



Routine laboratory verification checklists

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Maintenance of laboratory equipment, instruments and facilities is vital to ensure accurate and reliable results, to prolong the useful life of the equipment and to ensure the safety, biosafety, and biosecurity of the laboratory. This document describes the weekly, monthly, semi-annual, and annual verification and maintenance activities of the BSL-3 Viral and Human Genomics Laboratory and outlines the responsibilities and obligations of each person assigned to the laboratory.

Daily laboratory verification routine

This activity is the responsibility of the first person to arrive at the laboratory each day, be it a student, researchers, lab manager or appropriately trained maintenance staff.

1. Deactivate the intrusion alarm.
2. Check in at the facial recognition access control located at the front desk.
3. In the RT-PCR area, verify that:
 - a. Refrigerator is between -4 and $+4^{\circ}\text{C}$.
 - b. Instruments and air conditioning are turned off.
4. In the Cellular Biology area, verify that:
 - a. -30°C Freezer is between -25 and -40°C .
 - b. Refrigerator is between -4 and $+4^{\circ}\text{C}$.
 - c. Instruments and air conditioning are turned off.
5. In the Control Room area, verify that:
 - a. One of the two Air Handling Units (AHU A or B) is on
 - b. AHU in use is between 50 and 60 Hz and below 11 Amps.
 - c. Four extractors are on.
 - d. CCTV screen is on and there are no apparent problems with cameras.
 - e. Server rack is powered on (red or green LEDs flashing).



- f. Electrical room UPS is on (green LED on).
 - g. Electrical room microcontrollers are between 50 and 60 Hz.
6. In the Molecular Biology area verify that:
- a. Air conditioning unit is ON and at 25 °C.
 - b. Refrigerator is between -4 and +4°C.
 - c. -20°C freezer is between -17 and -25°C.
 - d. -20°C freezer alarm is on (green LED).
 - e. Appropriate level of liquid nitrogen in tank 1.
 - f. Appropriate level of liquid nitrogen in tank 2.
 - g. Main ultra-low freezer is between -60 and -80°C.
 - h. Backup ultra-low freezer is turned off and free of mold on the inside.
 - i. Emergency generator is present on the terrace and covered with plastic.
 - j. Two CO₂ cylinders present on the terrace.
 - k. Access door to the spiral staircase is secured with a padlock.
 - l. Sink faucet has been allowed to flow freely for 30 seconds.
 - m. Eyewash station ports have been allowed to flow freely for 30 seconds.
 - n. ESC is pressed on the Applied 7500 UPS (in case of audible alarm only).
7. In the Laundry Room area, verify that:
- a. The decontamination chamber semaphore light is green.
 - b. The circular digital pressure gauge in the decontamination chamber is green.
 - c. The pass-through indicator light is green.
 - d. The access door to the laundry room is securely closed.
8. All of these actions should be documented daily in the corresponding log.



References


1. Laboratory equipment maintenance 101. Marcus Cannon. August 11, 2020
www.mynewlab.com/blog/laboratory-equipment-maintenance-101/
2. Maintenance manual for laboratory equipment. World Health Organization January 01, 2008.
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Revision history

1. Original document.
2. Abbreviated protocol, eliminated unnecessary images and corrected UMA cycles.

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