



## AutoLoaderLoading Independence Test Evaluator Checklist – CryoEM Merit Badges

Supervising Staff: \_\_\_\_\_

Date: \_\_\_\_\_

Trainee: \_\_\_\_\_

### LN2 handling

- Proper PPE is worn (gloves, goggles, face mask)
- Minimize spills when pouring

Evaluator Notes:

---



---

### Preparing tools

- Get NanoCab and lid
- Prepare transfer station with accessories: Station, metal block, cassette gripper, top covers, side cover, autogrid tweezers, cassette tweezers, large forceps, autogridbox opening tool, dewars, grid boxes.
- Always wear gloves whenever touching the cassette.
- Use the correct cassette for the microscope being loaded.
- Assemble loading station, side window covered.
- Cool down loading station (with cassette in station if not retrieving one from a microscope).
- Cool down NanoCab - keep lid on as much as possible.

Evaluator Notes:

---



---

### Docking and undocking NanoCab with the Autoloader

- Verify the microscope is idle, column valves are closed, apertures are out, & the microscope is cryogenic.
- With the cryogen label facing you, remove the cover from the NanoCab, test that you can lift the cassette lock pin, then slide it onto the Autoloader dock.
- Dock the NanoCab, using the green Dock button, touch screen, or PC interface.
- When prompted, remove NanoCab from the dock. Visually verify the cassette was removed and replace the cover.

Evaluator Notes:

---



---

### Attach Nanocab to loading station and position cassette for loading

- Take side cover off of transfer station and dock NanoCab, securing with the red clamp.
- If retrieving a cassette from the NanoCab, remove transfer station covers and use the cassette gripper to remove the cassette from the NanoCab and place into the metal block.
- Seat the cassette gripper back in its home position and replace covers.

Evaluator Notes:

---



---



**Adding autogrids into the cassette and putting cassette into NanoCab**

- Place grid boxes in the metal block, securing with lids in the appropriate screw holes.
- Cool autogrid tweezers.
- If removing grids from a full cassette, use the autogrid tweezers to pick up grids from the cassette and transfer into empty autogrid boxes.
- To put new grids in: use the autogrid tweezers to remove the autogrid from grid box, check that C-clip is secure and in the correct orientation (C-clip faces side of the station where NanoCab attaches), and place into cassette slot secured with the spring.
- Check that each grid is secured properly using the autogrid tweezer.
- Confirm there is an empty slot if there is a grid on the microscope stage.

Evaluator Notes:

---



---

**Transfer cassette into NanoCab**

- Use the cassette gripper to pick up the cassette and transfer into the NanoCab.
- Return the cassette gripper to its home position.
- Put the covers back on the transfer station.
- Take the NanoCab off the transfer station and replace transfer station side cover. Top off with LN<sub>2</sub>.
- Check the cassette lock by pulling on the metal cassette lock pin.
- Put cover on NanoCab and take it to the microscope.

Evaluator Notes:

---



---

**Cleaning Up**

- Empty LN<sub>2</sub> from NanoCab and place in incubator to dry.
- Disassemble the loading station and leave to dry.
- Place empty grid boxes in appropriate place.
- Return all tools to proper place and leave bench clean.

Evaluator Notes:

---



---