

Induction Checklist: Safe Use of the Microtome

Trainee Information

Name:

Date:

Position (e.g., researcher, student):

Safety Protocols

- Ensure appropriate Personal Protective Equipment (PPE) is worn: gloves, lab coat, safety glasses
- Understand blade safety: safe handling of microtome blades, blade disposal in the sharps container.
- Lock the microtome wheel when not in use (two locks: one on the wheel and one below it).
- Keep the blade protector covering the blade when not actively cutting.
- Safe cleanup and decontamination procedures after use (wiping down the microtome, disposing of sections and blade).
- 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

- First aid procedures for blade injuries

Microtome Set up

- Ensuring the microtome is clean before use
- Turn on the microtome
- Set up the water bath at least 30 minutes before cutting
- Ensure the wheel is locked before preparing the block or blade.
- Clean the blade holder and block holder, removing any leftover wax from previous use.
- Insert a new microtome blade without touching the cutting surface. Position the blade correctly and tighten the blade holder.
- Check the blade angle (should be at 5)
- Ensure the microtome is locked before loading the block
- Load the paraffin block into the block holder and position it securely
- Adjust the blade holder so there is minimal space between the blade and block

Trimming Procedure

- Set the cutting thickness to 10-15 microns for trimming.
- Unlock the wheel and begin trimming the block by moving the wheel in a clockwise motion.
- Stop trimming when full tissue sections are produced to avoid wasting the block.
- Use a brush to remove any wax debris during trimming.

Sectioning Procedure

- Switch to sectioning mode and set the desired thickness (starting with 5 μm for beginners).
- Polish the tissue surface by cutting sections to improve section quality and staining.
- Cool the block surface with ice before cutting to reduce wrinkles and nicks in the sections.
- Cut several sections, using forceps to gently hold the ribbons as they form.
- For beginners, cut around 5 sections before pausing and lowering the block below the blade.
- Use forceps or a paintbrush to guide the sections from the blade to the water bath, ensuring the shiny side faces down in the water.

Picking Up Sections with a Slide

- Pre-mark the specimen side of the slide with a pencil.
- Gently use forceps to position and transfer the sections from the water bath onto the slide without touching the bottom of the bath.
- Hold the slide at an angle to avoid air bubbles, and ensure proper positioning of sections.
- For IHC, place two sections per slide, leaving enough space for a hydrophobic pen line between them.
- Label and number the slides correctly.

Post-Use Clean-Up

- Clean the water bath by dragging a tissue across the surface between blocks and after use.
- Turn off and empty the water bath, then wipe it down and cover it.
- Remove the blade and dispose of it in a sharps bin.
- Clean the block holder, blade holder, wheel handle, and other parts of the microtome.
- Sweep sections into the catcher and empty the catcher into the bin.
- Relax the blade holder and turn off the microtome.

Trainee Competency Confirmation

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

Sign-off

Trainer Signature:

Trainee Signature: