



KFU

جامعة الملك فيصل

KING FAISAL UNIVERSITY

جامعة ووطن.. نماء.. واستدامة..



INSTRUMENT STANDARD OPERATING PROCEDURE MANUAL

College of Medicine



SAFETY AND LABORATORY COOMMITTEE, C.O.M, K.F.U.

Prepared by

Document Number	Name	Signature	Date
CM 001 MC/PATH-008	MISS: NORAH ALHOSHANI MISS: MARIAM ALMUBARAK		06/12/2020
Revision Number	Approved by		
R0	Dean: Department:		

Document History

Document Section	Details of Amendments	Date	Modified by (Initials)
SOP	First Draft on SOP for the operation of Leica CM1850 UV Cryostat		

1. OBJECTIVE

The document describes the operation of Leica **CM1850 UV Cryostat**

2. SCOPE

The Leica CM1850 UV is a powerful cryostat for:

Routine as well as research applications in biology, medicine and industry.

The instrument has been designed for **rapid freezing and sectioning** of tissue samples and is equipped with an automated disinfection system.

The instrument is not suitable for unattended storage of tissue material.

Section thickness setting 1 - 60 μm

Total specimen feed 25 mm

Vertical stroke 59 mm

Maximum specimen size 55 x 55 mm

Electric coarse feed slow 200 $\mu\text{m/s}$
 rapid 700 $\mu\text{m/s}$

3. RESPONSIBILITIES

- It is the responsibility of designated personnel in the lab to train staff and students on this procedure and to ensure adherence to this procedure under supervision.
- It is the responsibility of designated personnel (staff or Student) to follow the instructions of this procedure under supervision.

4. REFERENCES

- Leica CM1850 UV Cryostat Manual.

5. DEFINITIONS

- Cryochamber Temperature setting range 0 °C to -35 °C
- Quick-freeze shelf Max. temperature - 43 °C
- Peltier element (optional) Lowest possible temperature -60 °C

6. SAFETY PRECAUTIONS

- Handle the knife carefully because of sharp edges.
- Prior to manipulating the knife and specimen, or changing the specimen or knife, and during breaks, always cover the cutting edge with the knife guard and lock the hand wheel.
- Only rotate the handwheel when the refrigeration system is on and the cryochamber is cold.

- The quick freeze shelf may become hot during defrosting! Therefore, do not touch it!
- Wear glove liners and Nitrile gloves when using the specimen quick freezer or the microtome

7. PROCEDURE FOR OPERATING Leica CM1850 UV Cryostat

7.1. Turning on the instrument:

- Place the storage shelves and the section waste tray and brush shelf in the cryochamber.
- Place the knife holder base on the microtome base plate.
- Insert the knife holder and clamp it on the base plate.
- Open the knife box with the knife and place it in the cryochamber for precooling.
- Close the sliding window.
- Connect the mains plug to the mains power outlet at the wall

7.2. Software Operation.

Please refer back to the Manual by scanning the QR code



7.3. Steps of the Procedure

- Cut the specimen to size.
- Activate the Peltier element, if available – it may take up to 40 seconds until the maximum refrigeration output is available.
- Apply enough cryocompound to a specimen disc at room temperature.
- Place the specimen on the disc and orient.
- Place the specimen disc in one of the holes of the quick freeze shelf and freeze the specimen at a low temperature.
- Once the specimen is frozen, insert the specimen disc in the specimen head and start sectioning.
- Remove section waste EVERY TIME after changing the specimen
- Adjust the appropriate clearance angle on the knife holder. Adjustments between 4 ° and 6 ° (knife holder CN and CE-TC) or between 1 ° and 2 ° to trim the specimen
- During trimming turn the handwheel at a constant speed.

7.4. Turning off the Instrument

- Turn the instrument off with the automatic mains fuse.
- Open the sliding window to allow the cryochamber to dry.
- Remove all the specimens from the cryostat.
- Lock the handwheel.
- Take the knife/blade out of the knife holder
- Empty the section waste tray and remove it for cleaning and disinfection

7.5. Warning

- **Before turning the instrument on again, the cryochamber microtome and all accessory components must be absolutely dry.**
 - **Caution UVC radiation**
 - **After transporting, do not turn the instrument on for a minimum of 4 hours!**
 - **Do not operate in rooms with explosion hazard!**
 - **To ensure an adequate cooling capacity, the instrument must be set up**
 - **with at least 10 cm distance from walls and furniture**
 - **The quick freeze shelf may become hot during defrosting! Therefore, do not touch it!**
-