

# CONNECTIVE TISSUE

## FUNCTIONS

- support, strength, energy storage, defence, padding
- fluids - circulating, interstitial

## CELL TYPES

fibroblasts, adipocytes, macrophages, mast cells,  
plasma cells

## EXTRACELLULAR MATRIX

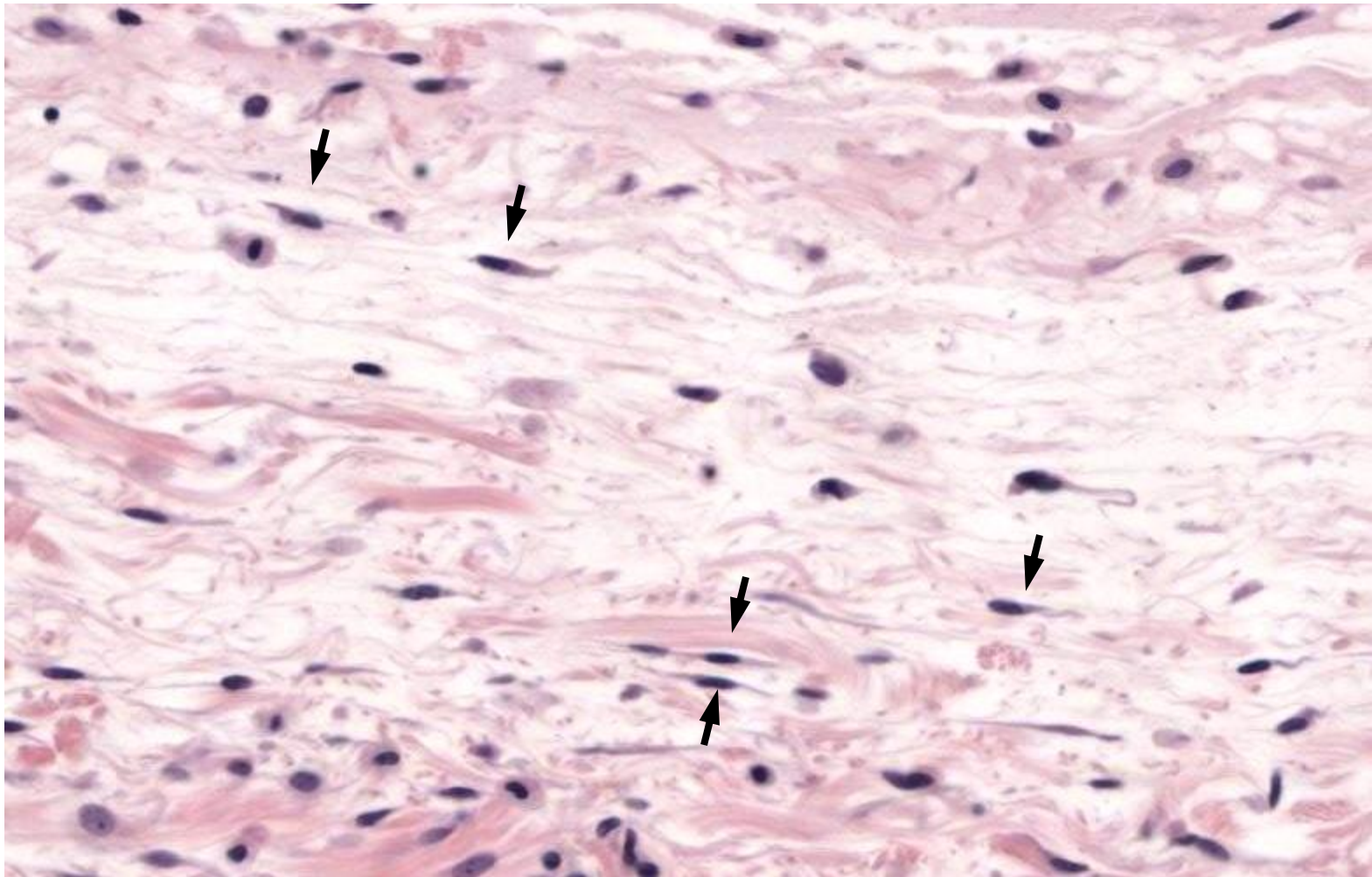
ground substance  
fibres: collagen, elastin  
tissue fluid

## TYPES OF CONNECTIVE TISSUE

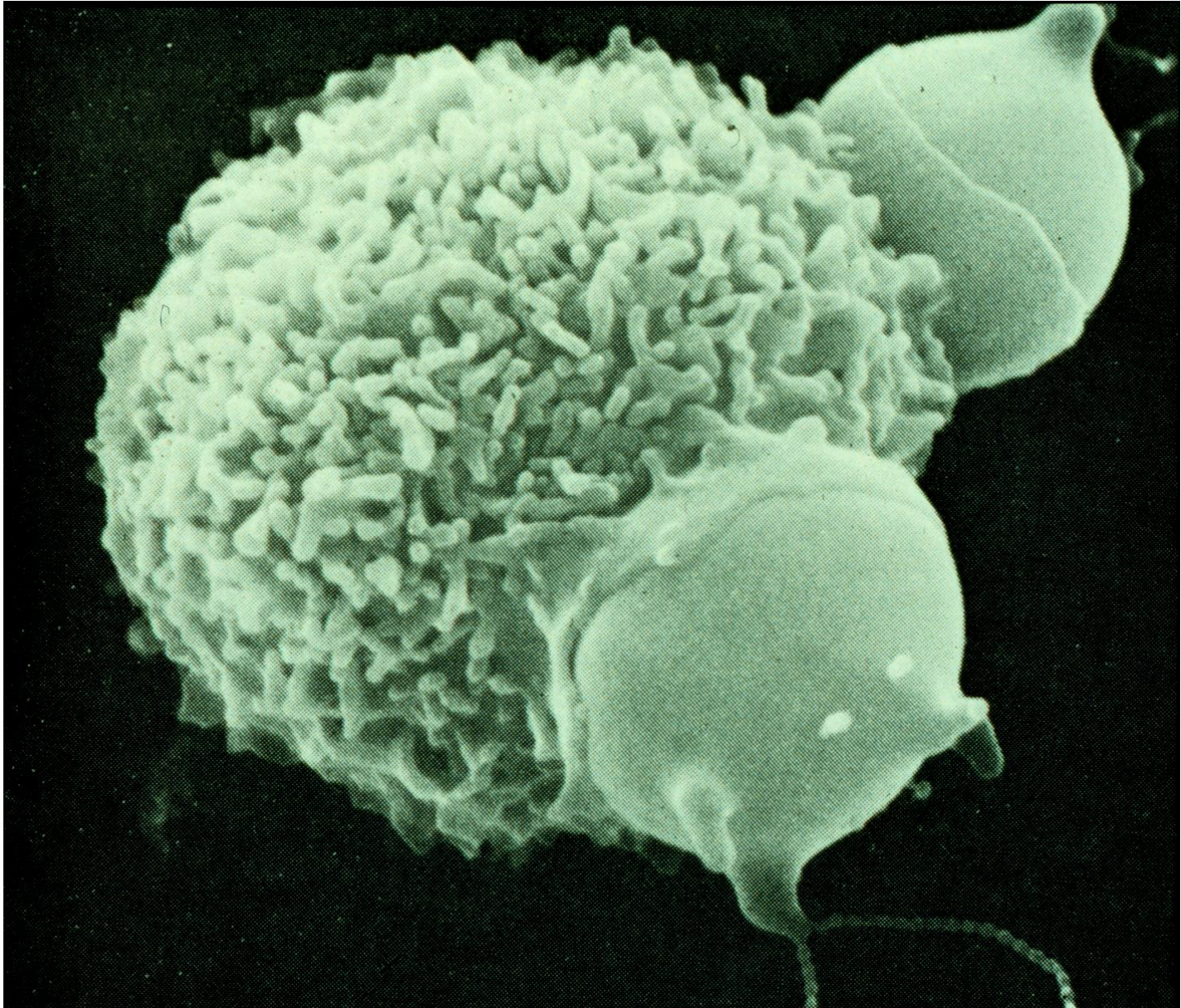
"PROPER": loose, dense irregular, dense regular

"SPECIAL" - bone, cartilage, blood

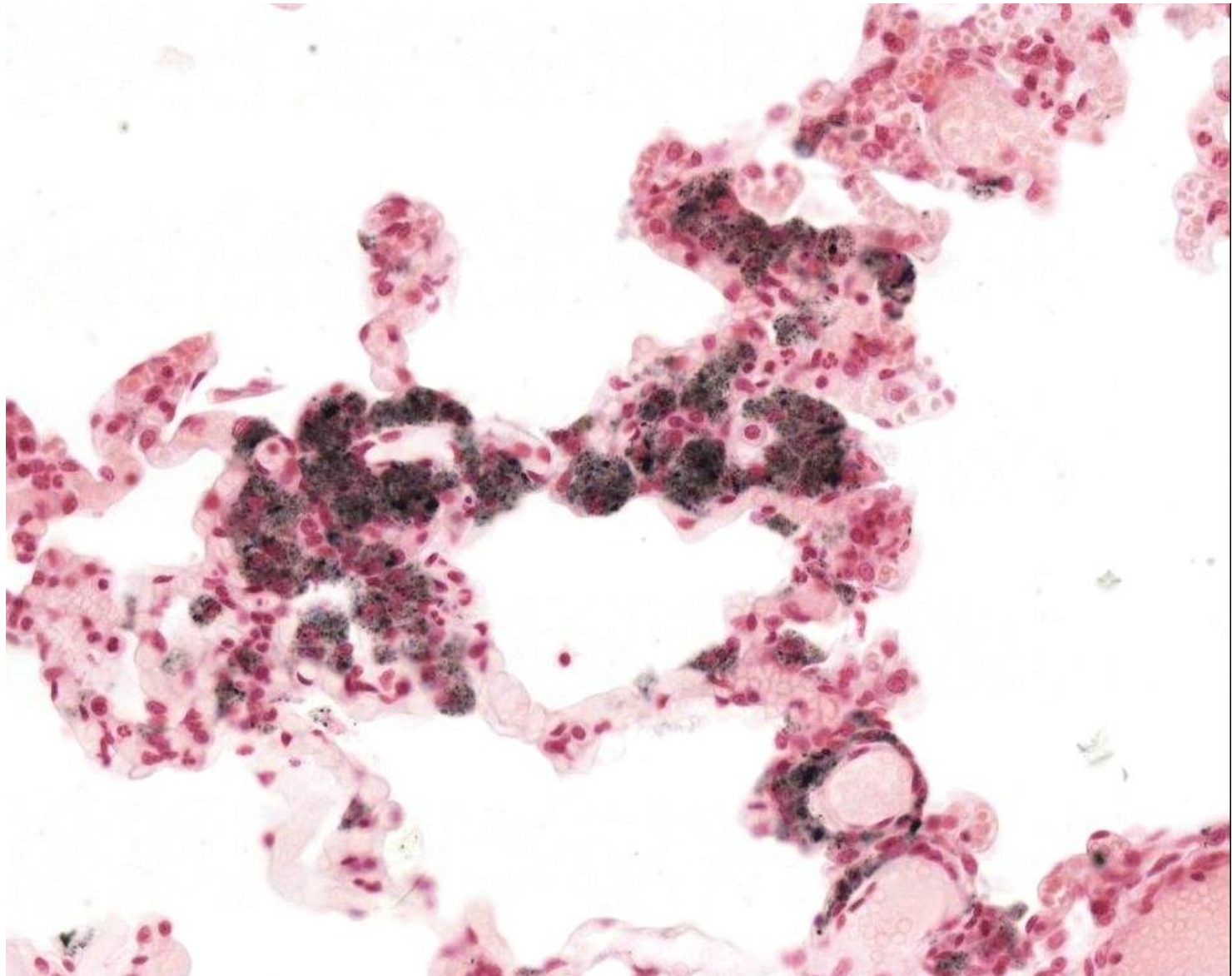
# FIBROBLAST NUCLEI IN LOOSE CONNECTIVE TISSUE (esophagus, SLIDE 4)



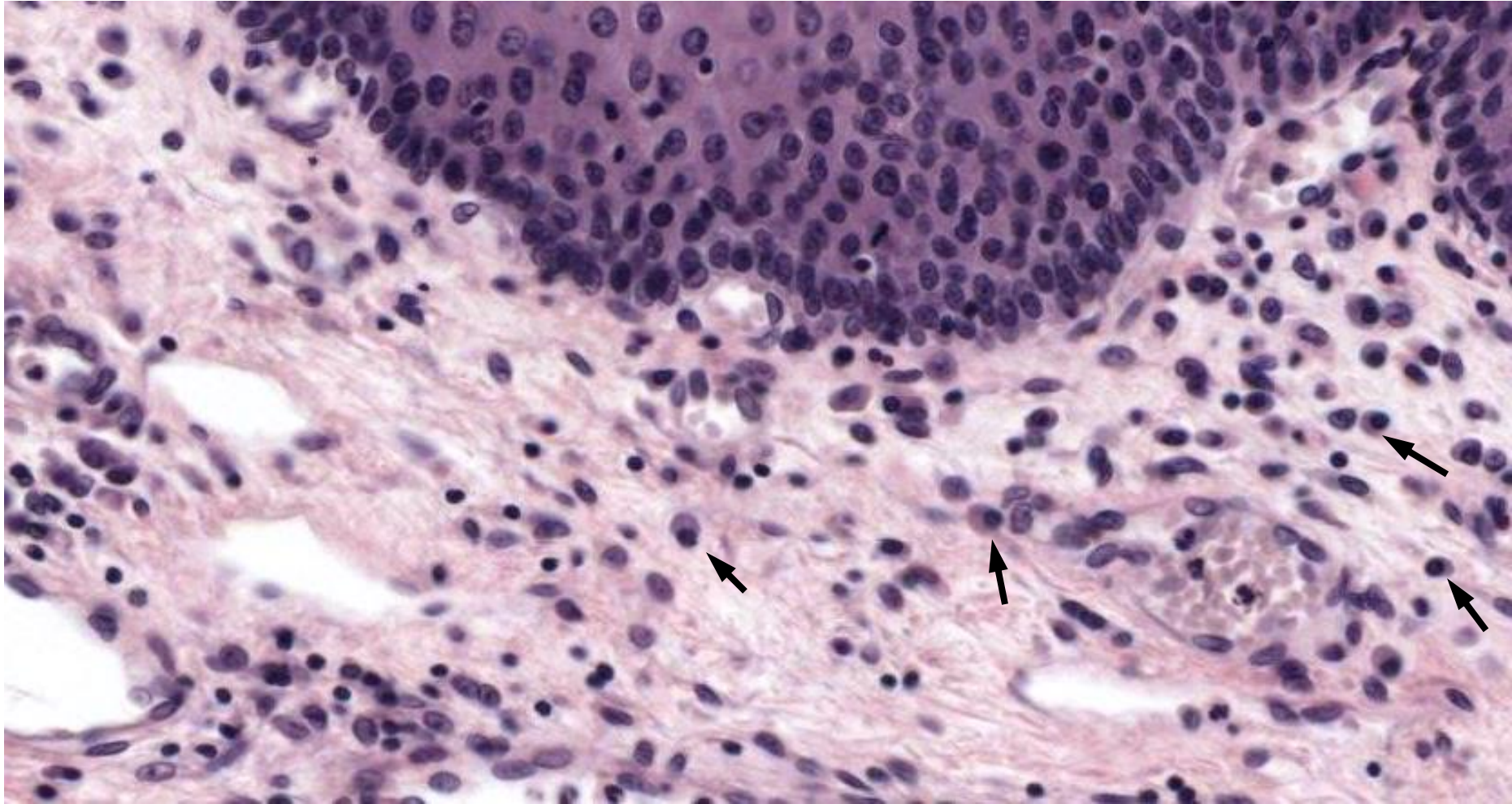
# MACROPHAGE ENGULFING PATHOGENS



# MACROPHAGES IN HUMAN LUNG (SLIDE 59)



PLASMA CELLS (arrows) IN LOOSE CONNECTIVE TISSUE  
(esophagus SLIDE 4)



GROUND SUBSTANCE - macromolecules, water

## 1) PROTEOGLYCAN MEGACOMPLEX

- long protein backbone with proteoglycans attached
- proteoglycans: like bottle brush
  - central protein core
  - glycosaminoglycan "bristles"
    - hydrated: binds water = gel-like
    - facilitates diffusion through tissue matrix
- anchored to matrix fibres = mechanical strength

## 2) GLYCOPROTEINS ie laminin

- globular proteins with attached carbohydrates
- anchor cells to matrix

## TYPES OF COLLAGEN

> 10 types known

TYPE I > 90 % of collagen in the body

- coarse fibres arranged in bundles
- in loose connective tissue, tendons, ligaments, fibrocartilage

TYPE II -fine fibrils - in hyaline, elastic cartilage

TYPE III = RETICULAR FIBRES

- 3-dimensional meshwork in liver, spleen

TYPE IV -fine, short fibres in basement membrane

TYPE V -in walls of blood vessels, reinforce bone

- other collagen types very specialized



Connective tissue lectures: list of figures from Junquiera text, in order of presentation

5-2, 5-3, 6-1, 5-4, 5-5, 5-6, 5-7, 5-17, 5-18, 4-3, 5-11, 5-8, 5-15, 5-13, 18-2, 5-21, 5-22