



Cryo-EM Merit Badge Independence Checklist

A Collaboration Among the NIH-Funded Cryo-EM National Centers

chameleon Independence Test Checklist – CryoEM Merit Badges

Trainee: _____

Starting a chameleon session

- ☐ ☐ Open the chameleon software
- ☐ ☐ Open the compressed air tank

Preparing the chameleon

- ☐ ☐ Check that all the supply bottles have a sufficient level
 - ☐ ☐ Wash water supply
 - ☐ ☐ Chamclean
 - ☐ ☐ Humidifier supply
 - ☐ ☐ Dispenser supply
- ☐ ☐ Check that the waste bottle is empty
- ☐ ☐ Replace and clean all the vials with the air duster
- ☐ ☐ Fill the tweezer cleaning vial with ethanol

Preparing grids

- ☐ ☐ Load grids on grid platform
- ☐ ☐ Input information grid information and glow discharge parameters, click continue

Loading sample and cryogenics

- ☐ ☐ Load sample into the sample vial
- ☐ ☐ Input sample details
- ☐ ☐ Fill the dispenser cleaning vial with methanol
- ☐ ☐ Load cryogenics:
 - ☐ ☐ Label and put a chameleon grid box into the cryogen bowl
 - ☐ ☐ Verify ethane cup temperature is below -160°F and then dispense ethane into cup
 - ☐ ☐ Close the ethane tank after use

Testing dispenser

- ☐ ☐ Open the Helium tank to sparge and close it after it is done
- ☐ ☐ Check that the dispenser is dispensing properly with water
- ☐ ☐ Check that the dispenser is dispensing properly with sample
- ☐ ☐ User can use both automatic test and manual dispense and navigate the troubleshooting menu

Freezing Cycle

- ☐ ☐ Make grid using one stripe or two stripe method
- ☐ ☐ Assess grid quality
- ☐ ☐ Verify the grid is placed in discard area or in the grid box before making the next grid
- ☐ ☐ User should demonstrate how to open the cryogen drawer to top off liquid nitrogen if needed



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Finishing the session

- ☐ ☐ Select "Finish Session" button or "End Session" icon
- ☐ ☐ Fill the methanol vial with methanol when prompted
- ☐ ☐ Check if dispenser is dispensing properly
- ☐ ☐ Remove unused grids
- ☐ ☐ Remove cryogen container
- ☐ ☐ Save any grid box(s) made
- ☐ ☐ Create and save report
- ☐ ☐ Make sure all tanks used are closed
- ☐ ☐ Remove humidifier bottle
- ☐ ☐ Clean up workspace

Supervising Staff 1: _____

Date: _____

Supervising Staff 2: _____

Date: _____