



## Biochemicals and Gram Negative Organisms ID Course Laboratory Exercises

After you have completed the Biochemicals and Gram Negative Organisms ID eLearning course, it is strongly recommended that you complete the following laboratory exercises to transfer the didactic content of the course to experiential knowledge gained through hands-on laboratory exercises with your equipment in your laboratory. Your supervisor/mentor should work with you to develop these laboratory skills as well as confirm that these exercises have been completed. The number and types of exercises you will complete will be at the discretion of your supervisor/mentor based on procedures followed within your laboratory. Included in the laboratory exercises portion of this course are the objectives of the exercises as well as the prepared exercises. After the laboratory exercises are completed and discussed with your supervisor/mentor, your supervisor/mentor should then follow up the exercises with instructions related to your laboratory's specific procedures or guidelines.

### Laboratory Exercise Objectives:

After completing the Biochemicals and Gram Negative Organisms ID laboratory exercises, you will be able to:

- Demonstrate the proper technique for inoculating and incubating tubes containing triple sugar iron (TSI) agar.
- Interpret results of a triple sugar iron (TSI) test.
- Correlate results with commonly encountered problems.

Note: Be sure to review the proper use of personal protective equipment (PPE) and laboratory equipment according to your laboratory's procedures and safety manual.

### Supply List

1. Personal protective equipment (PPE) and laboratory equipment
2. Biohazard waste container: for personal protective equipment (if disposable)
3. Inoculating needles (sterile plastic or metal)
4. Incinerator or Bunsen burner (if using metal needles)
5. Labelling pen
6. Test tube racks
7. Sharps container: for needles (if appropriate)
8. Incubators – CO<sub>2</sub> and Non-CO<sub>2</sub>

### Culture Media List

1. Previously inoculated BAPs for observation and inoculation
2. Previously inoculated TSI for observation

# Laboratory Exercise I

## Laboratory Exercise I

After completing this laboratory exercise, you will be able to:

- Demonstrate the proper technique for inoculating and incubating tubes containing triple sugar iron (TSI) agar.
- Interpret results of a triple sugar iron (TSI) test.
- Correlate results with commonly encountered problems.

### **Exercise: Proper Inoculation of TSI Slants and Results Interpretation**

Obtain the microorganisms from you mentor.

For this exercise, you will inoculate TSI tubes using the proper technique. Incubate them according to the protocol and observe them at 24 and 48 hours for the correct results using an uninoculated tube as a comparison. You will also put an uninoculated tube of TSI with the cap loose in the CO<sub>2</sub> incubator. Note any problems and discuss them with your mentor. Use the TSI job aid provided.

#### **Notes:**

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Mentor/Supervisor /Date

# Laboratory Exercise II

## Laboratory Exercise II

After completing this laboratory exercise, the participant will be able to:

- Interpret results of a triple sugar iron (TSI) test.
- Correlate results with commonly encountered problems.

### **Exercise: Common Problems**

You will examine up to 20 TSI tubes given to you by your supervisor/mentor. Observe each tube and document the results using an uninoculated tube as a comparison. Note any possible problems. Report the problem to your supervisor/mentor and discuss with him/her what you think may have caused the problem and what should be done to resolve it.

### **Notes:**

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Mentor/Supervisor /Date