ScienceBridge Tech Site Standard Operating Procedure

Title: Protein Purification Kit Quality Control		
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Scope	For use by biotechnology students at the ScienceBridge tech sites when quality checking the ScienceBridge Protein Purification kits for shipment.			
Objective	This SOP sets the procedural specifications for quality checking the Protein Purification kits.			
Materials		1 kit	50 kits	100 kits
	1. Assembled Protein Purification Kit box	1	50	100
	2. Room temp bag (gallon-sized) a. 30 Microcentrifuge tubes, 2.0mL, round bottom, clear b. 10 Pink 1.5mL microcentrifuge tubes (empty) c. 10 Yellow 1.5mL microcentrifuge tubes labeled **EB**, containing 1mL Elution buffer d. 15 Orange 1.5mL microcentrifuge tubes labeled **TE**, containing 1mL TE buffer e. transfer loops (bag of 10) f. Transfer pipets (bag of 40)	1	50	100
	3. pre-bundled columns wrapped in bubble wrap (10 Pasteur pipets with cotton installed)	1 10	50 500	100 1000
	4. 5cm LB/amp agar plates, pre-plated with a lawn of fluorescent bacteria	1	50	100
	5. **Ni** Bag (sandwich-sized) a. 10 Green 2.0mL microcentrifuge tubes labeled **Ni**, containing 150µL of solution.	1	50	100
	6. Pink 2.0mL microcentrifuge tube labeled **Lys**, containing 25mg lysozyme powder.	2	100	200
	7. Sandwich bags	1	50	100
	8. Protein Purification Kit Checklist	1	50	100
	9. Box Delivery Sticker	2	100	200
	1. Bag Delivery Sticker			
Equipment	1. Sharpie	1	2	4

	2. QC Tracking Sheet	1	10+	20+
Supplemental Aids	QA Protein Purification Cold Solution Training Video			
Safety	• Take care to ensure that liquid-filled tubes do not open during handling and are completely closed. Handle glass pasteur pipets/columns with care – they are very delicate and can break easily..			
Quantity	1 per kit ordered			
Protocol	**Part I: Kit Box Retrieval** 1. Check "Ready for QC" box in room 224A for kits ready to QC. 2. Retrieve kits and bring them to an open table with ample space. 3. Check that the teacher label and bag labels matches your information on the QC tracking sheet 4. Empty kit of contents and separate them to avoid mistakes. **Part II: QCing the Room Temperature Bag** 5. Remove the gallon bag labeled "purification" from the kit, and empty contents on table. **a.** Count out 30, clear 2.0mL round bottom microcentrifuge tubes; tubes should be unmarked and undamaged. (I.E. No missing lid, no cracks, no parts missing.) **b.** Count out 10, pink 1.5mL microcentrifuge tubes; tubes should be unmarked and undamaged. (I.E. No missing lid, no cracks, no parts missing.) c. Quart bag with 40 Transfer pipets; pipets should be unmarked and undamaged. (I.E. Bulb intact, no creases, no cracks.) **d.** 1 bag of blue or yellow transfer loops. Do NOT open unless there is a problem. The loops were packaged under sterile conditions. **i.** 10 transfer loops 6. Replace all contents into the Protein Purification gallon bag. Be sure to remove all extra air and replace sealed bag into the kit bag. 7. Remove pre-bundled columns wrapped in bubble wrap. Without removing the bubble wrap, count to see if there are 10 with about ¼ to ½ inch of cotton in the pipet. Add fragile sticker to bubble wrap if passes QC. **Part III: QCing the Wet Bag** 8. Count out 10 yellow 1.5mL microcentrifuge tubes labeled EB, containing 1mL Elution Buffer; compare tubes side by side to ensure equal volume of contents. Caps should be fully snapped closed 9. Count out 15 Orange 1.5mL microcentrifuge tube labeled TE, containing 1mL TE buffer. Caps should be tightly closed. Check that all RT are all checked off 10. Seal kit with a signed QC sticker on the bottom part of the handle. **Part III: QCing Nickel Beads** 11. Keep all Nickel Bead tubes on ice at all times.			

	12. Check fridge in room 224C for nickel bead bags in "Ready for Delivery" box. 13. Bag should be labeled with the teachers name and number of kits. a. Check that the # of kits match your QC tracking sheet b. 1 sandwich bag of 10 green 2.0 mL microcentrifuge tubes filled with 150 µL of solution per kit ordered. c. All tubes should be fully snapped closed **14.** Remove all extra air and seal the QC'd bag with a signed QC sitcker. Replace nickel bead tubes in "Ready for Delivery" box in room 224C fridge. **Part IV: QCing Lysozyme** 15. Keep all Lysozyme tubes on ice at all times. 16. Check freezer "Lysozyme Ready for Delivery" box. 17. Bag should be labeled with the teachers name and number of kits. a. Check that the # of kits match your QC tracking sheet b. 1 pink **Lys** tube per kit ordered. c. All tubes should be fully snapped closed 18. Remove all extra air and seal the QC'd bag with a signed QC sitcker. Replace lysozyme tubes in freezer "Ready for Delivery" box. **Part V: Agar Plates** 1. Only additional kits for teachers on site have plates that are prepared on site. All regular kits have to be QC'd on the day of delivery.
Documentation	**All work and any variance from the protocol must be documented** • Record all fully completed steps on the QC Tracking Sheet. • Record any problems that cannot be resolved by the end of the period on the QC Tracking Sheet • Update progress on the Communication Log
Storage	**Product Storage** • Kit bags that have passed QC should be put in the "Protein Purification Kits Ready for Delivery" box on top of the freezer in room 224C. • Kit bags that have not passed QC should be put in the "QC in progress" in room 224C • Plasmids that have passed QC should be put in the "Ready for delivery" box in the top shelf of the freezer. • Packaged and Labeled **Ni** Bags should be stored in the fridge (4°C) in the "**Ni** Beads Ready for Delivery" • Packaged and Labeled **Lys** Bags should be stored in the freezer (-20°C) in the "**Lys** Bags Ready for Delivery". • **Supplies Storage Locations** • Extra supplies may be stored in the "Protein Purification QC/OF Supplies" box in room 224C.

	• Full bags of supplies may be found in the "Protein Purification/Bacterial Protein Purification Supply Cabinet boxes labeled "ready for bagging".
Quality Control	• (Include here what to do if it does not meet the QC step(s) in your protocol)
When	Complete for each kit on your QC Tracking sheet and each kit in the "Ready for QC" box in room 224C.
Tech Site Kit: Group	*Protein Purification*: Quality Assurance