



Cryo-EM Merit Badge Independence Checklist

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

SerialEM Data Collection Test Evaluator Checklist – CryoEM Merit Badges

Trainee: _____

Section 1: Pre-Checks

- ☐ ☐ Check:
 - ☐ ☐ Autoloader Inventory
 - ☐ ☐ SerialEM Server
 - ☐ ☐ Low Dose Mode Enabled
 - ☐ ☐ Imaging States
 - ☐ ☐ Search
 - ☐ ☐ View
 - ☐ ☐ Focus
 - ☐ ☐ Record
- ☐ ☐ Perform Direct Alignments on Cross Grating
 - ☐ ☐ Pivot Points X
 - ☐ ☐ Pivot Points Y
 - ☐ ☐ C2 Aperture Centering
 - ☐ ☐ Rotation Center
 - ☐ ☐ Beam Center

Section 2: Set Record Beam

- ☐ ☐ Set Magnification
- ☐ ☐ Set Beam Diameter
- ☐ ☐ Set C2 Aperture
- ☐ ☐ Camera Settings:
 - ☐ ☐ Exposure Time
 - ☐ ☐ Frame Time
 - ☐ ☐ Same Frames Enabled
 - ☐ ☐ Total Dose
 - ☐ ☐ Dose rate
- ☐ ☐ Copy Record Imaging State to Focus
- ☐ ☐ Astigmatism Corrected
- ☐ ☐ Coma Corrected
- ☐ ☐ Coma vs Image-shift Calibrated

Section 3: GIF Tune & Gain Collection

- ☐ ☐ GIF Tune completed at correct illumination conditions
- ☐ ☐ Gain Collected Correctly



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Section 4: Data Collection

- ☐ ☐ Loads grid
- ☐ ☐ Opens Navigator window
- ☐ ☐ Low Magnification Montage set up and saved to correct project path
- ☐ ☐ Eucentric Height of central grid square calculated
- ☐ ☐ Collects LMM
- ☐ ☐ View-Record shift corrected
- ☐ ☐ Adjust focus position correctly
- ☐ ☐ Medium Magnification Montage set up and saved correctly
- ☐ ☐ Multishot Set Up Correctly
- ☐ ☐ Targets added to MMMs correctly
- ☐ ☐ Defocus Range Adjusted in LD Script
- ☐ ☐ Acquire at Items launched correctly
- ☐ ☐ Automated Data Collection runs

Section 5: Shutdown

- ☐ ☐ Uncheck Save Frames
- ☐ ☐ Close all open maps
- ☐ ☐ Close Navigator Window
- ☐ ☐ Complete Independent Microscope Log
- ☐ ☐ Close column valves and load grid 1, the cross-grating, onto microscope stage

Supervising Staff 1: _____

Date: _____

Supervising Staff 2: _____

Date: _____