appropriate national authority
  • Additional information from the Department of Transportation (DOT) can be found on their website http://hazmat.dot.gov
Biological Sample and Shipment Notification Forms

• A copy of the sample form *must* be emailed or faxed to NCRAD prior to the date of sample arrival.

• Please include sample forms in all shipments of frozen and ambient samples.

• Email: alzstudy@iu.edu

• Fax: 317-278-1100
**Biological Sample Notification Form - Blood**

**Appendix B**

**Participant ID:** DSR __ __ __ __ __ __ __

**Biological Sample and Shipment Notification Form**

*Please email or fax this from prior to the date of shipment.*

To: Kelley Faber  Email: alizstudy@iu.edu  FAX: 317-278-1100  Phone: 1-800-526-2839

**General Information:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPS tracking #</td>
<td></td>
</tr>
<tr>
<td>From</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td></td>
</tr>
</tbody>
</table>

**Study:** LIFE-DSR

**Visit (circle one):** BASELINE  MONTH 12  MONTH 24

<table>
<thead>
<tr>
<th>Kit #</th>
<th>KIT BARCODE</th>
</tr>
</thead>
</table>

**Sex:**

- M
- F

**Year of Birth:**

**Blood Collection:**

1. Date Drawn: [MMDDYY]
2. Time of Draw: [HHMM]
3. Last time subject ate: [HHMM]

**Blood Processing:**

**Plasma & Buffy Coat (Lavender-top) Tube (10 mL)**

- Time spin started: [HHMM]
- Duration of centrifuge: Minutes
- Temp of Centrifuge: °C
- Rate of centrifuge: x g
- Time aliquoted: [HHMM]
- Number of 1.5 mL plasma aliquots created (lavender cap): mL
- If applicable, specimen number of residual plasma aliquot (less than 1.5 mL in blue cap): mL
- Buffy coat #1 last four digits of specimen number: ____________
- Buffy coat #1 volume: mL
- Original blood volume drawn: mL
- Buffy coat #2 last four digits of specimen number: ____________
- Buffy coat #2 volume: mL
- Original blood volume drawn: mL
- Buffy coat #3 last four digits of specimen number: ____________
- Buffy coat #3 volume: mL
- Original blood volume drawn: mL
- Buffy coat #4 last four digits of specimen number: ____________
- Buffy coat #4 volume: mL
- Original blood volume drawn: mL
- Time aliquots placed in freezer: [HHMM]
- Storage temperature in freezer: °C

**Notes:**

**Send by E-mail or Fax prior to shipment, and include a copy in each shipment**
What to do for Friday Blood Draws

NCRAD is not open for business on Saturday or Sunday; therefore, we ask that no samples be shipped on a Friday. We cannot guarantee the conditions in which the samples will be held by the shipping courier over the weekend. It is important to have plans in place for each type of sample to be held over the weekend prior to shipping. Please refer to the table below for how to handle samples drawn on a Friday.

When possible, please only ship frozen samples on Monday-Wednesday. There is always the potential for an unexpected shipping courier delay and by shipping Monday through Wednesday there should be enough time to receive the samples before the weekend.

<table>
<thead>
<tr>
<th>Sample Type</th>
<th>Tube Type</th>
<th>Product</th>
<th>Shipment Method</th>
<th>Friday Draw Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasma</td>
<td>Polypropylene Aliquot Tubes</td>
<td>Plasma</td>
<td>Frozen</td>
<td>Plasma must be processed and aliquoted locally the day of collection. Once aliquoted, samples are stored upright in a -80°C freezer before shipment. The aliquots may then be packed with dry ice pellets and shipped frozen as the study MOP dictates.</td>
</tr>
<tr>
<td>Buffy Coat</td>
<td>Polypropylene Aliquot Tubes</td>
<td>DNA</td>
<td>Frozen</td>
<td>Buffy Coat aliquots must be processed and aliquoted locally the day of collection. Once aliquoted, the sample must then be transferred into a -80°C freezer until shipment. The aliquot may then be packed with dry ice pellets and shipped frozen as the study MOP dictates.</td>
</tr>
</tbody>
</table>

Holiday Closures

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

https://www.ncrad.org/resource_adds_niad.html
*Once completed, training videos, manual of procedures, and sample forms will be available for reference on the LIFE-DSR Active Study Page.
Contact Information

• Questions?

Please contact NCRAD Coordinators at:

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