

SOP: GBT.002
Revision: 1.0
Title: Hand Washing Procedure for Biotechnology Labs

1.0 Purpose

This procedure describes the correct method for hand washing in the Biotechnology laboratory.

2.0 Scope

This procedure applies to all students, lab assistants and instructors who perform experimental work in the Biotechnology laboratory.

3.0 Responsibility

Everyone who conducts experimental work in the Biotechnology laboratory is responsible for understanding and implementing this procedure when entering or exiting from the laboratory.

4.0 Procedure

4.1 Materials

- 4.1.1 Sink with hot and cold water
- 4.1.2 antimicrobial soap
- 4.1.3 clean paper towels
- 4.1.4 lab coat (cloth or disposable)
- 4.1.5 hair cover (optional)

4.2 Procedure

- 4.2.1 *To be completed each time gloves are worn or removed - minimal at start and finish of laboratory work.*
- 4.2.2 Remove all jewelry from fingers, thumbs and wrists. This includes the removal of bracelets and watches or other wrist jewelry.
- 4.2.3 Put on lab coat and button closed.
- 4.2.4 Put on hair cover.
- 4.2.5 Check for paper towels and unroll or have towels ready

- 4.2.6 Turn on hot and cold water in sink. Water temperature should be hot but not so hot as to cause pain or burns.
- 4.2.7 Wet hands thoroughly.
- 4.2.8 Apply soap and lather. Be sure to wash each finger and thumb individually, wash up to and including several inches beyond the wrist area for a minimum of 1.5 minutes.
- 4.2.9 Rinse thoroughly and dry hands with clean paper towel.
- 4.2.10 Use the paper towel to turn off the water so that you do not have to touch the faucets with your now clean hands.
- 4.2.11 Dispose of the paper towel in the waste container, not in the sink!

5.0 Reference

Biological Safety Principles and Practices 3rd edit. (2000). Pg 400. D.O. Fleming and D.L. Hunt (edits.) ASM Press, Washington D.C.

Questions for Handwashing Procedures

1. Why are you required to wash your hands before and after completing lab work?
2. Why is it important to remove jewelry? Give two reasons.
3. What is used to turn off the water when hand washing is completed?
4. How long should the soap be lathered on the hands?
5. Why are the hands wet with water before applying soap?
6. Where are the used paper towels disposed of?
7. If there are no towels or soap what should you do?
8. How would you validate the effectiveness of this procedure?

Questions for Handwashing Procedures (answer key)

1. Why are you required to wash your hands before and after completing lab work?

Before: to remove as much dead skin and the dirt, microbes and other contaminating substances accumulated in everyday activities so as to minimize contamination of your lab work

After: to be sure you do not have anything harmful on your skin when you leave the lab and contaminate yourself

2. Why is it important to remove jewelry? Give two reasons.

Jewelry can rip gloves

Jewelry can trap harmful chemicals or other substances underneath it

Jewelry may be damaged in the lab

3. What is used to turn off the water when hand washing is completed?

A paper towel, do not touch the faucet with your bare hands

4. How long should the soap be lathered on the hands?

1-2 minutes

5. Why are the hands wet with water before applying soap?

Any loose grime is rinsed away immediately

The soap lathers and spreads more evenly

6. Where are the used paper towels disposed of?

In the paper waste container not the sink - class points will be deducted if towels are found in the sink

7. If there are no towels or soap what should you do?

Notify the instructor and wash hands when the problem is resolved

8. How would you validate the effectiveness of this procedure?

There are several possible methods: one is do a bacterial plate touch before and after washing your hands and count the number of colonies that form - hopefully there will be fewer after washing your hands. Another is to use a "safe" dye that mimics dirt - there are some U.V. dyes available for this purpose and take a reading on the hands before and after washing - the procedure should remove the dye...

note that either test procedure this should be done multiple times with several different people using the procedure - some variables to check would include length of time for lathering, brand of soap and brand of paper towels

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General SOPs and Exercises
for All Biotechnology Laboratories©

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Instructor Notes:

reinforce that this procedure is to be done for each lab and every time the worker enters or exits the lab - this will be checked for in the intern practical exam.

emphasize the safety issues of good hygiene in the lab

Establishing good safety habits will protect you the worker and the work you are doing

we will be working with biological materials including E. coli, yeast, insect cells and rat rabbit or mouse tissues,...

removal of jewelry is a must

microbes and other material accumulate underneath rings, watch bands, bracelets,...

Increased likelihood of introducing contamination

Jewelry can cause rips or tears in gloves and disposable lab coats

Chemicals such as salts, acids or bases can damage the jewelry

Chemical also can be trapped under the piece of jewelry increasing the damage

done to the tissue and making it harder to rinse away the chemical

Think about the order of events in an accidental exposure:

No jewelry on - spill on intact glove - remove glove, dispose of properly and re-glove

Jewelry is on - jewelry causes rip in glove, spill on torn glove gets inside glove, under jewelry - pain felt need to remove glove exposing entire hand to contamination, chemical trapped under jewelry damaging tissue and perhaps jewelry

Finally more than one person has had a stone (e.g. engagement ring diamond) pulled out of its setting when removing a glove and discovered the loss way too late to recover it - which is a real tragedy

this is a good time to reinforce no food or drink in the lab wether on the desk or in a backpack - food or drink should *never* be brought into a laboratory

Department policy is to immediately throw any food or drink found in the lab into the biological waste and deduct 5 points per violation

mention disposal of paper towels - in the normal paper waste

not in the biological waste, not in the broken glassware box
not in the sink

2 points per violation deducted from *entire class* for improper waste disposal

student notify instructor when soap or paper towels run out and write on the white board at front of lab

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Mention that it is important to dry hands thoroughly or it is really hard to put on gloves
(next SOP)