

Lab 7: Background and protocol

Lethal Effects of Temperature

In this experiment, we are looking at the effectiveness of heat in controlling the growth of bacteria. You will be determining the **thermal death time (TDT)**, which is the time required to kill all bacteria in a liquid culture at a given temperature.

In this experiment, you will take 2 agar plates and divide them into 5 quadrants as shown below. Your instructor will assign each group an organism and temperature. Depending on temperature assigned, on one plate, you will streak organisms that were heated at 63 degrees C for the indicated time or streak organisms that were heated at 72 degrees C for the indicated time.



The table below shows which two organisms each group will work with. These numbers will be assigned by your instructor. Today, you will streak the plates as explained above. In the next lab period, you will record the growth in your lab notebook.

Organism	63	72
BS	1	4
SA	5	2, 7
EC	3	6

More specifically, these are the steps that you should follow in this experiment:

1. Get a nutrient agar plate and label as shown above.
2. Get your assigned culture.
3. Using a loop, streak culture in the quadrant on the plate that says 0. Make sure to use the aseptic technique because you will need to open and close this tube many times.
4. Place your cultures at the assigned temperature for 15 seconds.
5. Using a loop, streak each culture in the quadrant on the plate that says 15.
6. Place your cultures at the assigned temperature for 2 minutes.

7. Using a loop, streak each culture in the quadrant on the plate that says 2 minutes.
8. Place your cultures at the assigned temperature for 5 minutes.
9. Using a loop, streak each culture in the quadrant on the plate that says 5 minutes.
10. Place your cultures at the assigned temperature for 15 minutes.
11. Using a loop, streak each culture in the quadrant on the plate that says 15 minutes.
12. When you are finished, place your plates in the 37 degree C incubator.