Connective tissue and Blood

1. Spread preparation of LCT No.2（LP、HP）
2. Connective tissue No.46（LP、HP）
3. Adipose tissue No.46（LP、HP）
4. Protocol for using 100X objective lens
5. Blood No.4 (Wright's or Giemsa's stain) （LP）

Erythrocytes & Neutrophils(1. 2) Eosinophils(1. 2) Basophils(1. 2) Thrombocytes Lymphocytes(1. 2. 3) Monocytes(1. 2)

DEMONSTRATION：

1、Plasma cells
2、Mast cells

E.M:

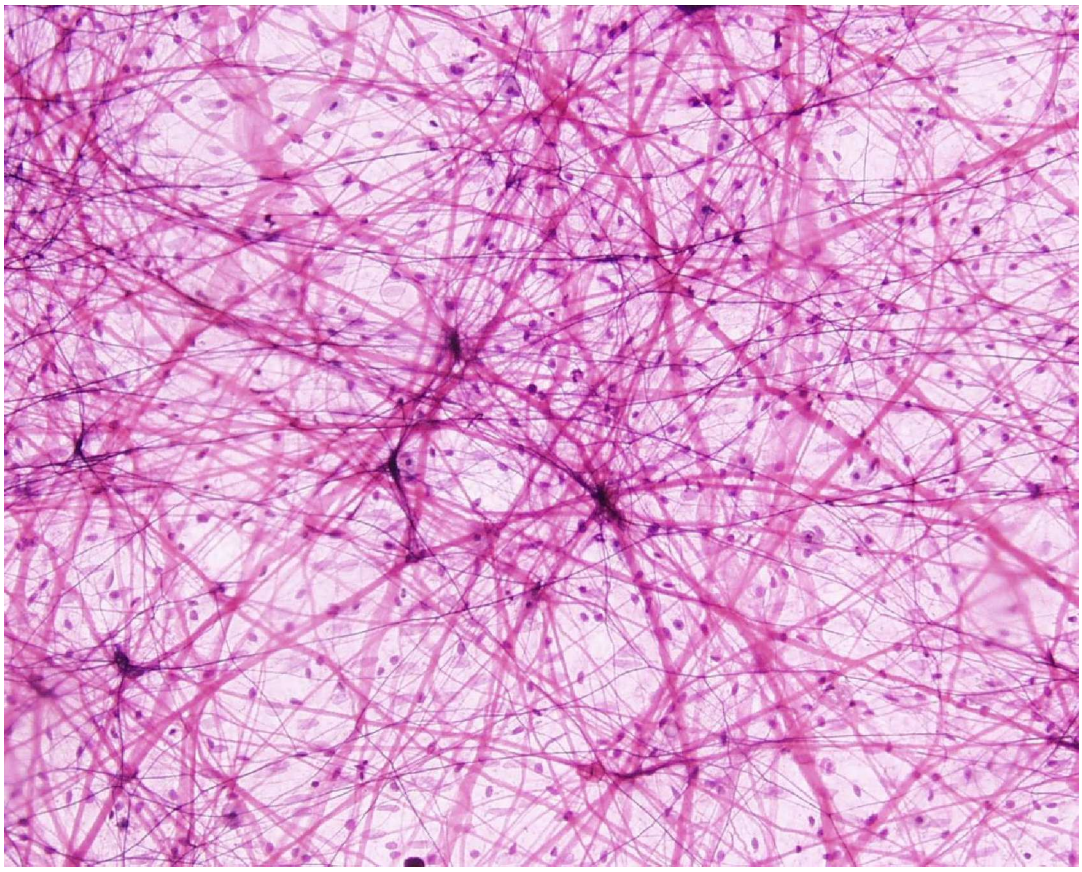
1、Fibroblasts
2、Macrophages
3、Plasma cells
4、Mast cells

Spread preparation of LCT (No.2)

menu

LP：

- collagen fibers are wide and pink.
- Elastic fibers are very fine, stain deep purple.
- Reticular fibers are invisible.

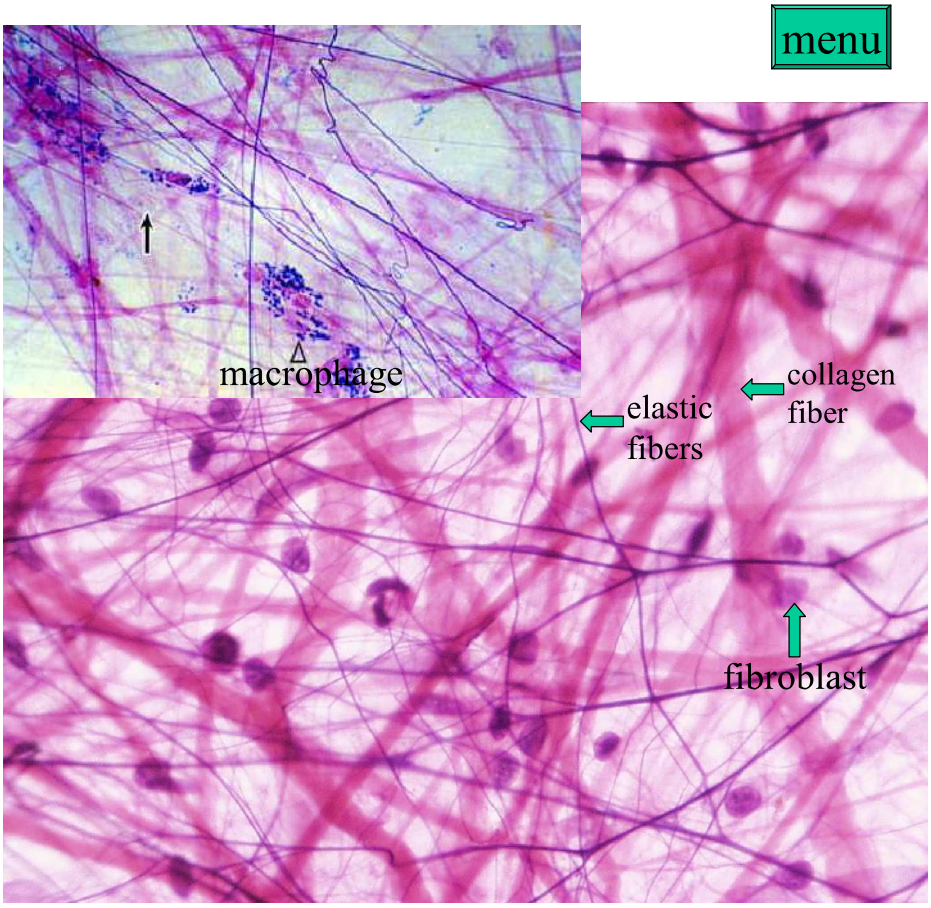


Spread preparation of LCT

No.2

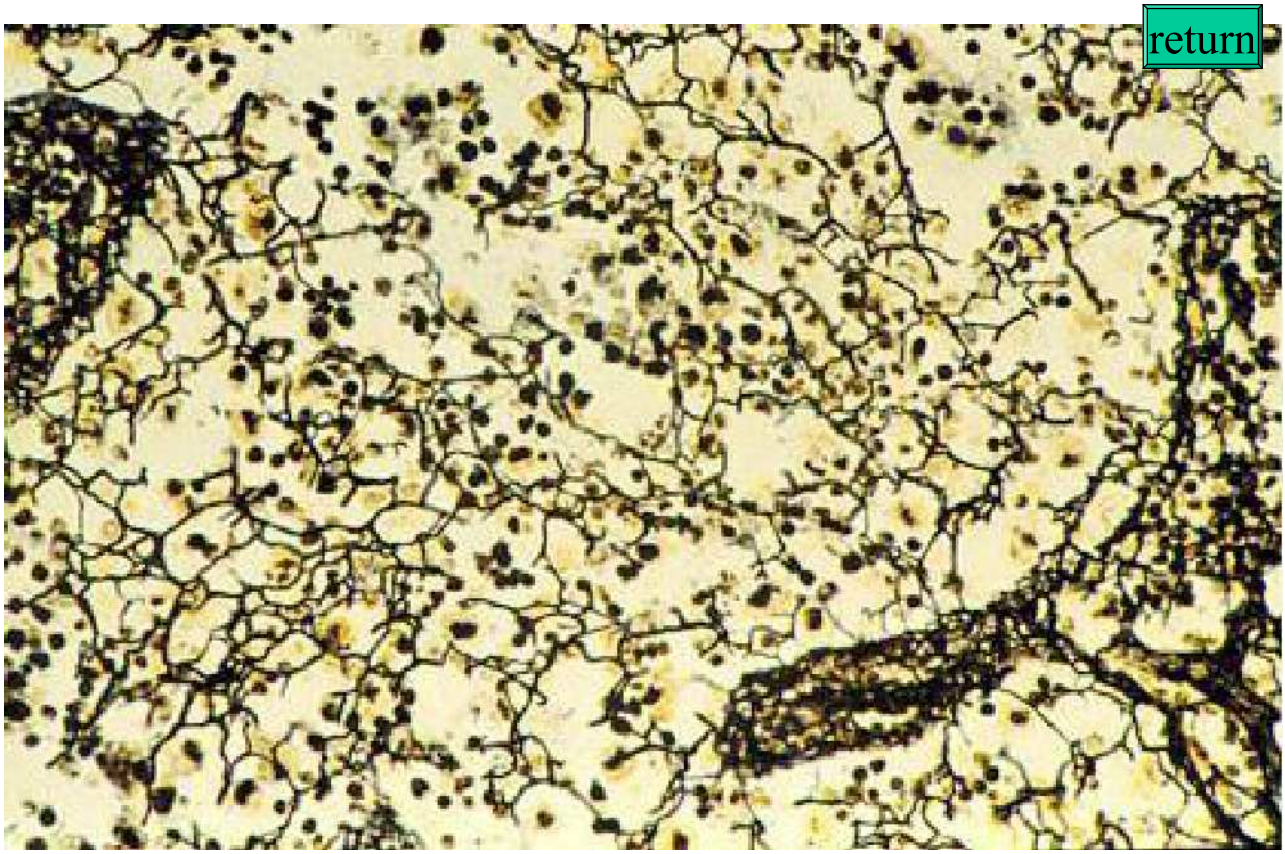
menu

HP: 1. collagen fibers are seen as straight or wavy pink bands of varied thickness. They are made of smaller units called fibrils. 2. elastic fibers are not usually wavy. They are composed of microfibrils and elastin, a complex protein. Specially stained (aldehyde fuchsin) elastic fibers are easy to distinguish. 3.fibroblasts will not exhibit cytoplasmic staining. The nucleus is large and oval in shape. 4. macrophages can phagocytize foreign matter. Special techniques can be used to label them, especially injection of dyes, particles of which are then ingested. This allows for visualization of macrophages and their distribution.



Reticular fibers (argyrophilic fibers)

return



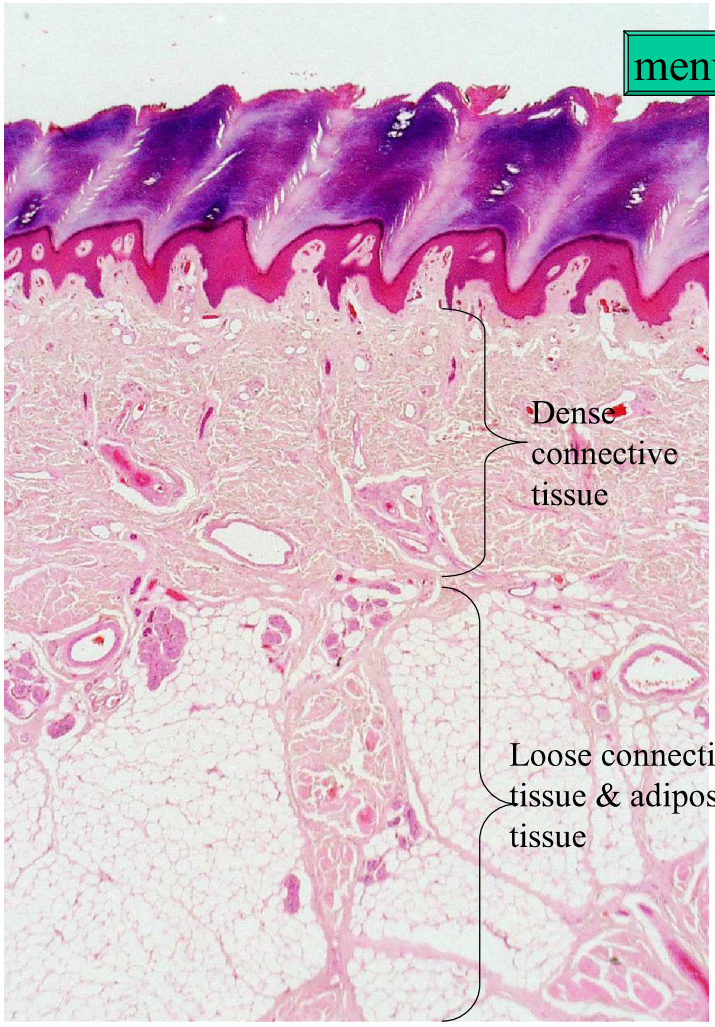
Connective tissue

(No. 46)

LP：

1. The dermis of the skin is the layer underlying the epithelium.

2. Hypodermis is the layer underlying the dermis. The adipose tissue is pale staining.



Connective tissue

menu

No. 46

HP： This pink-staining is composed mainly of thick interlacing collagenous fibers. Nuclei of fibroblasts can be seen between the bundles, but the cytoplasm of these cells is not easily discernible. On the slides, blood vessels may be seen.

How to describe a cell

- Size of the cell
- Shape of the cell
- Cytoplasma -----the amount, the staining
- Nucleus ------the shape,
  the numbers
  its location
  its chromatin
  nucleolus

Adipose tissue

No. 46

menu

LP:

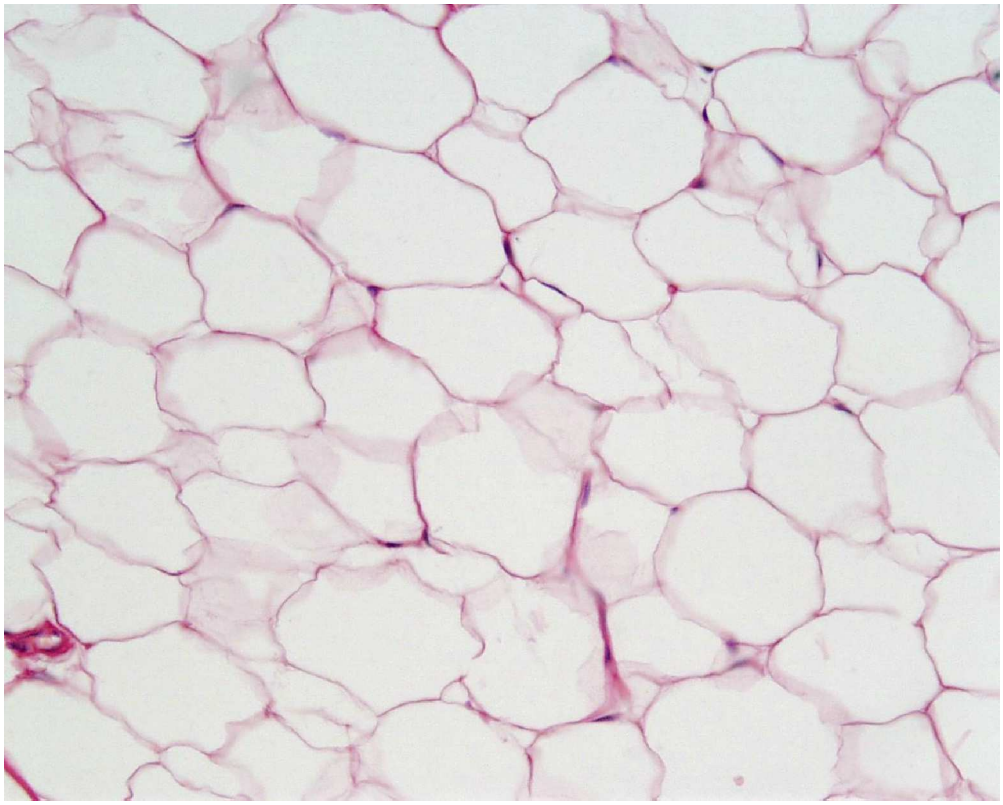
The adipose tissue which underlying the dermis is pale staining.

Adipose tissue No. 46

menu

HP:

- The fat appears to compress the surrounding cytoplasm into a thin layer.
- The nucleus is flattened and pressed against the cell membrane giving a signet ring appearance.

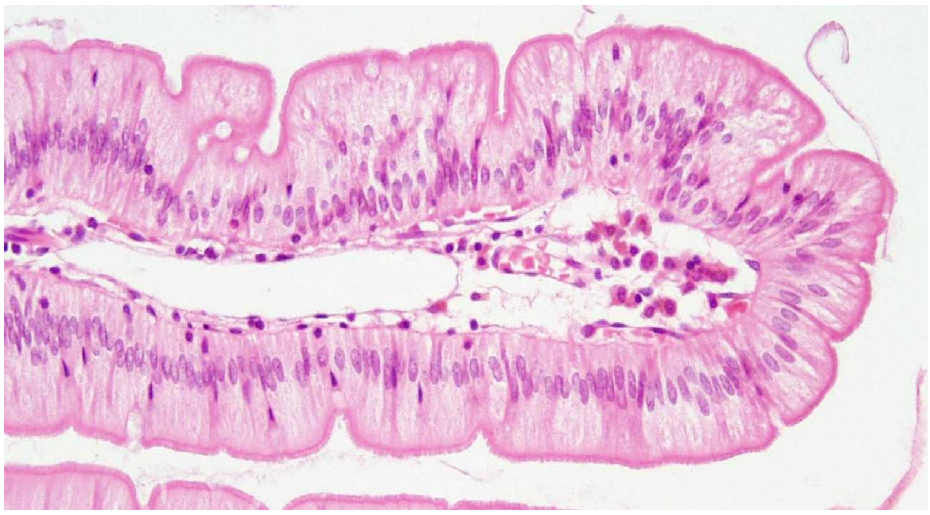


Plasma cells

menu

HP：

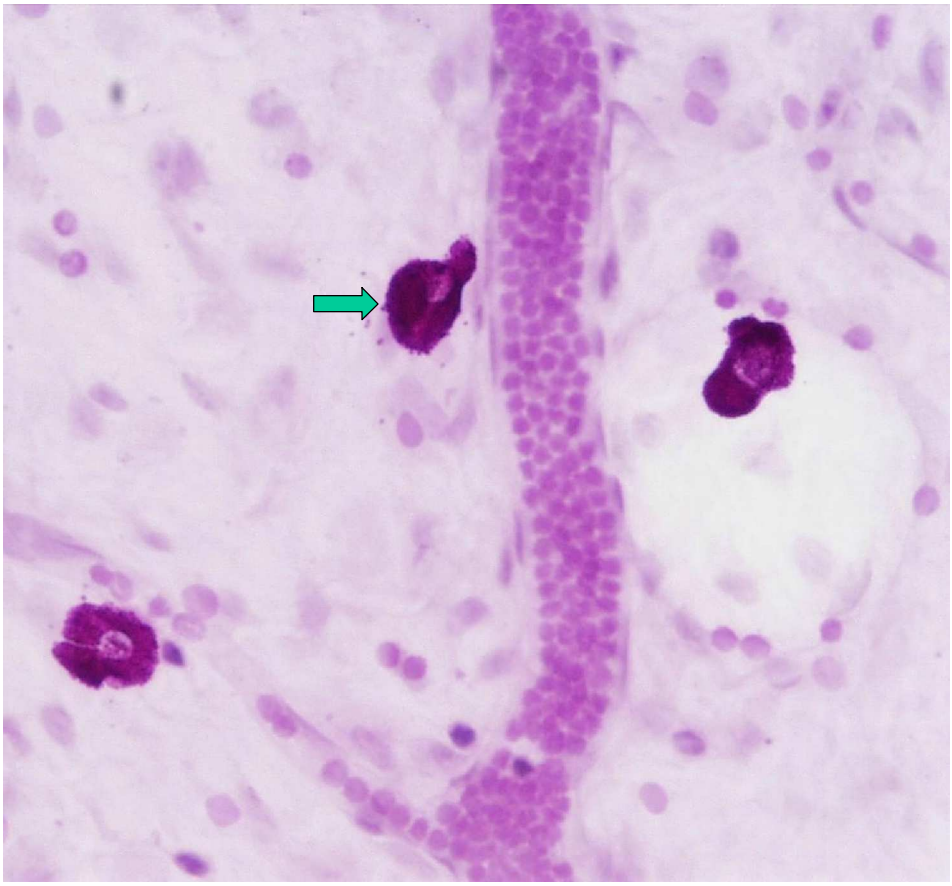
- They are ovoid, with a round nucleus and an intensely basophilic cytoplasm.
- The nuclear chromatin is distributed in unusually coarse clumps or blocks that tend to be spaced around the periphery of the nucleus so as to produce a characteristic radial pattern (looked like a cart-wheel) that is helpful in identification of the cell.



Mast cells

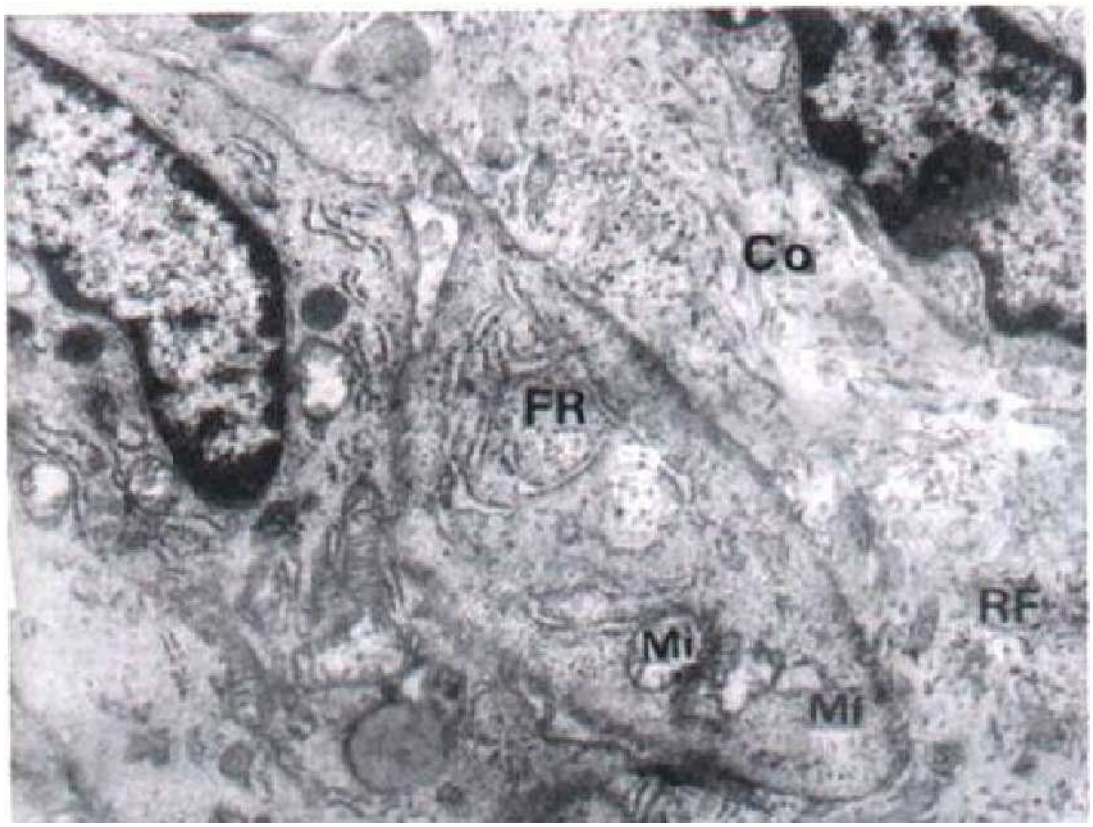
menu

HP：
The large cells with closely packed granules are mast cells. They are always aggregated close to blood vessels. If the preparations have taken too long in hypotonic solutions during processing, the mast cells may become swollen and burst and the granules be scattered around.



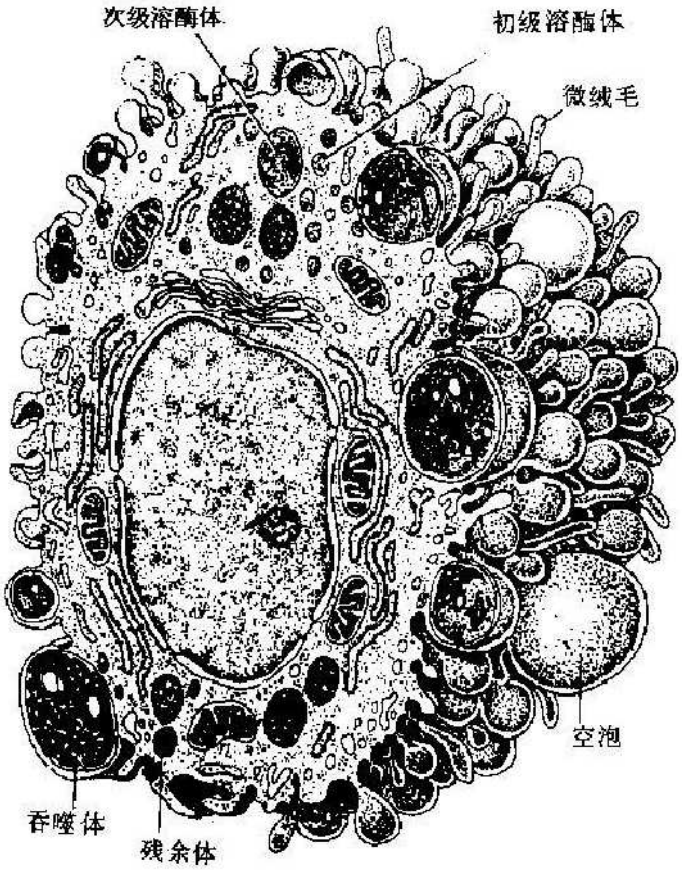
fibroblast

menu



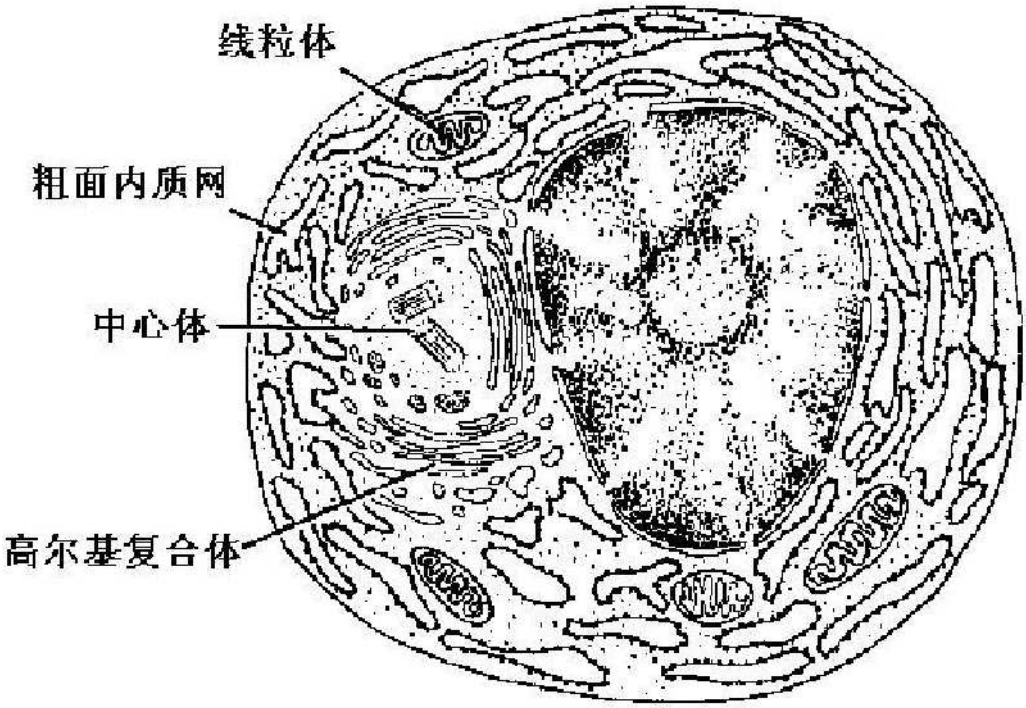
menu

macrophage



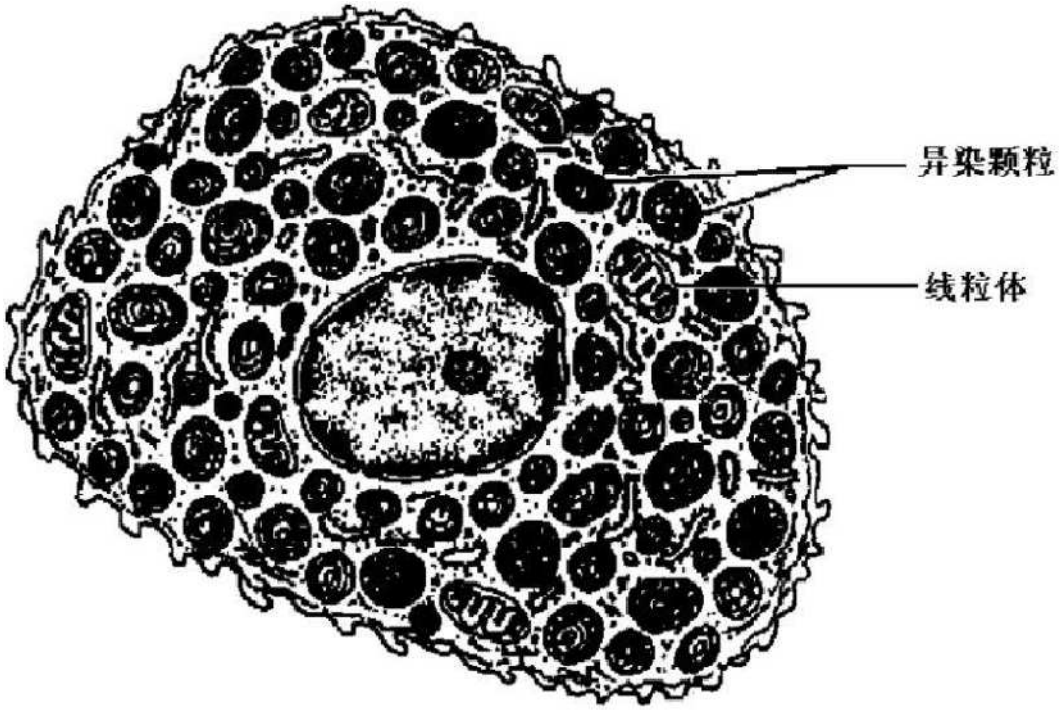
Plasma cell

menu



Mast cell

menu



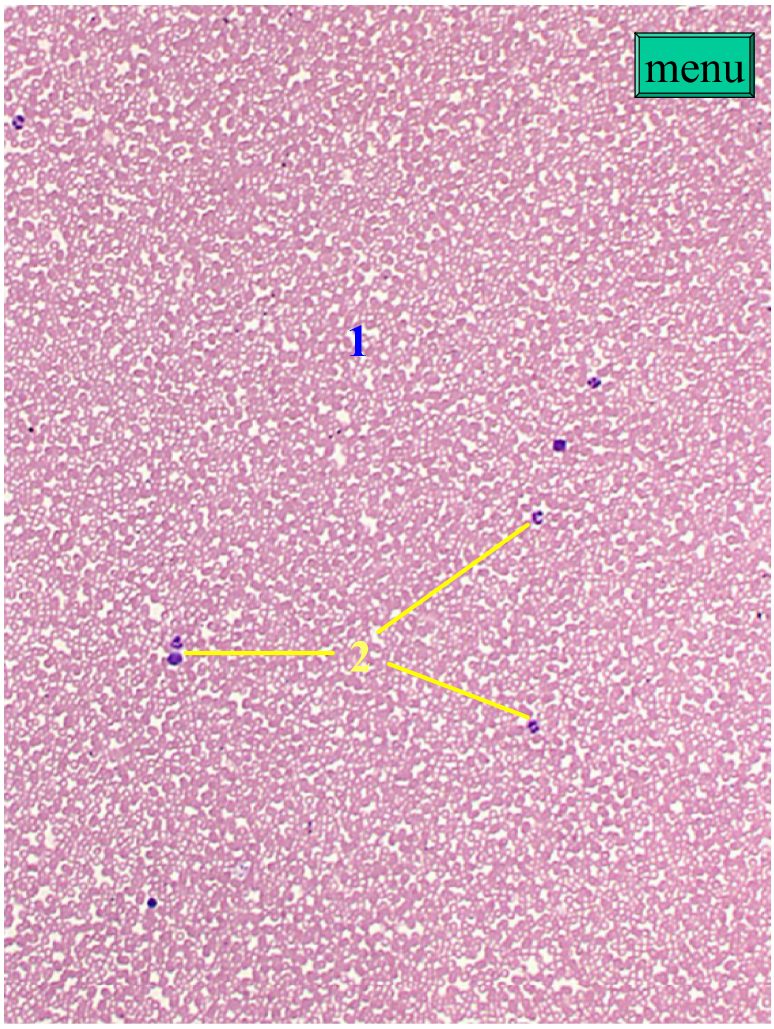
Blood NO. 4

LP:

The cellular components of blood include red corpuscles, platelets and five types of white corpuscles. Leukocytes are nucleated cells. Erythrocytes and thrombocytes are anucleated cells.

1.erythrocytes

2.leukocytes

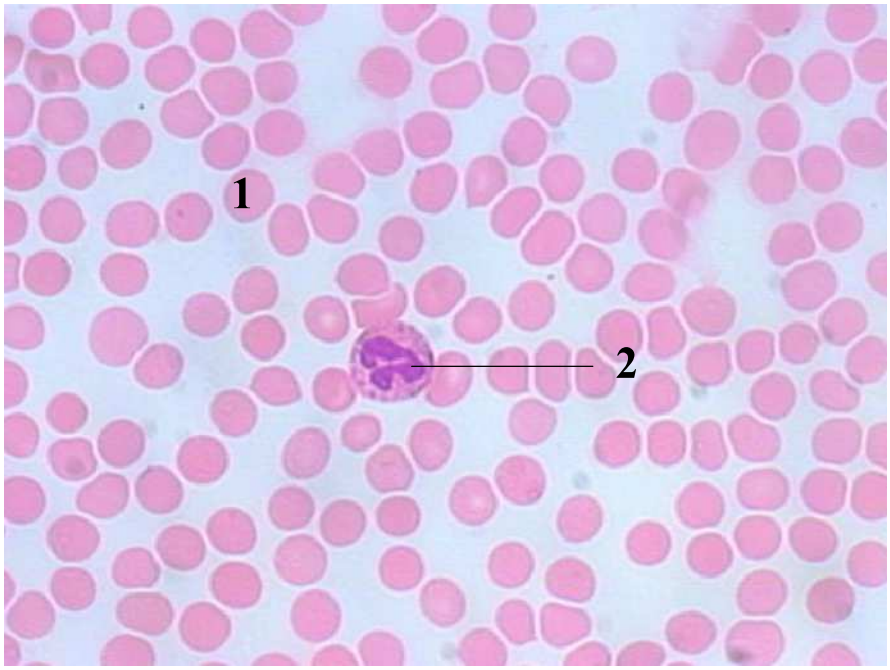


HP:

Erythrocytes & neutrophils

1.**Erythrocytes:** the cells appear darker at the periphery and lighter in the center. Mature erythrocytes are anucleated and lack organelles.

2. **Neutrophils:** they can be recognized by their segmented nuclei(several lobes)and the presence of abundant, small, pale staining granules evenly distributed in their cyteplasm.



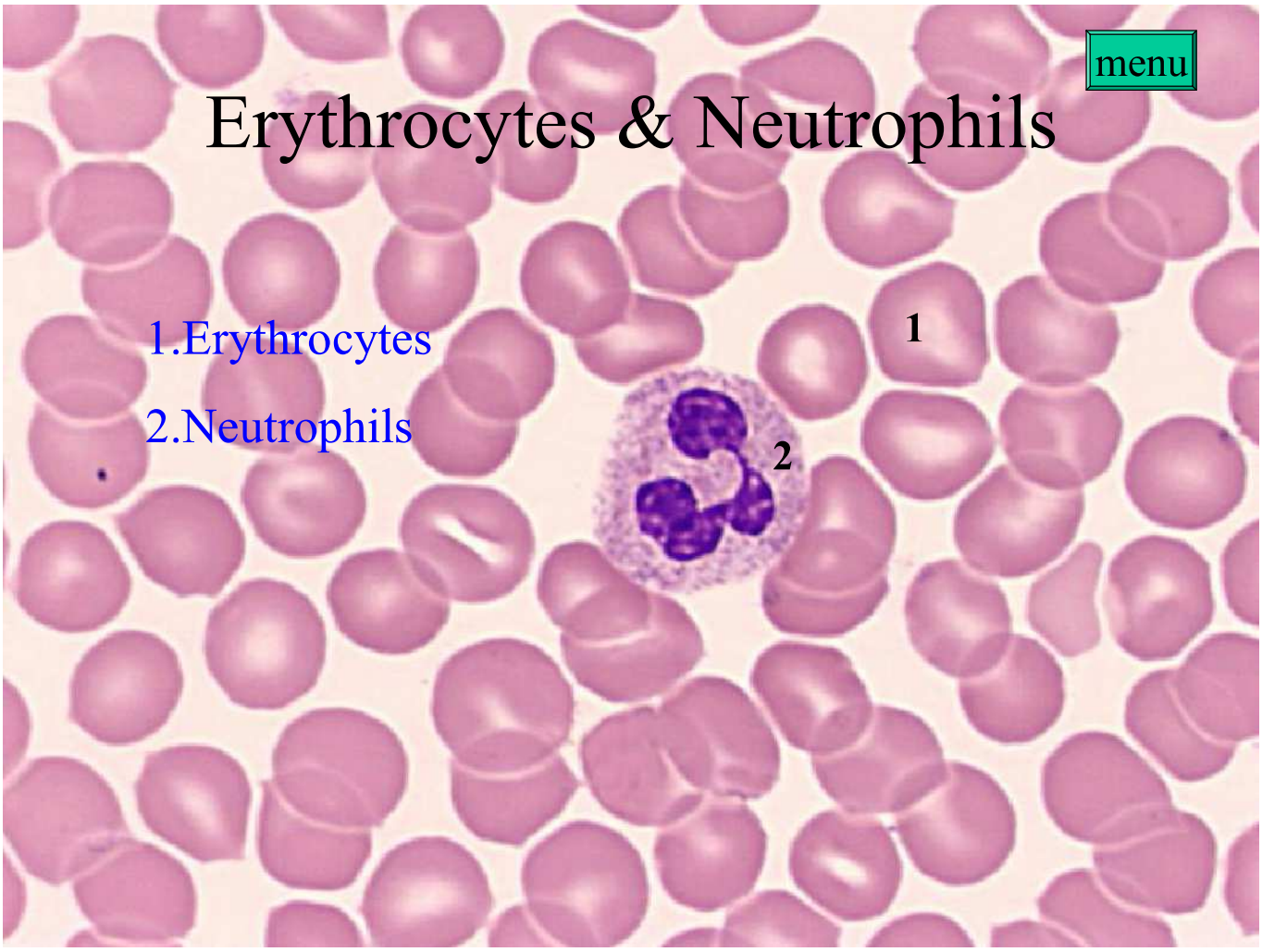
menu

menu

Erythrocytes & Neutrophils

1.Erythrocytes

2.Neutrophils



menu

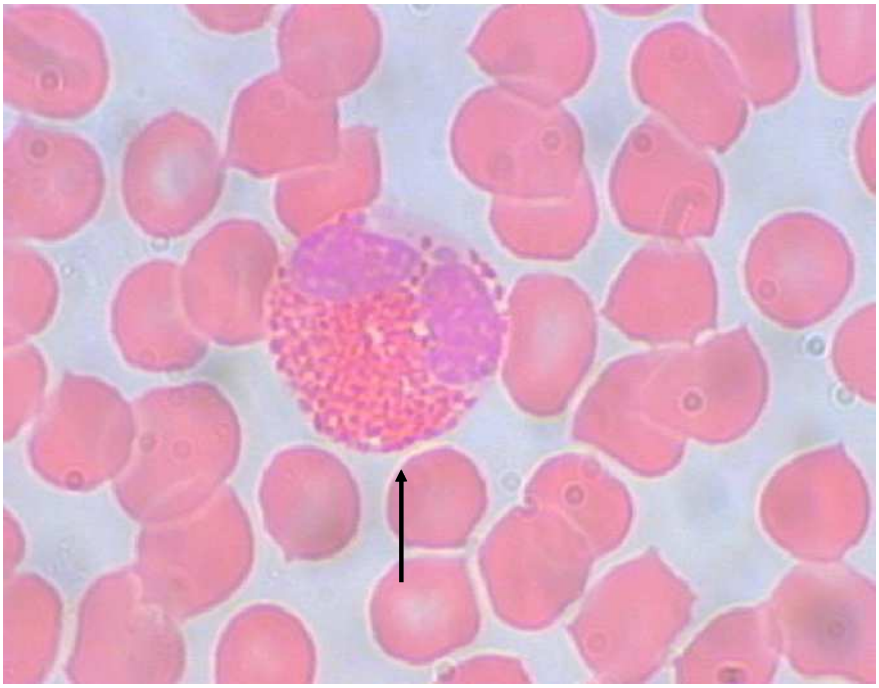
Eosinophils

3.**Eosinophils:**

•They constitute up to 3% of the leukocytes.

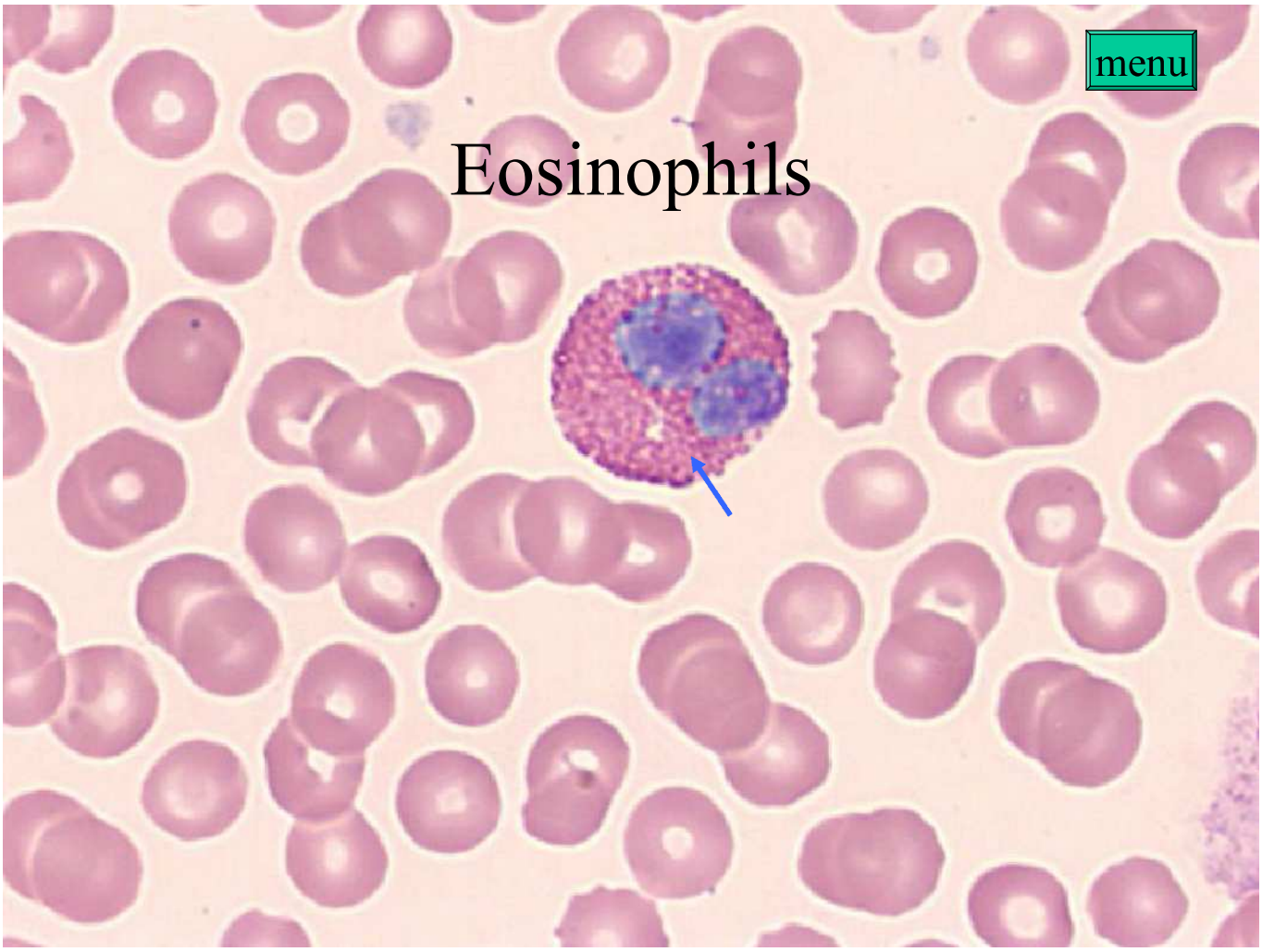
•They may be located even under low power by their large bright red-staining, refractile granules.

•The nucleus of the eosinophil is also segmented, but it is usually bilobed and paler staining than the neutrophil nucleus.



menu

Eosinophils

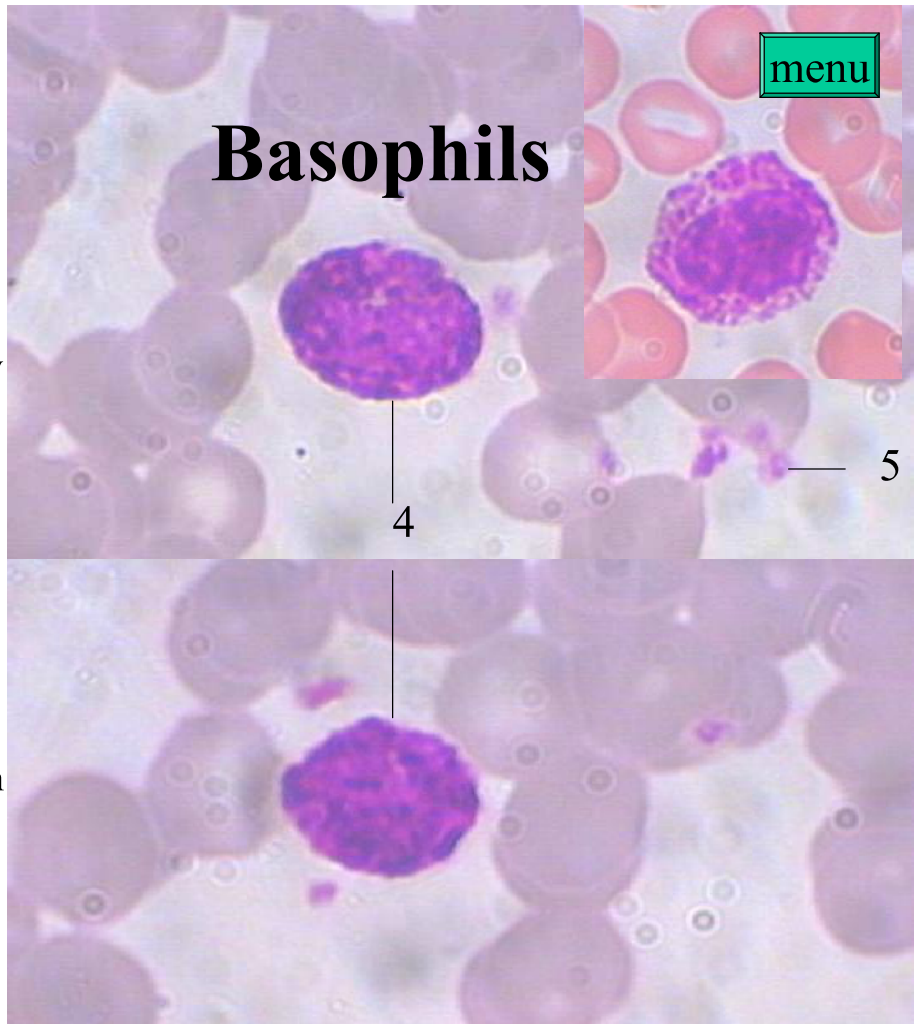


4. Basophils:

They make up less than 0.5% of the leukocytes and are difficult to find. The granules are very large, purple staining, not uniform size and unevenly distributed. The nucleus is often s-shaped,and it is difficult to see clearly because of the granules.

5. Thrombocytes：

Platelets are fragments of cytoplasm surrounded by a plasma membrane. The cytoplasm stains blue and contains azurophilic granules. The platelets can occur singly or in clumps.



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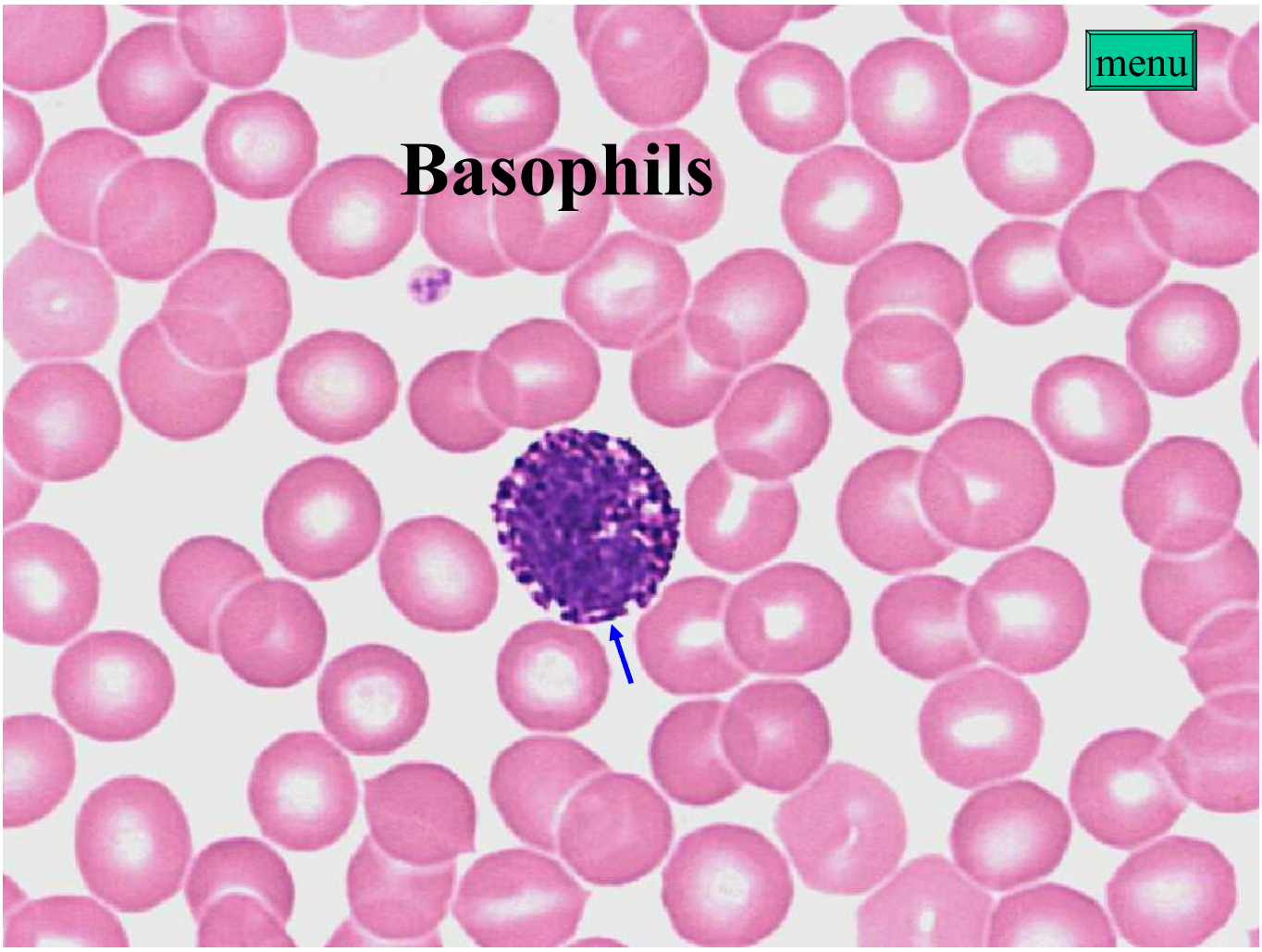
Basophils



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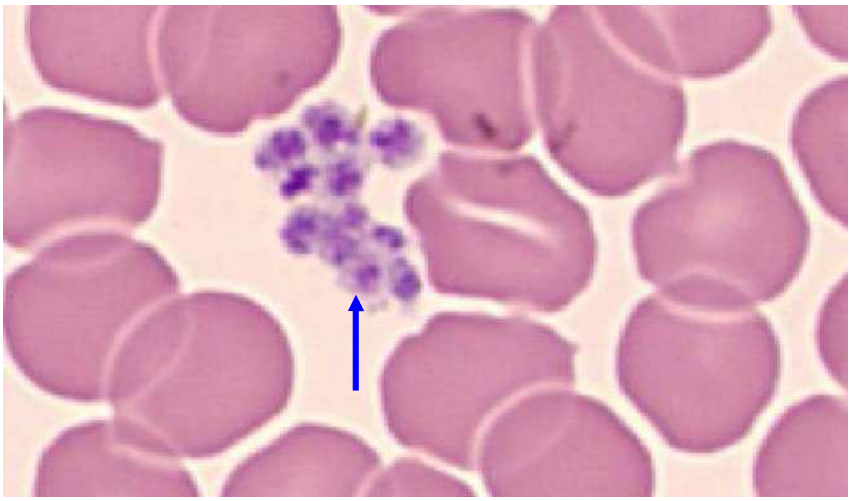
Thrombocytes



5. Thrombocytes：

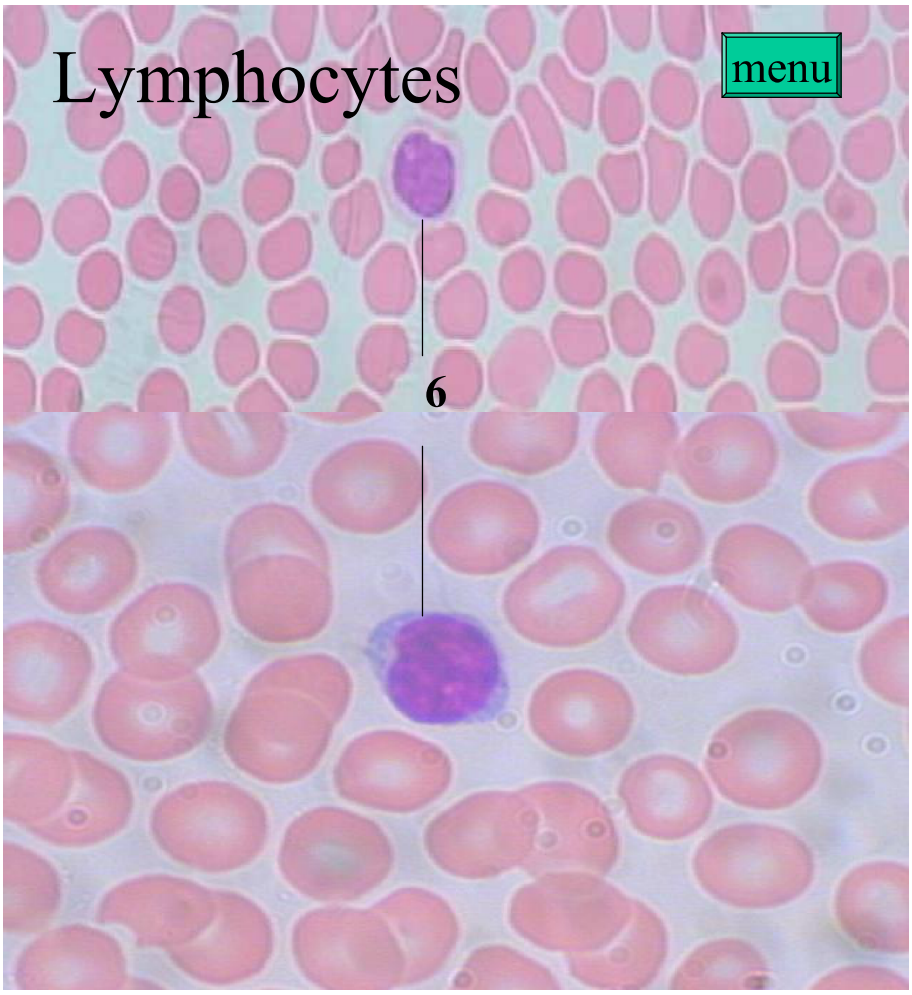
Platelets are fragments of cytoplasm surrounded by a plasma membrane. The cytoplasm stains blue and contains azurophilic granules. The platelets can occur singly or in clumps.

6.**Lymphocytes:**

The lymphocytes vary in size from 6um to 15um. The small lymphocytes have only a thin rim of sky-blue cytoplasm.

Their nuclei of densely stained chromatin are generally round or slightly indented on one side.

Medium and larger lymphocytes have larger, round nuclei centrally located in a sky-blue cytoplasm. A few azurophilic granules may be present in the cytoplasm.



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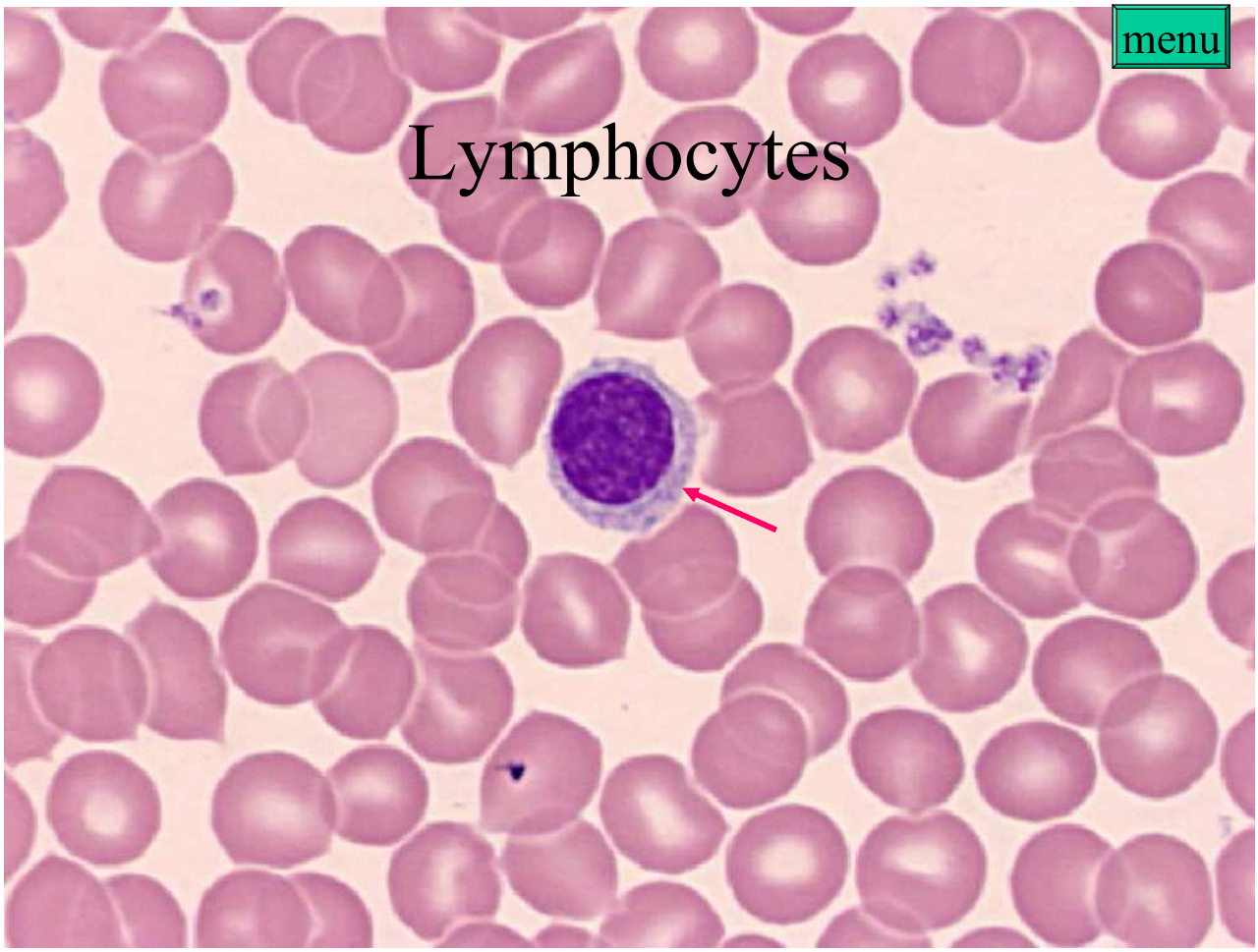
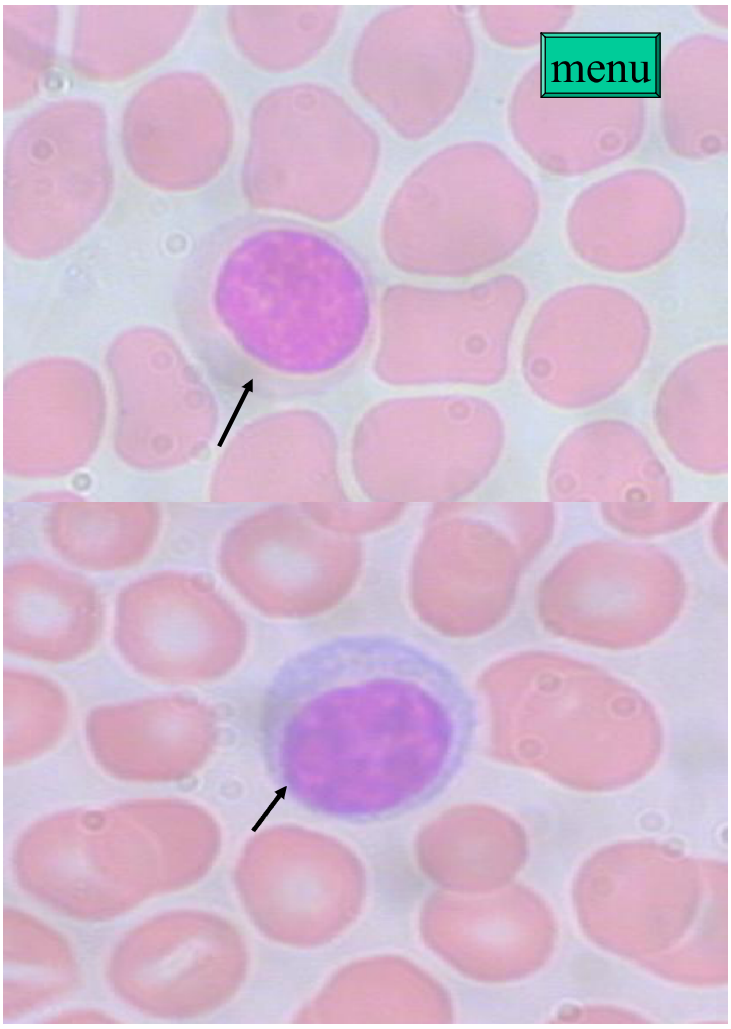
Lymphocytes

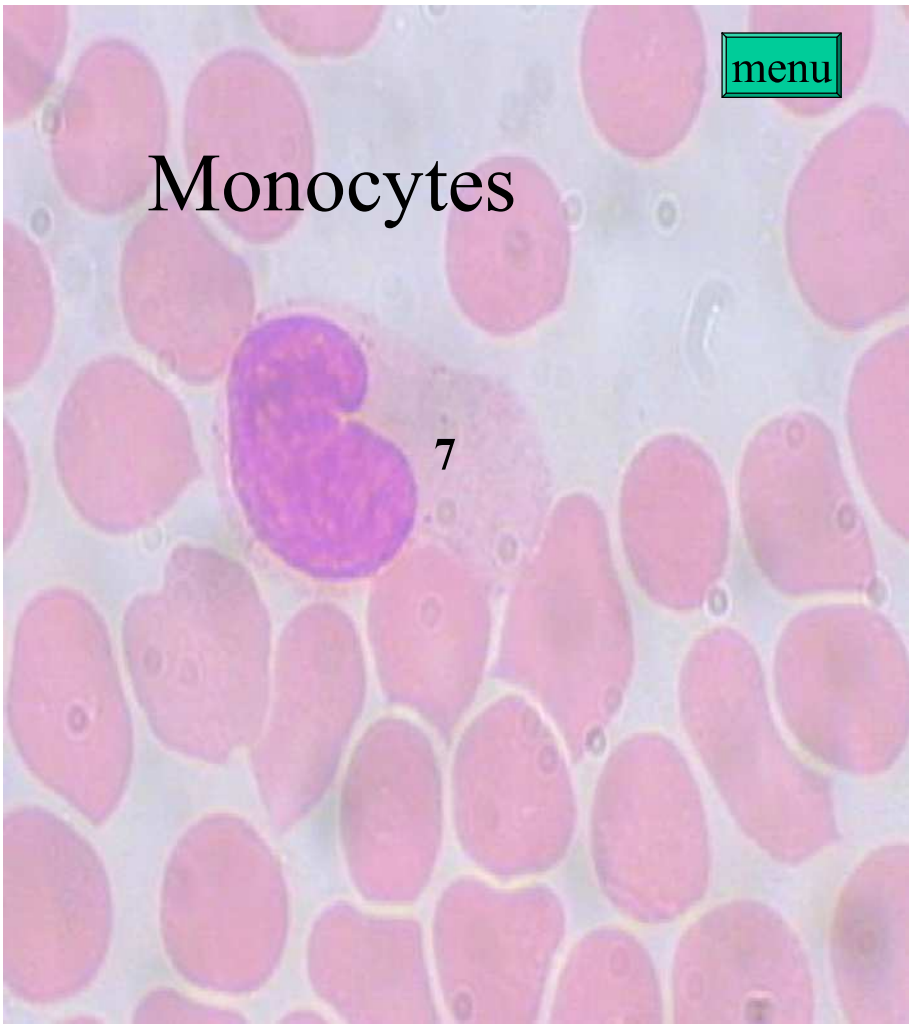


Lymphocytes



7.**Monocytes:**

It is usually the largest leukocyte present. The nucleus of it , which is usually beaned or U-shaped and is eccentric, may have a “lumpy” appearance which is seen by focussing up and down. The chromatin appears as a fine lacy network. The cytoplasm is gray in color and opaque and usually contains fine granules.



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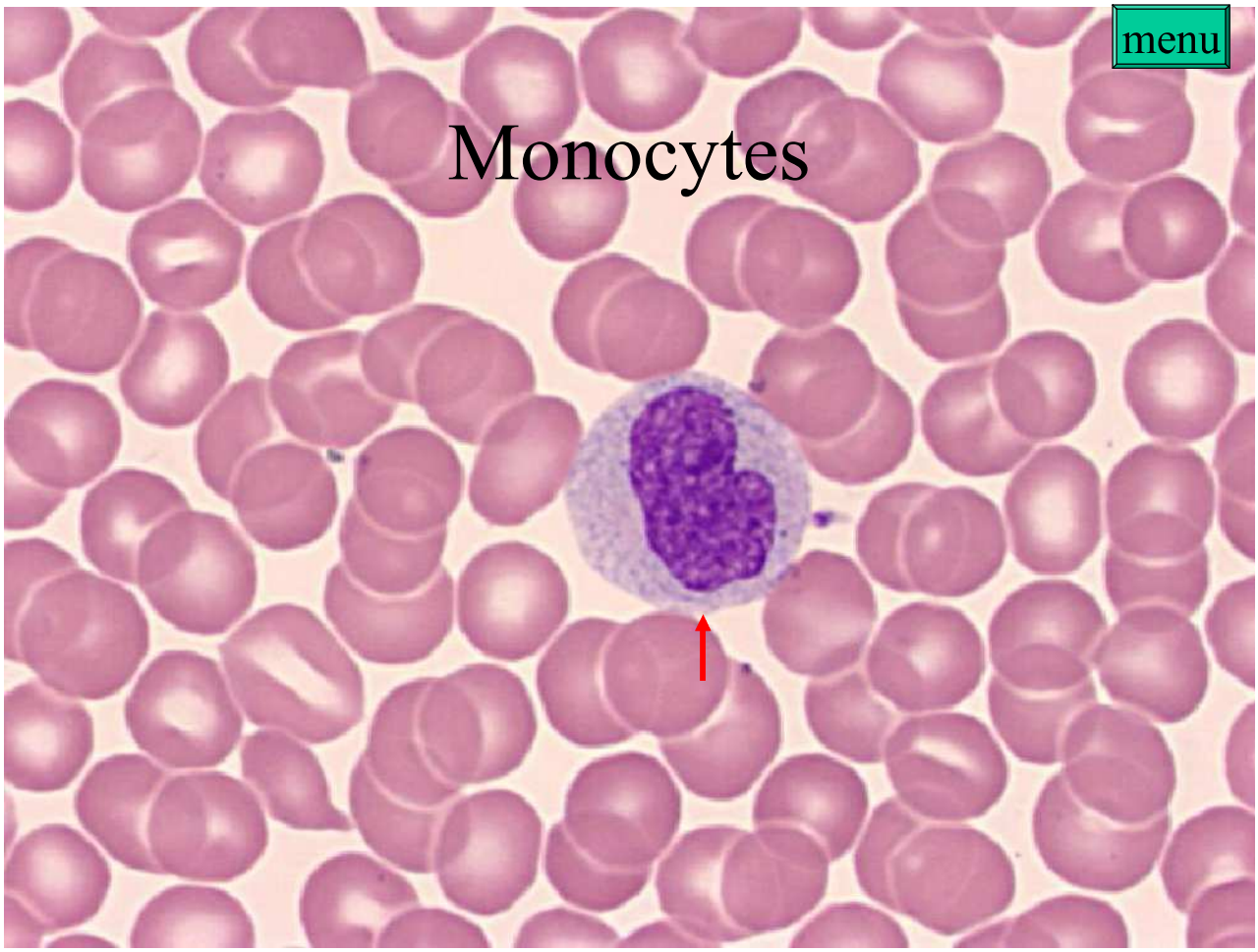
Monocytes



Protocol for using 100X objective lens

menu

- 1. Remove slide from stage. Add a drop of immersion oil. Return slide (with oil) to stage.
- 2. Rotate the 100X objective lens into place.
- 3. Use coarse focus knob to raise the stage until the 100X lens just touches the oil.
- 4. While looking into the microscope, use fine focus knob (to raise the stage) to find the plane of focus where the specimen is.
- Notice : 1). If you raise the stage too much, you can unwittingly crack your slide by driving the lens into it.
  2). Never get oil on any other lens(4X, 10X, 40X).
  3). Clean up all oil with lens paper and xylene when finished.