

Laboratory Investigation 6A

Chapter 6: Mitosis and Genes

The Cell: The Phases of Mitosis

You may refer to pages 88-91 in your textbook for a general discussion of cell division.
Time required: 60 minutes

Goals

- Identify the phases of mitosis.
- Describe the sequence of the phases of mitosis.

Materials



prepared slides of onion, lily, or hyacinth root tips showing the phases of mitosis
microscope

Setting up

1. Focus your microscope on one of the root tips on the preserved slide.
2. Locate the area just above the root cap. (See page 194 of your text.) In this area, mitosis happens rapidly to form new root cells so that the root can grow. When this root tip was killed and prepared for microscope viewing, many of the cells in this area were in various phases of mitosis. The root tip was then treated with special stains to permit you to see the chromosomes.
3. In order to see the chromosomes in the various phases of mitosis, you will need to focus your microscope on high power.

Procedures and observations

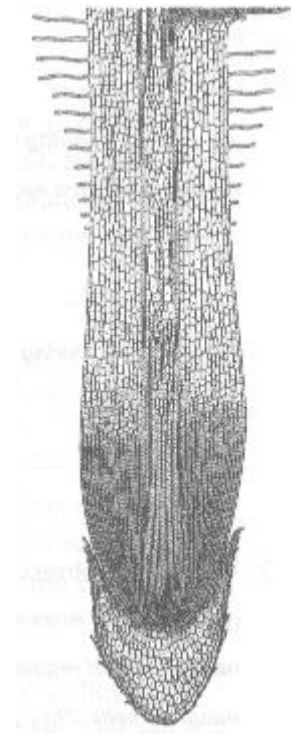
1. Scan your slide by slowly moving the slide back and forth. Look for cells in the various phases of mitosis.
2. Find what you think is a good example of one of the phases of mitosis. Position that cell in your microscope's viewing field.

- What phase of mitosis do you believe this is?

- Why do you think that you are viewing a good example of this phase of mitosis?

- Ask your teacher to check your cell to be sure it shows a good example of the phase you think you are viewing.

- Make a drawing of each phase of mitosis.



3. After your teacher has agreed with your findings, you may continue and observe other phases of mitosis located on the same slide. Make drawings of each phase.
4. Once all the phases of mitosis have been found you may work on the summing up questions.

Summing up

1. Write a brief description of the movements of chromosomes during mitosis as you saw them in the various microscopes.

Prophase: _____

Metaphase: _____

Anaphase: _____

Telophase: _____

2. What other observations about mitosis did you make while observing these cells?

