 <b>NATIONAL CANCER INSTITUTE</b> BBRB Biorepositories and Biospecimen Research Branch		<b>GTEx Work Instruction for Whole Brain, Brain Stem, and Hair Collection Receipt and Shipping (Green Kit)</b>	
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## 1.0 PURPOSE

- 1.1 This work instruction provides the specific steps necessary to pack and ship the Comprehensive Biospecimen Resource (CBR)-issued GTEx Whole Brain, Brain Stem and Hair Collection (the Green kit).
- 1.2 The procedure section is divided into four subsections: the kit receipt at the biospecimen source site (BSS); packing instructions; shipping instructions; and the alert of completed collection.

## 2.0 ENVIRONMENTAL HEALTH & SAFETY

- 2.1 Persons packaging and/or signing transport documents must be trained and/or certified to ship the appropriate hazard class according to International Air Transport Association (IATA)/International Civil Aviation Organization (ICAO) regulations.
- 2.2 Persons should also wear the appropriate Personal Protective Equipment (PPE) for handling human tissue.

## 3.0 PROCEDURE

### Kit Receipt at the BSS

- 3.1 Verify the contents of the kit as noted below and as shown in Figure 1.
  - 3.1.1 1 insulated UN3373 fiberboard box with outer Green kit label, external ID label, and peel off labels obscuring the "UN3373" and "Biological Substance, Category B" labels
  - 3.1.2 1 plastic bucket with O-ring and hinge-pin lid (labeled with sequence number 0011 and Biohazard)
  - 3.1.3 3 absorbent sheets
  - 3.1.4 1 – 4-lb freezer brick, which goes inside the plastic bucket
  - 3.1.5 4 – 3-lb freezer bricks that are inside a bubble sleeve or a Ziploc bag
  - 3.1.6 1 circular moldable foam insert with brain stem cut-out so the brain will sit on flat base in bucket (not shown in Figure 1)
  - 3.1.7 1 rectangular foam strip that surrounds the brain
  - 3.1.8 2 circular foam inserts
  - 3.1.9 2 cardboard inserts
  - 3.1.10 1 – 8-inch x 10- inch leak-proof biohazard bag for the olfactory bulbs and spinal cord.
  - 3.1.11 5 large sealable plastic bags for ice to pack the head
  - 3.1.12 2 leak-proof biohazard bags to house the brain
  - 3.1.13 Styrofoam insulation including 4 sides, a bottom and a lid (not shown in Figure 1)
  - 3.1.14 Bag for paperwork (not shown in Figure 1).
  - 3.1.15 Three 24-inch tape strips to seal the fiberboard box (not shown in Figure 1)
  - 3.1.16 Small manila envelope
  - 3.1.17 Small glassine envelope

3.1.18 Not included: “fastener” for the first bag the brain goes into, i.e., twist tie, rubber band.

Upon receipt and before kit is used, verify contents using the list above; do NOT use kit if incomplete or damaged. If the kit is incomplete or damaged, receive the kit in BRIMS as a partial kit and contact the CBR with the discrepancy in kit contents. The CBR will follow up with a resolution.





Figure 1: Supplies provided in the Green kit.

### **Alert of Completed Collection**

3.2 Timeline of alert to the Brain Bank

3.2.1 Immediately alert upon completion of procurement

3.3 Method of alert to the Brain Bank: Phone and courier alert

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3.3.1 Immediately contact the Brain Bank.. A recorded message may answer; please leave all pertinent information, such as shipment number, pick up time, etc.

3.3.2.1 Call in or enter online all pertinent information for the courier account (See “courier Instructions” for procedure).

**NOTE: If a reference number is needed, please use the Kit reference number. This should be the GTEX case # and Kit #. (Example: GTEX Case ID:XXXXXX/Kit-XXXX).**

3.3.2.2 When the order is received in the courier system, an alert will be sent to individuals at the Brain Bank and the CBR

### 3.4 Change in Delivery Status Alert Instructions

3.4.1 If a collection alert was forwarded to the Brain Bank and it is later determined, for any reason, the shipment will be delayed, cancelled, or there is a mistake in information on the printed forms, call the courier IMMEDIATELY!

3.4.2 The courier will update all recipients of their scheduling notifications with any delays, re-routes, etc.

3.4.3 An alert email will be issued to the Brain Bank and the CBR.

### **Packing Instructions**

3.5 Packers and shippers of the Green kit must be certified to ship IATA class 6.2 material.

3.6 At the onset of packaging, verify contents of kit using the list above (3.1).

The following information should be used to arrange for a specimen pick-up:

**Courier**

**Phone:**

**Account Number:**

**Online entry:**

**User ID:**

**Password:**

**Material Type:** Human Brain tissue, non-infectious

**IATA Classification:** UN3373, Biological Substance Category B

**Delivery Deadline:** Next scheduled flight out with the fastest delivery route. (Please DO NOT give them a time frame for delivery as this will complicate the flight time schedules they review.)

**Destination:** Brain Bank

**Special Instructions** Deliver as soon as possible. Do not hold for regular business hours. Recipient can receive 24 hours a day, 7 days a week.

3.7 On the day the kit is used, complete the following steps:

- 3.7.1 Arrange for shipment pick-up with the courier so the sample is picked up as soon as the brain, brain stem, and hair have been recovered. THIS SHIPMENT MUST LEAVE THE BSS AS SOON AS POSSIBLE AFTER THE COLLECTION IS COMPLETED.
- 3.7.2 Using the labels found in the overpack kit, transfer the full GTEx specimen label to the plastic bucket. Also, label both envelopes with the GTEx specimen ID labels.
- 3.7.3 Place the 0014 sequence label on both envelopes as well.
- 3.7.4 Whole Brain and Brain Stem Packing: Follow Figures 2 to 14 for packaging instructions.
- 3.7.5 If not attached to the brain specimen upon removal, the olfactory bulbs and spinal cord pieces should be placed in the 8-inch x 10-inch bag. Remove all air from the bag and seal the bag. Place this bag in the cut-out spot for the brain stem.
- 3.7.6 Hair Packing: The hair sample placed inside the glassine envelope is then placed inside a manila envelope. Follow instructions for hair packing (Figure 12).

*Figure 2: View of the bottom of the inside shipping package. There is a cardboard insert and a round foam disk for the plastic bucket to sit on to reduce vibration during shipping.*












*Figure 3: Place four -20 °C frozen 3-lb freezer bricks individually wrapped in bubble plastic along the outside walls of the shipping container. Then, place the bucket within the walls, resting on the foam disk.*



*Figure 4: Place one -20 °C frozen 4-lb freezer brick in plastic bucket.*



<p><i>Figure 5: Place foam with cut-out to accommodate the brain stem over 4-lb freezer brick. The olfactory bulbs and spinal cord, in a bag, will be placed in the cut-out spot for the brain stem, if collected separately.</i></p>	
<p><i>Figure 6: Place whole brain and brain stem into a leak-proof biohazard bag. Remove as much of the air as possible to prevent brain from moving during shipment. DO NOT USE ADHESIVE SEAL ON THIS BAG! Upon removing as much of the air as possible, secure opening of bag with a "fastener." <b>Take care not to squeeze the brain.</b></i></p>	
<p><i>Figure 7: Place bagged whole brain and brain stem into a second leak-proof biohazard bag. Again, remove as much of the air as possible. <b>Take care not to squeeze the brain.</b></i></p>	
<p><i>Figure 8: With brain stem down, carefully slide brain into Styrofoam™ insert so the brain stem is positioned within the foam cut-out.</i></p>	

<p><i>Figure 9: Encircle the whole brain with the rectangular Styrofoam™ strip.</i></p>	
<p><i>Figure 10: Place a foam insert over the whole brain. Close the bucket. Take care to avoid catching the large side icepacks in the threads of the lid while closing.</i></p>	
<p><i>Figure 11: Add the cardboard insert so that it is inverted over the plastic bucket.</i></p>	
<p><i>Figure 12: Place the outer Styrofoam™ lid on top. Place the following items into the ziplock bag provided for paperwork and put the bag on the Styrofoam™ lid:</i></p> <ol style="list-style-type: none"> <li>1. Completed <b>Chain of Custody (CoC)</b> printed from <b>BRIMS</b></li> <li>2. Manila envelope with the hair sample (in glassine envelope) is placed on top</li> <li>3. Please print the <b>Manifest</b> from <b>BRIMS</b> and place a copy of the in the box.</li> </ol>	
<p><i>Figure 13: Fold over the flaps and tape down.</i></p>	

### **Shipping Instructions**

#### 3.8 Waiting for Shipment

3.8.1 If the courier pick-up is anticipated to be more than one hour from the time the kit is packed, please hold the kit at a temperature of 4°C, as your facility can best accommodate, until the courier arrives.

3.8.2 If the kit is being held as above, please check the freezer blocks and replace, if needed.

3.9 Verify the pick-up of the Green kit by the courier.