Induction Checklist: Cryostat (Leica CM3050S) Safety Training

Trainee Information

- Name:
- Date:
- Trainer Name:
- Position (e.g., researcher, student, etc):
- Department/Faculty :

Purpose: Ensuring safety and correct use of the Leica CM3050S cryostat.

Importance: Prevent injuries (e.g., frostnip, cuts), avoid damage to equipment and samples.

Safety Protocols

- ☐ Ensure proper Personal Protective Equipment (PPE) is worn: gloves, lab coat, safety glasses.
- ☐ Understand the cryostat locking and unlocking mechanism (holding the key symbol to unlock).
- ☐ Safe handling and disposal of cryostat blades into a biohazard sharp container.
- ☐ Awareness of cryogenic temperatures and frostbite prevention measures.
- ☐ Cleaning and decontaminating the cryostat after use (use of 70% ethanol).
- ☐ Take regular breaks during use to prevent fatigue and ensure safe operation.
- ☐ Stay hydrated and maintain proper ergonomic posture to reduce fatigue and improve focus
- ☐ Emergency procedures and first aid in case of blade or cold injuries.

Cryostat Setup

- ☐ Reserve the cryostat ahead of time in the histology record book.
- ☐ Ensure the cryostat is clean before use
- ☐ Set cryochamber and object temperatures (CT and OT) according to the type of tissue.
- ☐ Equilibrate cryostat chamber and materials for at least 30 minutes before sectioning.
- ☐ Verify that the section thickness is correctly set -
- ☐ Lock the handwheel and check the blade clearance angle (5°) before operation.
- ☐ Use OCT compound for frozen tissue block preparation and ensure correct orientation.
- ☐ Insert the disposable blade and cover it with the anti-roll plate before starting.

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Frozen Tissue Block Preparation

- ☐ Correctly orientate fresh frozen tissue in a cryomold with OCT freezing medium.
- ☐ Ensure the OCT turns white before attaching the tissue block to the chuck.
- ☐ Clamp the frozen tissue block and adjust the specimen holder position.

Trimming Procedure

- ☐ Set trimming thickness.
- ☐ Ensure the handwheel is unlocked and trim the tissue block using a continuous forward motion.
- ☐ Remove unwanted trimmed sections (debris) with a large brush.
- ☐ Lock the handwheel after trimming is complete.

Sectioning Procedure

- ☐ Align the anti-roll plate with the blade for sectioning.
- ☐ Slowly and uniformly rotate the handwheel forward to produce an optimal section.
- ☐ Mount each section immediately onto a charged microscope slide to prevent curling.
- ☐ Gently flatten the section with a stiff brush before mounting onto the slide.
- ☐ Ensure each slide is pre-labeled and sections are evenly spaced on the slide.

Post-Use Clean-Up

- ☐ Remove the chuck from the cryostat and place it outside.
- ☐ Warm the base of the chuck slightly with your fingers (wearing gloves).
- ☐ Use a spatula or forceps to gently remove the remaining tissue without causing damage.
- ☐ Immediately place the tissue in its labeled mold and store it in the freezer.
- ☐ Remove all frozen tissue blocks from the cryostat and clean the cryostat chamber with 70% ethanol.
- ☐ Clean the chuck thoroughly with diluted Trigene, rinse with water, and dry before reuse.
- ☐ Discard used blades into a biohazard waste sharp container.
- ☐ Empty the waste tray and dispose of debris in a biohazard bag.

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- ☐ Decontaminate forceps and brushes by soaking them in diluted Trigene for 10 minutes (if necessary)
- ☐ Ensure it is locked before leaving.

Trainee Competency Confirmation

- ☐ Safe operation of the cryostat demonstrated.
- ☐ Tissue sectioning quality verified.
- ☐ Proper clean-up procedure followed.

Sign-Off

Trainer Signature:

Trainee Signature:

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