

Document type: <b>procedure</b>	<b>CLEANING AND MAINTENANCE OF LABORATORY</b>
Document code: Uganda QP 07-01-04	
Confidentiality: <b>confidential</b>	

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SOP issued by: Head of Laboratory Research	Date of issue: 30NOV08
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## 1. PURPOSE

This SOP describes the cleaning and maintenance of the FIND Research Laboratory. These procedures are for the purpose of maintaining a clean environment in order to reduce infectious risk to laboratory staff as well as to reduce the risk of cross-contamination.

Specific measures are also described to reduce the risk of amplicon contamination in the molecular laboratories. Molecular testing is carried out in three separate rooms, with specific procedures being performed in designated areas, to reduce the risk of amplicon contamination. However, meticulous working practices and strict adherence to this SOP are necessary to ensure successful implementation of molecular methods within the laboratory.

The killing action of disinfectants depends on the population of organisms to be killed, the concentration of disinfectant, contact time and the presence of organic debris. Disinfectants suitable for use in the TB laboratory include phenolics, hypochlorites, alcohols, formaldehyde, iodophors and glutaraldehyde. Some commercially available disinfectants have little or no activity against mycobacteria, therefore special attention to their mycobactericidal activity should be taken.

## 2. SCOPE

This SOP covers all procedures performed in the FIND Research Laboratory.

## 3. RESPONSIBILITIES

All staff members working in the FIND Research Laboratory are responsible for the implementation of this operating procedure.

All users of this procedure who do not understand it or are unable to carry it out as described are responsible for seeking advice from their supervisor.

## 4. CROSS-REFERENCES

### *Document Matrix\_Uganda QP 01-03-03*

Refer to SOPs listed under 07-01 (General Procedures) and 07-06 (Equipment Use and Maintenance) and 07-05 (Molecular Methods) for specific details relating to cleaning for molecular testing.

See: *Document Matrix\_Uganda QP01-03-03.doc*

Location: *Hard copy: FIND Uganda SOPs*

## 5. PROCEDURES

### 5.1 *Materials needed*

- 12% Lysol
- 3.5% sodium hypochlorite solution (household bleach)
- Spray bottles
- Protective equipment – gowns / laboratory coats / masks / gloves
- Paper towels
- Broom, mop and bucket

Each of the rooms should have a set of the above equipment and reagents allocated to them, which should only be used for cleaning of that room, and should be stored in the room.

### 5.2 *Formulae for cleaning agents*

Fresh cleaning reagents should be prepared on a daily basis and should not be stored in diluted form because their activity will diminish with time.

- **1% sodium hypochlorite solution**

Take 3.5% sodium hypochlorite concentrate and add distilled water in a ratio of 1:4. For example take 150mL of 3.5% solution and add 350 mL distilled water to make up to 500 mL cleaning solution

- **70% ethanol**

Take 700ml of absolute ethanol and add 300ml of distilled water to produce 1 litre of 70% ethanol.

- **Lysol (5% phenolic solution)**

Take 450 mL 12% Lysol and add 550 mL of distilled water to produce 1 litre of 5% Lysol.

### 5.3 *Cleaning procedures*

The laboratories should be cleaned by the laboratory staff. Cleaning staff should only enter the laboratories under supervision of the laboratory staff and will only be involved in cleaning of the office space and corridor.

All surfaces and equipment within the laboratory should be regarded as potentially infectious and should be cleaned on a daily basis. Exterior surfaces of equipment should be wiped with 5% Lysol, then wiped with water to remove any residue.

Floors should not be swept or waxed, but should be mopped weekly with soap solution followed by an appropriate mycobactericidal disinfectant (see below).

Cleaning and maintenance of equipment is covered in the respective equipment SOPs (e.g. biosafety cabinets, incubator, fridge and freezers, centrifuge).

Floors and work surfaces should be kept as free of clutter as possible. Materials should be stored in closed cupboards where possible. Excess reagents should be boxed, labeled and stored in the NTLP store room.

Check spill kit contents on a monthly basis. Fresh disinfectant must be prepared each week.

Record in the *Laboratory Cleaning and Maintenance Logbook*.

Use: *Laboratory Cleaning and Maintenance Logbook\_form.doc*

Location: *Hard copy: FIND Uganda SOPs*

### 5.3.1 Specimen processing laboratory

- Daily cleaning
  - Prepare fresh cleaning solutions on a daily basis
  - Put on protective clothing, mask and gloves
  - Clean equipment according to individual SOPs.

Refer to SOPs listed in the *Document Matrix* under 07-06 (Equipment Use & Maintenance).

See: *Document Matrix\_Uganda QP01-03-03.doc*

Location: *Hard copy: FIND Uganda SOPs*

Remove all materials from work surfaces that hinder thorough cleaning. Pour and spread 5% Lysol solution on the work surface with paper towels. Mop up with clean paper towel.

When molecular work is to be done, the operator should clean work surfaces, biological safety cabinet, and appropriate equipment with 1% bleach solution before and after work according to *Genotype MTBDRplus for MDR-TB screening* and *Genotype Mycobacterium CM/AS assay*.

See: *Genotype MTBDRplus\_Uganda QP07-05-01.doc*

Location: *Hard copy: FIND Uganda SOPs*

See: *Genotype CMAS\_Uganda QP07-05-02.doc*

Location: *Hard copy: FIND Uganda SOPs*

- Weekly cleaning
  - Prepare sufficient fresh cleaning solutions
  - Put on protective clothing, mask and gloves.
  - Remove all items from the floor that may inhibit thorough cleaning of the entire surface.
  - Mop the floor with soap solution followed by 5% Lysol solution (including ante-room)
  - Clean outer surfaces of cupboards, trolleys, sinks and chairs with soap solution followed by 5% Lysol on a weekly basis
  - Discard the water in the ultrasonic waterbath on a weekly basis and clean with 1% hypochlorite solution. Refill with fresh distilled water.
  - Clean all racks for specimens and tubes on a weekly basis by immersion in 5% Lysol followed by allowing equipment to air-dry.
  - Racks for molecular testing should be cleaned after use by immersion in 1% bleach solution.
- Monthly cleaning
  - Prepare sufficient cleaning solutions on a daily basis.
  - Put on protective clothing, mask and gloves.
  - Wipe all surfaces, including partitions, windows, doors and handles (processing laboratory plus ante-room) using 1% bleach solution, followed by wiping surfaces with water to remove residues.
- Bi-annual cleaning
  - Remove the entire contents of cupboards
  - Prepare sufficient fresh cleaning solutions

- Put on protective clothing, mask and gloves.
- Wipe all surfaces using 1% bleach solution.
- When dry, return all items to their respective cupboard.

### **5.3.2 Molecular laboratory 1 (Pre-amplification room)**

Absolutely no specimens are to be taken into this room under any circumstances.

No unauthorized or untrained personnel are allowed access to the laboratory.

- **Daily cleaning**

- Prepare sufficient fresh cleaning solutions on a daily basis.
- Put on protective clothing and gloves.
- Clean the bench tops and PCR equipment before work is done in the room, using 1% sodium hypochlorite solution.
- After work in the room has been completed, repeat the cleaning in the manner described above.

- **Weekly cleaning**

- Prepare sufficient fresh cleaning solutions
- Put on protective clothing and gloves.
- Remove all items from the floor that may inhibit thorough cleaning of the entire surface.
- Mop the floor with 1% sodium hypochlorite solution
- Clean outer surfaces of cupboards, fridge/freezer, sinks and chairs with cleaning solution

### **5.3.3 Molecular laboratory 2 (Post-amplification room)**

- **Daily cleaning**

- Prepare sufficient fresh cleaning solutions
- Put on protective clothing and gloves.
- Clean the bench tops and PCR equipment before work is done in the room, using 1% sodium hypochlorite solution.

- After work in the room has been completed, repeat the cleaning in the manner described above.
- Clean the Twincubator exterior and interior surfaces with 1% sodium hypochlorite.
- Specimen trays and PCR racks should be immersed in 1% sodium hypochlorite and left to air-dry after each use, before taking them to the designated rooms where they will be used.
- **Weekly cleaning**
  - Prepare sufficient fresh cleaning solutions
  - Put on protective clothing, mask and gloves.
  - Remove all items from the floor that may inhibit thorough cleaning of the entire surface.
  - Mop the floor with 1% sodium hypochlorite solution
  - Clean outer surfaces of cupboards, trolleys, sinks and chairs with cleaning solution

### 5.3.4 Office and hallway

Offices and hallway should be kept free of clutter and mopped on a weekly basis using appropriate disinfectant.

### 5.3.5 Temperature monitoring

Ambient temperature must be monitored and recorded on a daily basis in each laboratory. Record maximum and minimum temperature for the 24 hours prior to the reading (or since the last recording).

Record in the *Laboratory Temperature Monitoring Logbook*.

Use: *Laboratory Temperature Monitoring Logbook\_form.doc*

Location: *Hard copy: FIND Uganda SOPs*

**6. CHANGE HISTORY**

New version # / date	Old version # / date	No. of changes	Description of changes	Source of change request