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| **LEICA 1850 Cryostat** | | | |
| **Purpose** | To provide working guidelines for the operation of the Leica 1850 cryostat. | | |
| **Policy Statements** | This procedure applies to Histology Technical staff and Pathology Assistant maintaining cryostat | | |
| **Principle** | The cryostat is designed for the rapid freezing and sectioning of tissue samples. | | |
| **Materials** | **Supplies** | | **Reagents** |
|  | * Leica 1850 cryostat * Biohazard Sharps * PPE | | * 100% Alcohol * Sani-Cloth wipes |
| **Specimen** | Fresh, unfixed tissue | | |
| **Records/Form Required** | Preventative Maintenance Log | | |
| Related Policies and Procedures | HI 1.12 Frozen Sections  HI 1.17 Handling & Disposal of Infectious Tissue and Chemical Reagent Waste  HI.103 Quality Control in Anatomic Pathology | | |
| **Special Safety Precautions** | Use appropriate PPE during frozen sections.  Lock the handwheel while clamping the specimen chuck, changing microtome blade and while not in use. Dispose of used microtome blades and other sharps in appropriate Biohazard sharps containers. | | |
| **Quality Control** | Temperature monitoring and daily preventative maintenance is recorded in Histology.  Yearly preventative maintenance and/or additional service or repairs are performed and documented by BioMed and North Central Instruments.  The cryostat chamber is not appropriate for storing tissue specimens overnight due to automatic defrosting. Frozen tissue specimens may be placed in the Histology freezer or the -70° C Freezer in the Main Lab. | | |
| **Procedure** |  | | |
|  | **Step** | **Action** | |
| **Routine cleaning** | 1. | Trimmings of tissue that accumulate in the chamber are removed and disposed of in Red Biohazard trash after each case. Clean the interior chamber by wiping surfaces with 100% alcohol. Documentation is recorded on the Daily PM form in Histology. | |
| **Cutting Infectious Tissue (Includes HIV/AIDS and TB):** | |  | |
| **Protective Clothing:** |  | Wear double gloves, N95 mask, safety glasses/goggles and gown. | |
| **Cleaning after cutting infectious cases** | 1. | When procedure is completed, put on clean double gloves and place tissue directly into 10% formalin to fix thoroughly before it is handled again. | |
|  | 2. | When all cutting is completed, remove disposable blade and discard in  Biohazard Sharps container. With protective clothing in place, remove the knife holder from the microtome. Then wipe clean with two changes of Sani-cloths and 100% alcohol. Retrieve all tissue shavings from the waste tray. Dispose directly into a Red Biohazard Trash. Remove outer layer of double gloves, also disposing into the same bag. Then close the bag securely and dispose into the Red Biohazard trash bin. Wipe all interior surfaces of the chamber with 100% alcohol and dry well. | |
|  | 3. | \*\*If complete decontamination is desired, the cryostat must be shut off long enough for the microtome area to reach ambient temperature. Wipe all exposed surfaces inside and outside the cryostat chamber Sani- Cloth wipes. Then wipe all surfaces with a towel or sponge that has been soaked in 100% alcohol. Let the surface area air dry with the cover open to dissipate any fumes. Do NOT use Bleach in the cryostat it will damage the stainless steel. | |
|  | 4. | Turn the cryostat back on and allow to cool completely before using (-18 to -25 C). | |
| **Troubleshooting** |  | | |
| **Error messages** | Should error messages appear, please refer to the Leica 1850 Cryostat User Guide for specifics. BioMed or North Central Instruments should be notified immediately. | | |
| **Repairs** | Replacement of the lamp fuses and other repairs should be performed by the BioMed department or by North Central Instruments. | | |
| **Thin/thick sections** | Make sure that chuck holder is all the way back in cryostat. Check and readjust clearance angles to 5 degrees, clamp for the chuck holder, and the clamp for the blade holder. | | |
| **Compressed sections** | The specimen/ OCT may be too warm- close window and let cool down.  Microtome blade may be dull. Replace.  Clearance angle should be set at approximately 5; check and adjust as necessary | | |
| **Brittle sections** | Specimen too cold. Warm slightly by wiping surface with thumb. | | |
| **Frost build up** | Window left open can cause humidity. This may cause components to "stick" and other problems may occur with frost. Keep window closed as much as possible while not cutting.  To run defrost on the cryostat, push the defrost button (snowflake shape). To defrost the peltier, push defrost button then peltier button. | | |
| **References** | Leica 1850 Cryostat User Guide Histotechnology A Self-Instructional Text, F.Carson 1990 | | |

**Historical Record**

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| Version | Revised by | Effective Date | Summary of Revisions |
| 1 |  |  | Initial version. |
| 2 | A. Dubbelde | 6/27/19 | Update format, add version, change 80% to 100% alcohol and remove cutting procedure as duplicated frozen procedure. |
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