Integrated Islet Distribution Program
City of Hope

STANDARD OPERATING PROCEDURE (SOP)

Collection, Packaging and Cold Shipping of Fresh Non-Islet Pancreatic (Acinar) Tissue

Version: SHP-006-01
Standard Operating Procedure for Collection, Packaging and Cold Shipping of Fresh Non-Islet Pancreatic (Acinar) Tissue

SOP #: SHP-006-02

Version: 02
Supersedes: 01
Issue Date: 5/9/19
Effective Date: 5/10/19

Details:
Standardized Packaging and Cold Shipping of Non-Islet Pancreatic (Acinar) Tissue for IIDP Distribution based on the Prodo Labs, Inc. Protocols

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1.0 Objective

1.1 To define a standardized method for packaging and cold shipping of research quality non-islet pancreatic (acinar) tissue (NIPT) to approved investigators for use in the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) sponsored research in the Integrated Islet Distribution Program (IIDP).

Note: This SOP was developed based on the Prodo Labs, Inc. shipping protocol and results from preliminary studies conducted by the IIDP and commissioned by the original IIDP Project Officer, and External Evaluation Committee (EEC).

2.0 Scope and Applicability

2.1 This SOP applies to all IIDP islet distribution centers using funds from the NIDDK to manufacture purified human NIPT for basic research studies for IIDP approved investigators.

2.2 This SOP will require participation from all participating IIDP centers.

3.0 Responsibilities

3.1 It is the responsibility of each IIDP center to follow the procedures listed in this SOP and to work to the best of their abilities to follow all requirements.

3.2 Managers and supervisors are responsible for assuring that all technicians are properly trained in the correct procedure for this SOP and that equipment and facilities are in good working order.

3.3 Laboratory personnel are responsible for reading and understanding the SOP and for performing the tasks in accordance with this SOP.

3.4 It is the responsibility of the IIDP CC to ensure adherence to the procedures outlined in this SOP. In order to accomplish this, the IIDP CC will interact with the relevant personnel from each of the participating centers.

3.4.1 The CC is responsible for the provision of the specified supplies listed in this protocol to the distributing centers.
3.4.2 The CC is responsible for the education of the investigators as to the advantages of this shipping method based on results of the preliminary studies.

3.5 It is the responsibility of each approved investigator receiving NIPT through the IIDP to cooperate in providing feedback to the IIDP on the condition of the NIPT upon receipt and to reuse and recycle all shipping materials to the best of their ability.

4.0 Definitions

4.1 Integrated Islet Distribution Program (IIDP): The IIDP is a program commissioned and funded by the NIDDK to provide quality human islets and NIPT to the diabetes research community to advance scientific discoveries and translational medicine. The IIDP consists of the NIDDK Project Scientist and Program Official, the External Evaluation Committee and the CC at City of Hope (COH). The IIDP CC integrates an interactive group of academic laboratories including the subcontracted IIDP centers.

4.2 IIDP Coordinating Center (CC): Joyce Niland, Ph.D., IIDP Principal Investigator leads CC staff to coordinate the activities of the IIDP and assists the participating centers and investigators in the distribution of human islets and NIPT.

4.3 Approved Investigators: Researchers who have requested NIPT from the IIDP for basic science studies and whose research protocols have been reviewed and approved by the IIDP.

4.4 Non-Islet Pancreatic (Acinar) Tissue: During a standard human islet isolation, the digested tissue goes through a purification process that allows the majority of the isolated islets to be separated from the acinar and other pancreatic tissues. This is commonly done using density gradients and a COBE centrifugation processor. The lighter density tissues, including the majority of human islets, are collected from the slurry, leaving the remaining pancreatic tissue, in the COBE processor bag that still holds the denser gradients and tissue. This non-islet pancreatic tissue is commonly referred to as the “Acinar” tissue, although in reality, it contains other types of pancreatic tissue, often including imbedded islets.

5.0 Materials

5.1 The IIDP will provide each center with the following supplies necessary for shipments:
### Standard Operating Procedure for Collection, Packaging and Cold Shipping of Fresh Non-Islet Pancreatic (Acinar) Tissue

<table>
<thead>
<tr>
<th>SOP #:</th>
<th>SHP-006-02</th>
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<tr>
<td>Version:</td>
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<table>
<thead>
<tr>
<th>TCP-Cryopak</th>
<th>Phase 22 pouches</th>
<th>Cryopak: small, ambient temperature pouches</th>
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<tbody>
<tr>
<td>Fisher</td>
<td>03 311 1V</td>
<td>30mL vessel for shipping NIPT</td>
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<tr>
<td>Fisher</td>
<td>03 311 1W</td>
<td>60mL vessel for shipping NIPT</td>
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<tr>
<td>Fisher</td>
<td>03 390 72</td>
<td>125mL vessel for shipping NIPT</td>
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<td>Fisher</td>
<td>02-923-145</td>
<td>250mL vessel for shipping NIPT</td>
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<td>Fisher</td>
<td>MT61277RG</td>
<td>Ciprofloxacin hydrochloride – 5 gm bottle (Corning 61277RG)</td>
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<tr>
<td>Fisher</td>
<td>22 031 340</td>
<td>Kendall Durasorb Underpads #949</td>
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<tr>
<td>Fisher</td>
<td>19 130 6043</td>
<td>Ziplock Bags 8x10 2 mil</td>
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<tr>
<td>Uline</td>
<td>S-4344</td>
<td>Corrugated, cardboard, inner box for shipping (7x5x5&quot;)</td>
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<tr>
<td>Uline</td>
<td>S-7359</td>
<td>Insulated shipping container (8x6x9&quot;) (outer box)</td>
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<tr>
<td>Uline</td>
<td>S-7361</td>
<td>8 oz cold packs</td>
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<tr>
<td>Uline</td>
<td>S-423</td>
<td>Shipping Tape (2 mil)</td>
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<tr>
<td>Gemini Bio Products</td>
<td>100512</td>
<td>100mL - Human AB Serum (ABS) HI- LOT # H19EROOH</td>
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<tr>
<td>Prodo Labs</td>
<td>PIM-G</td>
<td>5mL – Glutamine/Glutathione</td>
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<tr>
<td>Prodo Labs</td>
<td>PIM-T</td>
<td>500mL – Transport Media</td>
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<tr>
<td>Tip Temp</td>
<td>WMSSEN044 with WMSSEN009 attached to card</td>
<td>Cold Chain Complete Card with WarmMark Ascending indicator adhered to card</td>
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<tr>
<td>Tip Temp</td>
<td>CLMSEN004</td>
<td>ColdMark Descending indicator</td>
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<tr>
<td>COH Printing</td>
<td>NA</td>
<td>IIDP labels for outside boxes</td>
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</table>

5.2 Supplies provided by the IIDP Centers:

5.2.1. NIPT for distribution

5.2.2 Routine lab supplies for transferring NIPT

5.2.3 Completed FedEx Shipping Labels

5.2.4 Islet Allocation Tissue Shipment Forms for appropriate recipients

5.2.5 Markers for labeling vessels
6.0 Procedures

6.1 Receipt of Supplies
The majority of supplies should be stored in appropriate dry, temperature-controlled environments (room temperature 16°C-28°C).

6.1.1 The Prodo Labs PIM-T should be stored between 2°C and 8°C upon receipt but is stable at room temperature.

6.1.2 The Gemini AB serum and the PIM-G vials should be stored at -5°C to -20°C.

6.1.3 The Ciprofloxacin can be stored on the shelf but filter sterilized suspension aliquots should be stored at -5°C to -20°C.

6.1.4 The Cold Chain Complete Card with the WarmMark indicator on the card and the separate ColdMark indicator can both be stored at room temperature or between 12°C to 32°C to ensure against accidental triggering of either indicator.

6.2 Begin NIPT (Acinar) Broadcast

6.2.1 Begin Acinar broadcast on IIDP Secure Access Center Website as soon as you are sure that an islet isolation will be taking place.

6.2.2 Enter donor and isolation information on IIDP secure website under Quick Acinar Broadcast. Complete Donor Information Form and Processing and Distribution of Acinar Tissue Form.

6.2.3 Donor Information Form is same as for islets and all entered information will be transferred to the subsequent Islet Broadcast.

6.2.4 Relevant information entered on the Processing and Distribution of Acinar Tissue Form will be transferred to the Islet Broadcast.

6.2.5 Complete information on whether NIPT will be available as freshly isolated (SOP-SHP-006) and/or flash frozen.

6.2.6 Complete the broadcast records and proceed to broadcast. When deadline of Broadcast is met, automated email will be sent to center asking to View Acinar Offers and to confirm the shipment or cancellation of each request.
6.2.7 Set your Deadline for tissue shipment confirmation at assumed time when you will be ready to package your freshly isolated acinar tissue samples or freeze the requested acinar tissue. (See SOP SHP-007)

6.3 Collection of NIPT for Transport

6.3.1 The NIPT, the tissue remaining in the COBE purification bag, should be transferred under sterile conditions, into two 250 mL conical tubes, as soon as feasible during the islet isolation process. Top with Hanks Buffered Salt Solution (HBSS), cap, invert to mix and dilute Ficoll, and centrifuge at 4°C for 2 minutes @180 g.

6.3.2 Prepare 1 bottle of PIM-T media prior to the collection by thawing and adding 5mL of PIM-G, 12.5mL of AB serum (2.5% v/v), and 0.5mL of prepared ciprofloxacin sterile aliquot per SHP-006 Attachment 8.3 to make PIM-T Complete.

6.3.3 After centrifugation, calculate your pellet size, evacuate supernatant, and suspend your pellets to 10 times the pellet volume with PIM-T Complete Lay conicals of the NIPT suspension on their sides at 4°C to avoid pelleting of NIPT while waiting to confirm acinar shipments.

6.4 Preparation of Shipping Vessels

6.4.1 As investigator’s requests are determined through the broadcast system, prepare appropriate amounts of fresh NIPT into proper sized shipping vessel from the diluted samples in 6.2.2 above.

6.4.2 For 0.5 - 0.75mL of requested NIPT pelleted tissue, add 5-7.5mL of NIPT suspension to 60mL bottle for shipment.

6.4.3 For 0.76 – 1.5mL of requested NIPT pelleted tissue, add 7.6-15 mL of NIPT suspension to 125mL bottle for shipment.

6.4.4 For 1.6 – 3.0mL of requested NIPT pelleted tissue, add 16-30 mL of NIPT suspension to 250mL bottle for shipment.

6.4.5 For 3.1 – 5.0mL of requested NIPT pelleted tissue, add 31-50mL of NIPT suspension to 500mL bottle for shipment.
6.4.6 PIM-T complete media bottle can be used for shipping these large amounts of NIPT.

6.4.7 Distribute appropriate volume of NIPT into shipping bottles.

6.4.8 Top off the volume of each shipping vessel with PIM-T stored at 6-10°C up to the halfway point of the neck of each shipping bottle. *Note: Total specific volumes for specific bottles sizes are as follows:*

6.4.8.1 60mL bottle – 75mL of media plus NIPT

6.4.8.2 125mL bottle – 167mL of media plus NIPT

6.4.8.3 250mL bottle – 300mL of media plus NIPT

6.4.8.4 500mL bottle – 550ml of media plus NIPT

6.4.8.5 Label each bottle with RRID #, Date, volume of NIPT, and PI Name

6.4.8.6 Record appropriate information on the batch record.

6.4.8.7 Keep the shipping bottles with NIPT in the refrigerator (6-10°C) until ready for packaging.

### 6.5 Packaging of NIPT

6.5.1 Stage all materials needed for packaging the NIPT and ensure all ice packs and CryoPak pouches are at the proper temperature. (See Attachment 8.1 Packaging NIPT for IIDP Cold Shipping Demonstration.)

6.5.2 The Cold Chain Complete Card is shipped with the WarmMark Indicator attached. Store the Card at least 5°C (9°F) below the *activation temperature of the adhered WarmMark of 37°C* (therefore less than 32°C). Room temperature is acceptable.

6.5.2.1 The ColdMark is provided separately because it is always active and should be stored at least 10°C (50°F) above *activation temperature of ColdMark of 2°C* (therefore more than 12°C). Room temperature is acceptable.
6.5.2.2 When ready to use, adhere the ColdMark indicator to the card and activate the WarmMark. ACTIVATE the WarmMark by folding up and pulling out the tab until completely removed.

6.5.2.3 Immediately place the Cold Chain Complete Card along with the acinar shipping bottles into a Ziploc bag and seal. (Review SHP 005 Attach 8.4 v2 TipTemp Handling Instructions_8_29_18)

6.5.3 Line the inner cardboard (#4434) box with absorbent pad.

6.5.3.1 Place the bagged shipping bottle(s) containing the NIPT in the Ziploc bag into the absorbent pad lined, inner cardboard box.

6.5.3.2 Surround bottle with six 8°C cold packs, one on bottom, one on each of the four sides and one on top.

6.5.3.3 Mark the direction for upright bottle. Seal the inner box with shipping tape and stand upright.

6.5.3.4 Place one 8°C CryoPak pouch and one -20°C frozen ice pack (stored in the freezer) in the bottom of the Styrofoam box.

6.5.3.5 Place the inner cardboard box containing the NIPT on top of the pouch and pack, ensuring that the bottle inside as well as the inner cardboard box, is lying on its side to ensure the maximum surface area for the acinar tissue to settle and centered in the shipping container. *Note: the inner box and bottle are opposite of the way islet tissue is shipped.*

6.5.3.6 Place one 8°C CryoPak pouch and one -20°C frozen ice pack on the top of the inner box.

6.5.3.7 Add a second layer of cold/frozen packs on top, one 8°C CryoPak pouch and one -20°C frozen ice pack, on top of the first layer. *NOTE-All packs should be placed in an alternating method, to ensure two of the same packs are not next to each other in the configuration*

6.5.3.8 Place the Styrofoam lid on top.
6.5.3.9 Place Tissue Shipment Form on top of Styrofoam lid.

6.5.3.10 Close the flaps of the shipping box and seal with shipping tape.

6.5.3.11 Attach FedEx label with recipient FedEx number to box and ship priority overnight.

6.6 Completing the Distribution Records

6.6.1 The shipping center will enter the NIPT to be shipped (Confirm Recipient screen) and will enter FedEx tracking numbers Broadcast System. In addition, the shipping center should process the shipment by using the on-line FedEx process and click the prompt to alert the recipient of the FedEx tracking number. This will help the recipient investigator follow their shipment through the FedEx system and free up time for the centers and the IIDP.

   *Note: If the investigator has picked up the NIPT at the distributing center then the center should check “Yes” in the “Direct Pickup” column and “Yes” under “NIPT Shipped?” once they are picked up.*

6.6.2 The investigators will have the FedEx tracking numbers listed in their History of Acinar Tissue Offers table.

7.0 References

7.1 Prodo Labs Shipping Protocol VS Standard IIDP Shipping SOP Pilot Study Design, Protocols, Feedback, Analysis, and Center Comments

7.2 Tip Temperature Products website: [http://www.tiptemp.com](http://www.tiptemp.com) and product inserts

7.3 Prodo Labs, Inc. Protocols and Website: [http://www.prodolabs.com](http://www.prodolabs.com)

8.0 Attachments

8.1 Packaging NIPT for IIDP Cold Shipping Demonstration

8.2 TipTemp Handling Instructions v2_8_29_18

8.3 Ciprofloxacin Stock Preparation