ScienceBridge Tech Site Standard Operating Procedure

Title: Protein Purification Cold Solution Packaging		
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Scope	For use by biotechnology students at the ScienceBridge tech sites when packaging the ScienceBridge **Protein Purification Cold Solutions** for shipment.			
Objective	This SOP sets the procedural specifications for packaging the Purification Cold Solutions **Ni Beads** and **Lysosome**.			
Consumable Materials		1 kit	Packaged Quantity (5 kits)	Outer Packaging
	1. **Ni** Bag (quart bag) a. 10 Green 2.0mL microcentrifuge tubes labeled **Ni**, containing 150µL of solution. 2. Pink 2.0mL microcentrifuge tube labeled **Lys**, containing 25mg lysozyme powder. 3. Quart Bags 4. Sandwich bags 5. Bag Delivery Sticker 6. Temperature Sensitive Stickers	10 1 1 1	50 max 5 max	 1 1 1-2 1-2
Equipment	1. Sharpie	1	1	1
Supplemental Aids	OF Labeling Cold Bags Ice Bucket Training Video OF Packaging PP Lysozyme Cold Bags OF Packaging PP Ni Bead Cold Bags			
Safety	• Take care to ensure that liquid-filled tubes do not open during handling and are completely closed.			
Quantity	*Prepare 1 quart bag each with a snack bag containing 10 Ni Beads per kit ordered (Total amount should be (10 Ni Beads) x (# of kits ordered) into 1 quart bag)* *Prepare 1 sandwich bag each with 1 Lys per kit ordered (Total Amount should be (1 Lys) x(# of kits ordered) into 1 sandwich bag.)*			

	2 separate cold solution bags should be made in total. *Maintain a stock of 2 bags of Lys and 1 large bag of Ni Beads before requesting replenishment.*
Protocol	**Note: Always check the Ni Bead in production box and Lys box for unfinished cold solution bags to package. No more than the ordered # of kits should be packaged unless told otherwise. Never work with the fridge open, take out the box, close fridge, place needed items in ice box, return box. Never take from another box that isn't "Ready for Kits".** **Part I: Preassembly Ni Beads (Total time for 1 order: 10-15 mins)** 1. Take out Temperature Sensitive Sticker and a teacher bag delivery sticker from Order Fulfillment Binder under "Teacher Labels (Cold Solutions)" 2. Fill out a teacher label with teacher name, delivery date, # of kits ordered, # of bags made out of 2 bags total) a. Reference OF Kit Order Tracking Sheet (Teacher Name, Pick up Date, Number of Kits, and the Froze/Cold Solution or Shells section.) or watch Labeling Bag Supplemental Aid 3. Stick teacher label and temperature sensitive sticker to the INSIDE of a quart bag on the top right corner. 4. Fill an ice box half-way with ice and locate Ni Beads in refrigerator from "Ready for Kits". 5. Place Ni Beads bags box into ice box (Ni Beads should already be pre-bagged into 10 tubes per bag, DO NOT OPEN.) a. Use a large ice box for multiple orders 6. Package 1 bag of green **Ni** tubes (10/bag) for each kit ordered into one of the labeled quart bags. 7. **QC: Make sure that the tubes are sealed and do not defrost. Recount the number of Ni bags and make sure it is the same as the # ordered on the delivery sticker.** 8. Place quart bag back to ice. Store at 4°C (refrigerator) in "Ready for QC" box. 9. Complete OF Kit Order Tracking Sheet and communication log documentation (refer to documentation section) **Part II: Preassembly Lys Tubes (Total time for 1 order: 10-15 mins)** 1. Fill out another teacher bag delivery sticker and affix in the same process described in Part I, steps 1-3, but with a sandwich bag. 2. Fill an ice box halfway with ice and locate Lys in freezer from "Ready for Kits". 3. Place Lysozyme into ice box. a. Use a large icebox for multiple orders 4. Package one pink **Lys** tube for each kit ordered into one of the labeled sandwich bags.

	5. QC: Make sure that the tubes are sealed and do not defrost. Recount the number of Lys tubes and make sure it is the same as the # ordered on the delivery sticker. 6. Place sandwich bag back to ice. Store at -20°C (freezer) in "Ready for QC" box. 7. Complete OF Kit Order Tracking Sheet and communication log documentation (refer to documentation section)
Documentation	● **All work and any variance from the protocol must be documented** ● Before and after completing each item update the OF Kit Order Tracking Sheet in the "frozen/cold solution or shells" with all required information listed on sheet ● If in need of solution replenishment: o Speak to tech site teacher for approval and ensure you have a specified amount of solutions needed before requesting Solutions and Aliquots through the google form. o Document solution shortage on back page of OF Kit Order Tracking Sheet, under the "Supplies Short" section. Include (name of supply) and all required information on sheet. ● Update status of each cold solution kit in the Order Fulfillment Communication Log about problems, steps completed, etc. ● When complete Part I, update Mira Mesa Shared ScienceBridge Kit Information Spreadsheet by listing cold bag completion status in OF cold bag column: "Finished Ni Beads 1/2", date + initial" ● When complete Part II, repeat previous step for lysozyme but list cold bag completion status "Finished Lysosome 2/2, date + initial"
Storage	**All materials should be stored at its respective temperatures.** **Always start with oldest dates on supplies and complete partially finished or open bags first.** **Product Storage** ● Completed and checked Part I and II kits should be passed to Quality Assurance. ● Packaged and Labeled **Ni** Bags should be stored in the fridge (4°C) in the **Ni** Beads "Ready for QC " box. ● Packaged and Labeled **Lys** Bags should be stored in the freezer (-20°C) in the **Lys** Bags "Ready for QC " box **Supplies Storage Locations** ● Find paper supplies in back of Order Fulfillment binder ; if more is needed, look in Enzyme Storage Cabinet or Request Inventory through google form after gaining approval from tech site teacher ● Find Quart and Sandwich Bags on the last row of shelf in Enzyme Storage Cabinet with boxes labeled "Quart Bags" and "Sandwich Bag"

Quality Control	Make sure that tubes stay frozen (No more than a minute out of ice), work quickly and efficiently. **Fails QC:** ● If # of tubes do not match # ordered on delivery sticker Replace, add, or remove any parts that are incorrect ● If tubes are improperly sealed/broken and/or leaking Inform tech site instructor and check if other tubes are in similar conditions. After clean up, replace the broken tube(s) with tubes that have no leaking issues. ● If tubes defrost/not cold, inform tech site instructor to asses salvageability. After, replace tubes if necessary with cold tubes.
Reagent Label or Other Identification Label	Quart and Sandwich Bag Label must include: Temperature Sensitive label Teacher bag delivery label (teacher name, # of kits ordered , delivery date, # of bags made out of 2 total)
When	● **Part I:** done as soon as the delivery date becomes active or do next delivery date if current one is completed ● **Part II:** done as soon as the delivery date becomes active or do next delivery date if current one is completed
Tech Site Kit: Group	*Protein Purification: Order Fulfillment*