

Investigation 8.C: Identifying Blood Cells

Question: What characteristics of blood cells can you use to help you describe and compare them?

Safety Precautions



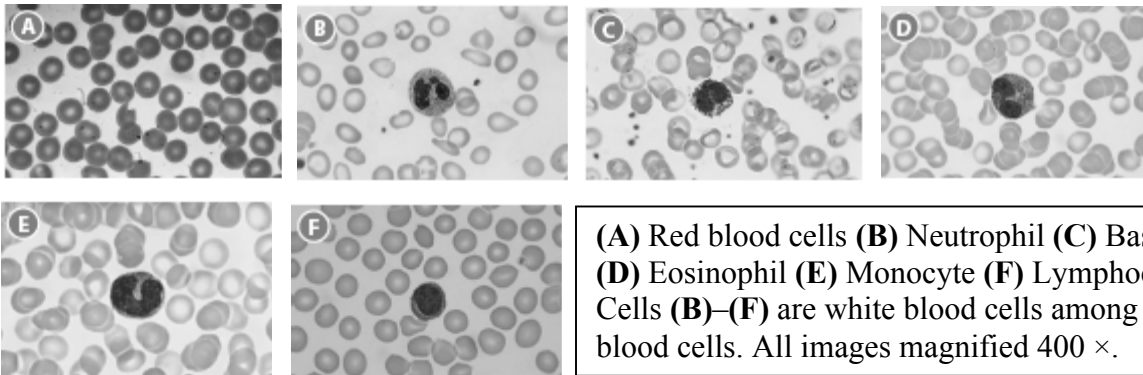
- Make sure that your hands are dry when you are handling electrical equipment.
- Handle microscope slides carefully, since they can break easily and cause cuts.

Materials

- light microscope
- prepared slides of human blood

Procedure

1. Place the slide of blood on the microscope stage, and focus using the low-power lens.
2. Scan the slide to find an area where you can observe individual blood cells.
3. Rotate the lens to medium power, and focus on the visible cells. Then rotate the lens to high power. Focus again on the visible cells. Note the differences between the red blood cells and the white blood cells.
4. Use the photographs to help you identify the cells you are observing.



(A) Red blood cells (B) Neutrophil (C) Basophil (D) Eosinophil (E) Monocyte (F) Lymphocyte. Cells (B)–(F) are white blood cells among red blood cells. All images magnified 400 ×.

5. Make a drawing of each type of cell. Label the cell membrane, the cytoplasm, and the nucleus (where applicable) of each cell, and estimate the size of the cell.

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6. Repeat steps 1 to 5 until you have identified the types of blood cells shown in the photographs.

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7. Summarize your observations in the table below.

Formed element	Approximate number in one visual field	Approximate size (mm)	Appearance	Sketch

Analysis

1. The red blood cells of mammals do not have a nucleus, whereas the white blood cells do have a nucleus. Suggest one possible reason for this difference.

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2. Were you able to observe any platelets? If yes, describe them and add the information to your table. If no, explain why you might not have seen any.

Conclusions

3. Which characteristics did you find most useful in helping you distinguish among the different blood cells?
4.
 - a) Based on the blood samples you examined, how does the abundance of red blood cells compare with the abundance of the different white blood cells you observed?
 - b) Compare your answer to part (a) with the data in Table 8.2 on page 283 of the text. What additional information or procedures would help you make more accurate estimates of the cells in human blood?