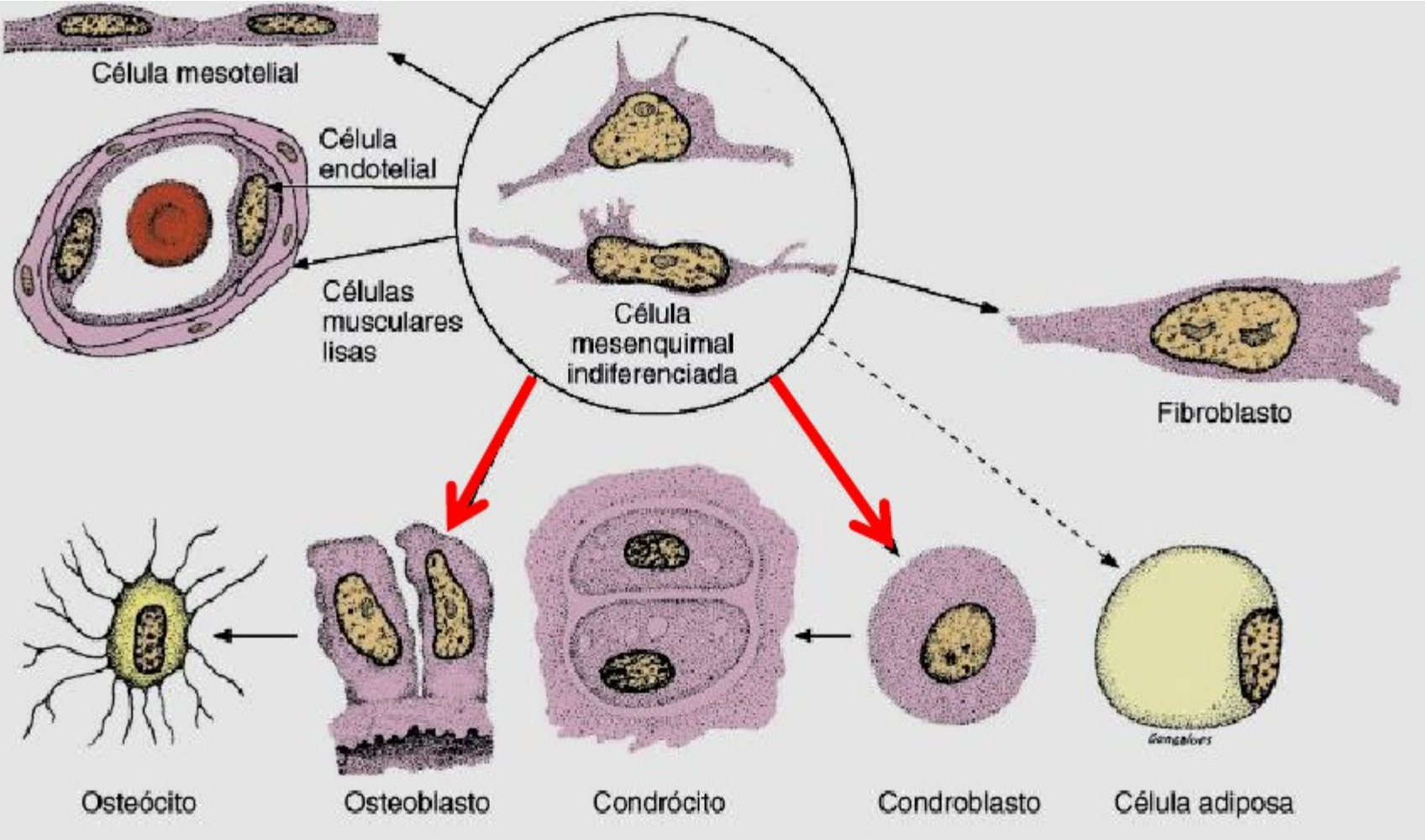


# Tecido Conjuntivo

# Embriología: mesoderma



# Tecido Conjuntivo

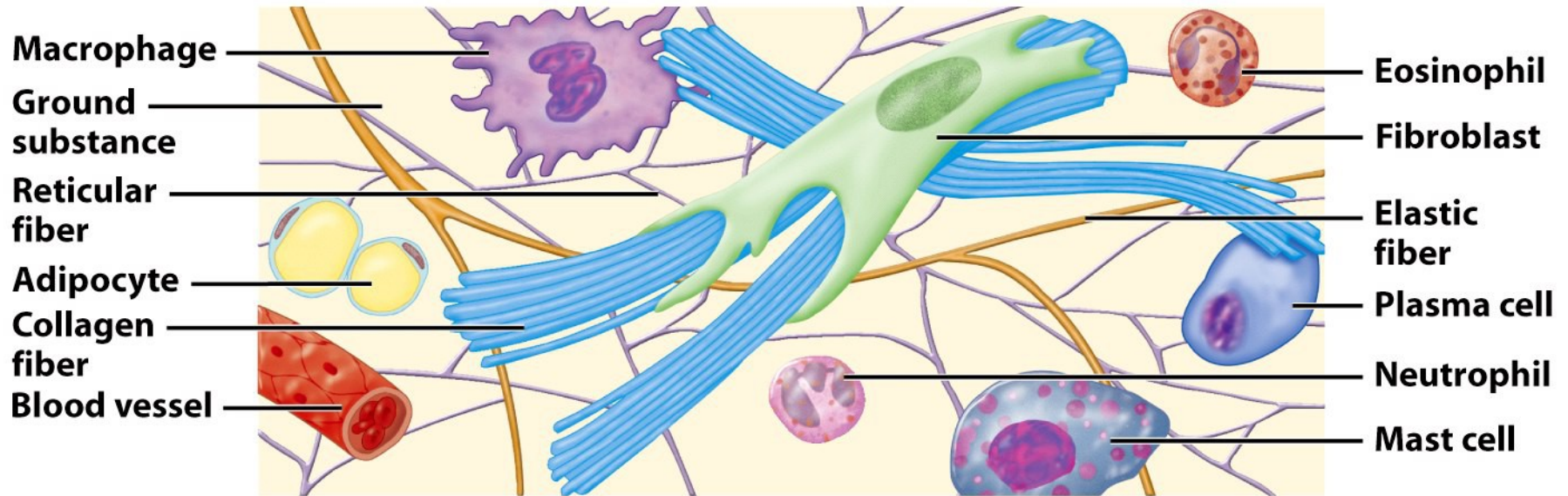
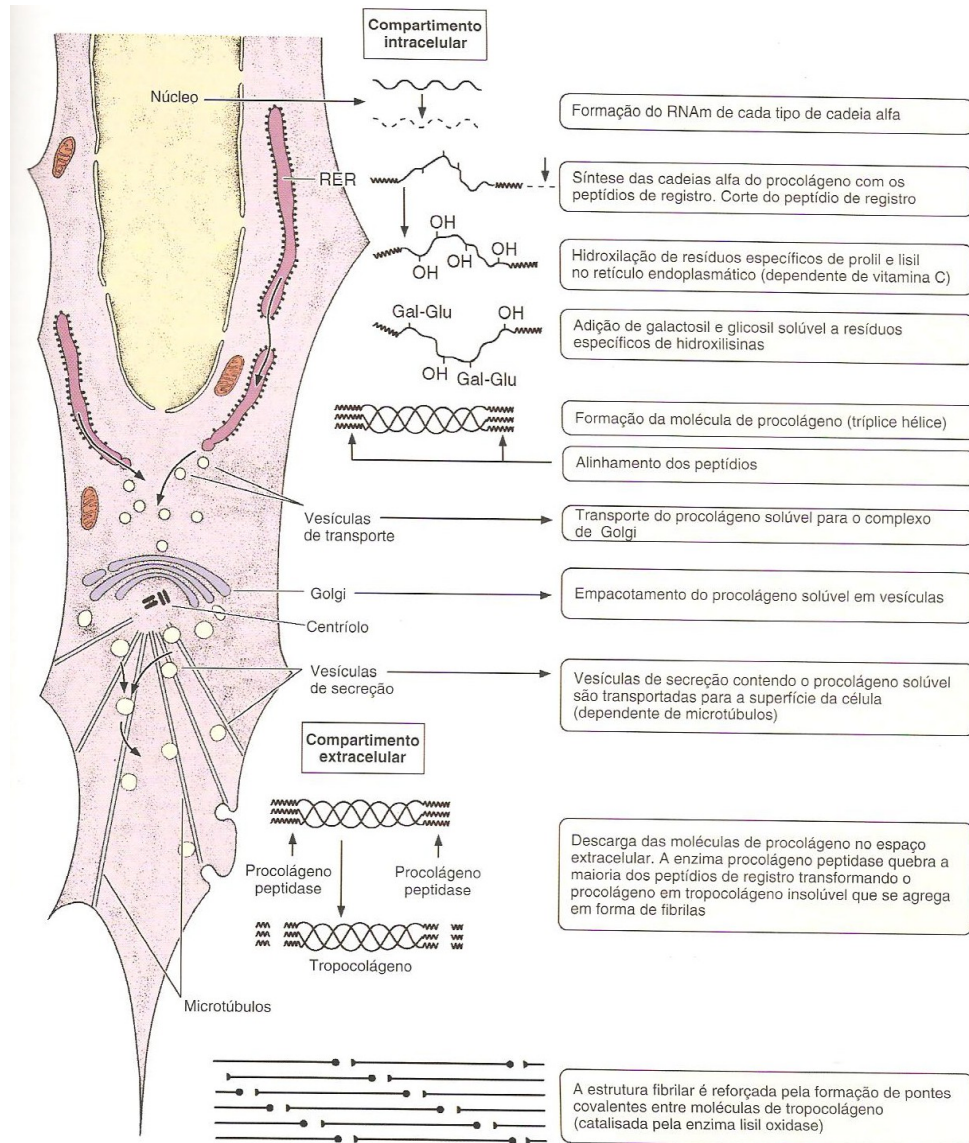


Figure 4-6 Principles of Anatomy and Physiology, 11/e  
© 2006 John Wiley & Sons

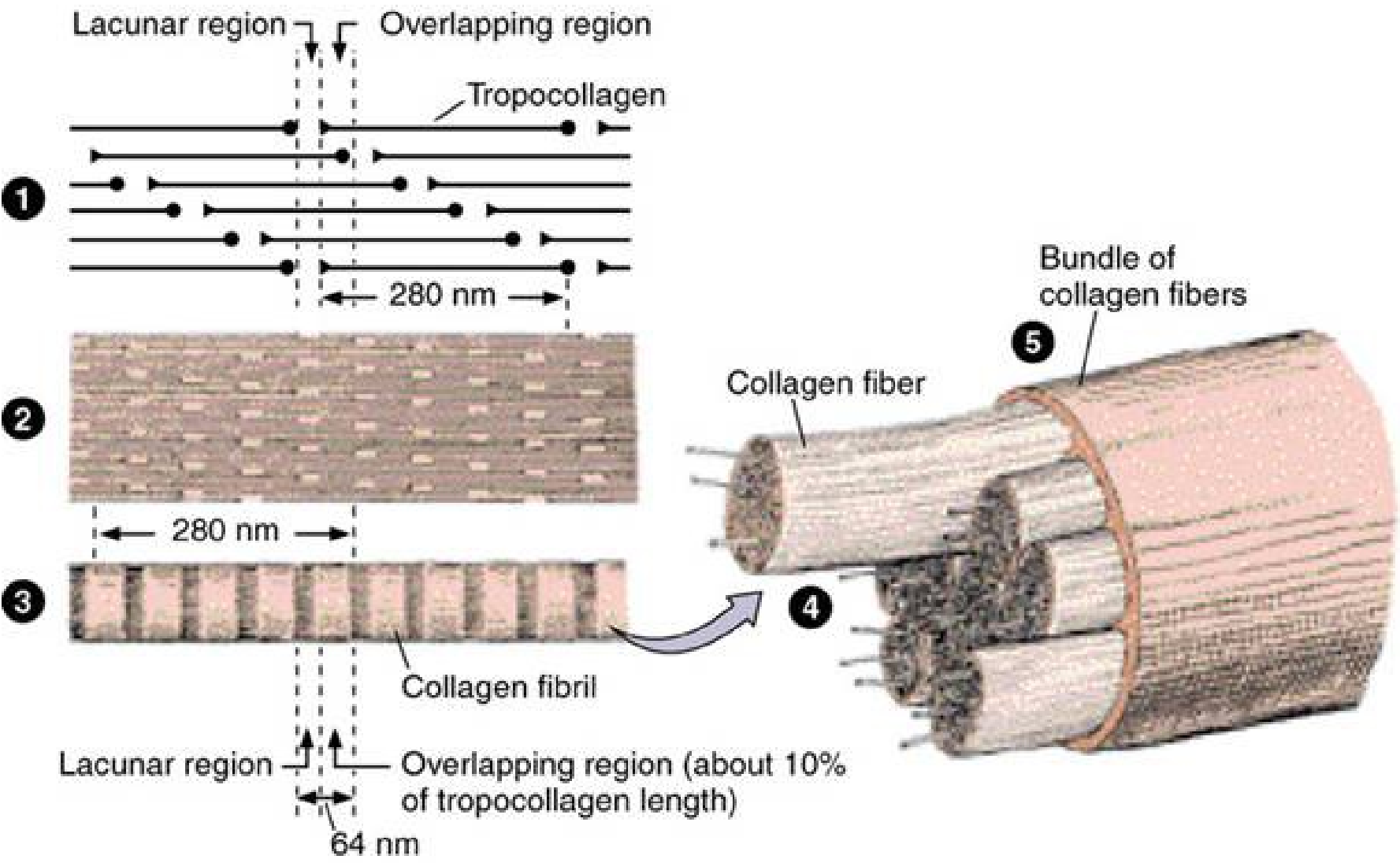
# Constituintes

- ✓ Células especializadas;
- ✓ Matriz extracelular:
  - Fibras
    - Colágenas;
    - Reticulares;
    - Elásticas;
  - Substância Fundamental.

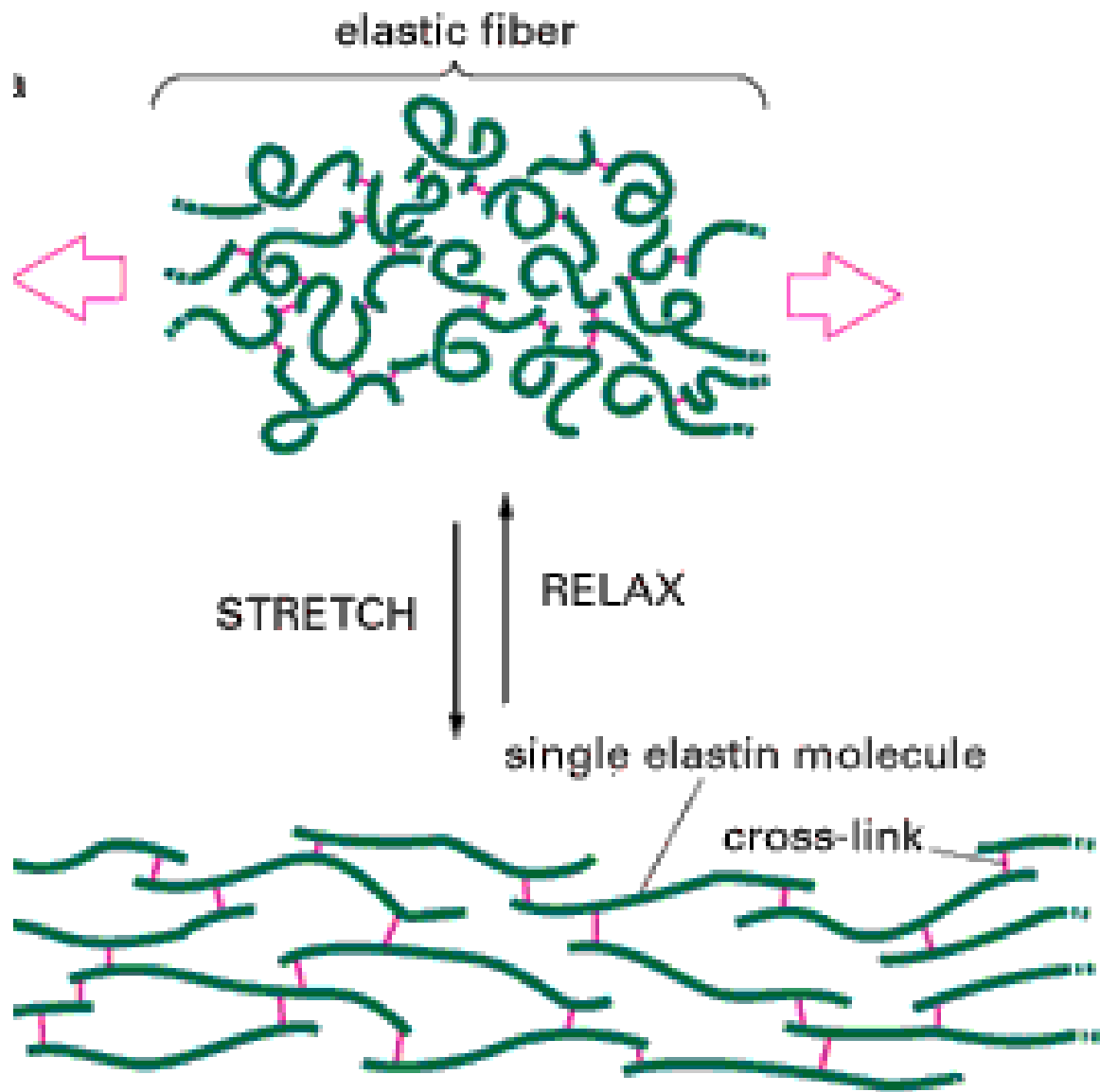
# Síntese do colágeno



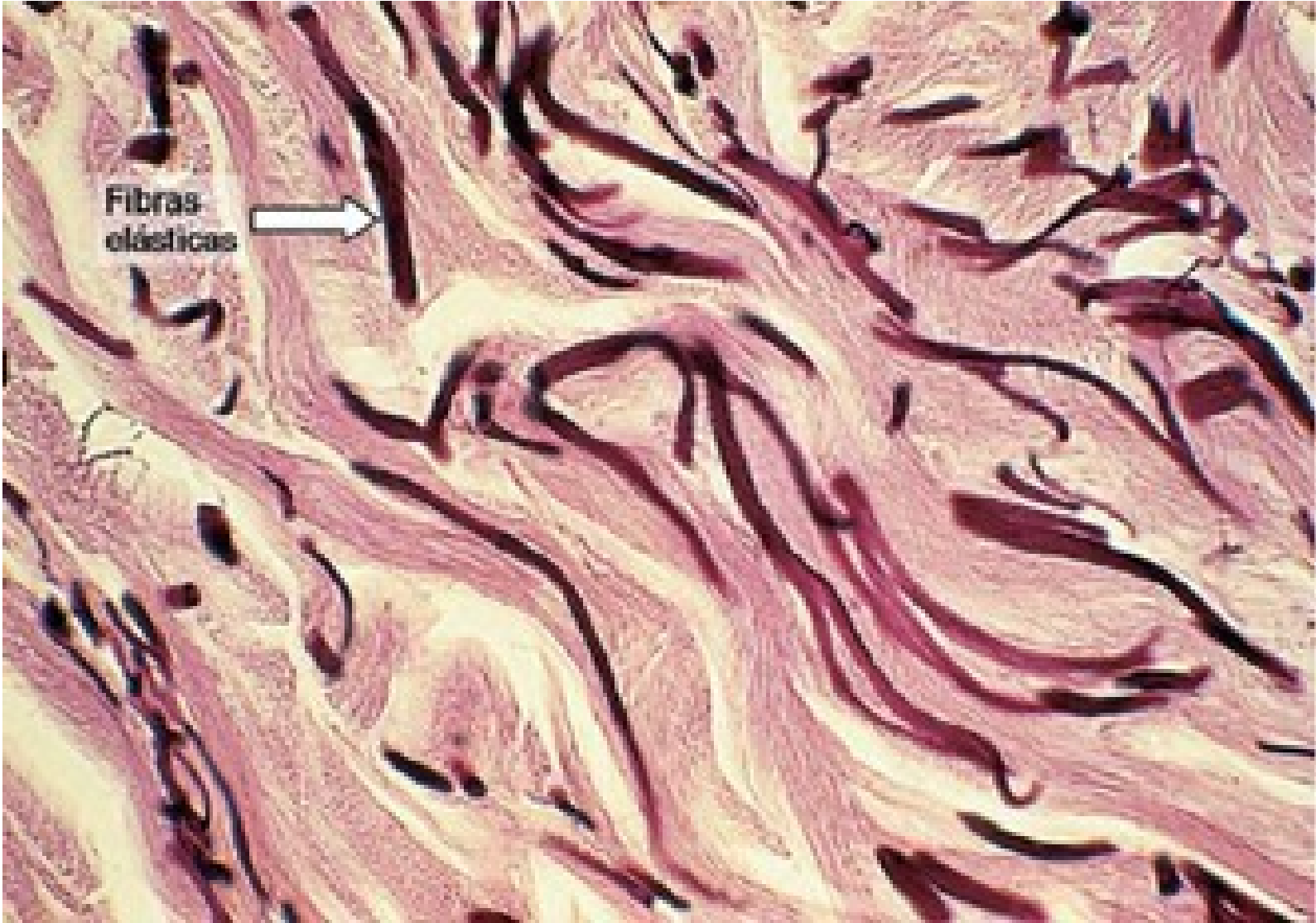
# Sistema Colágeno



# Sistema Elástico

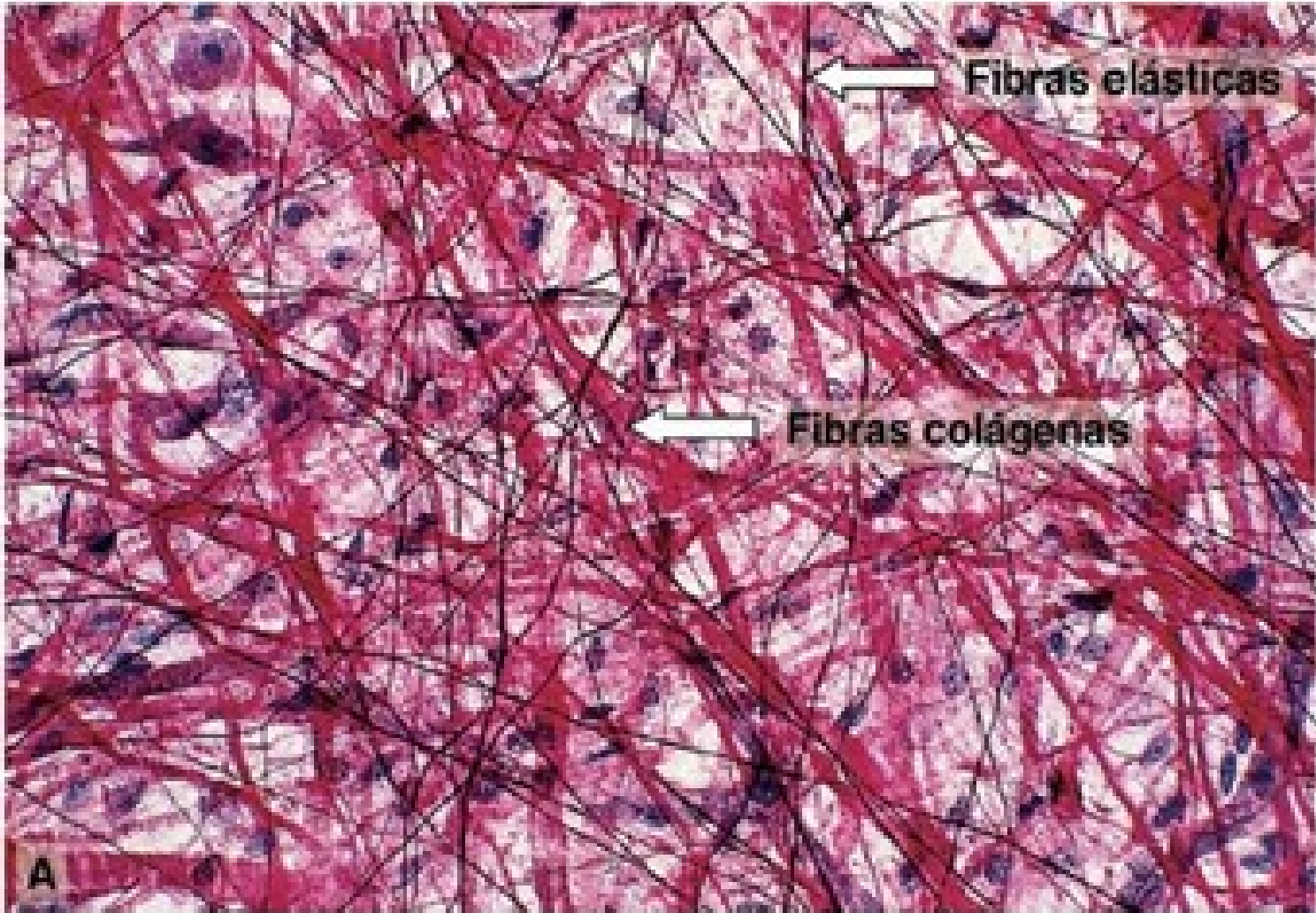


# Sistema Colágeno e Elástico

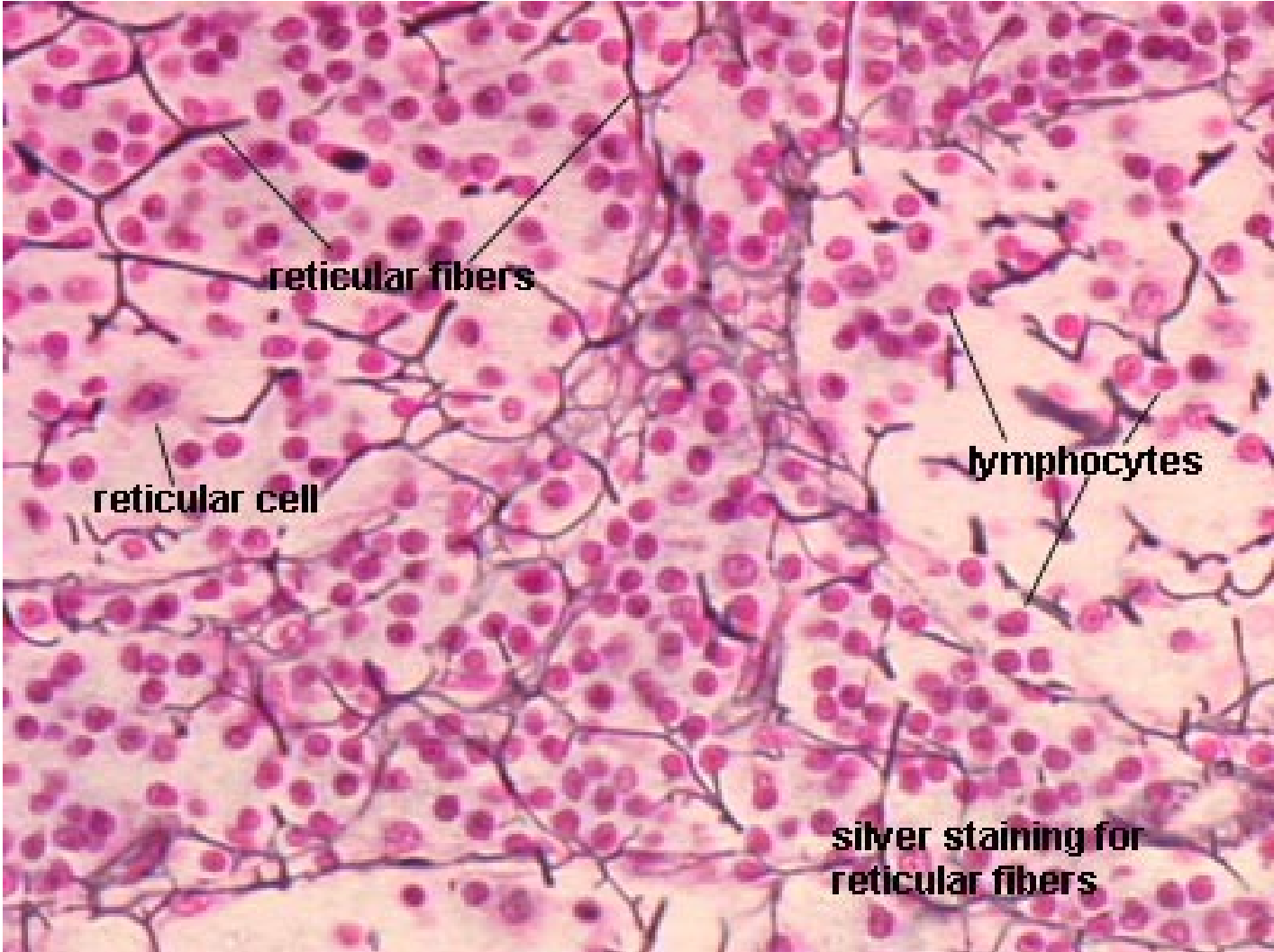




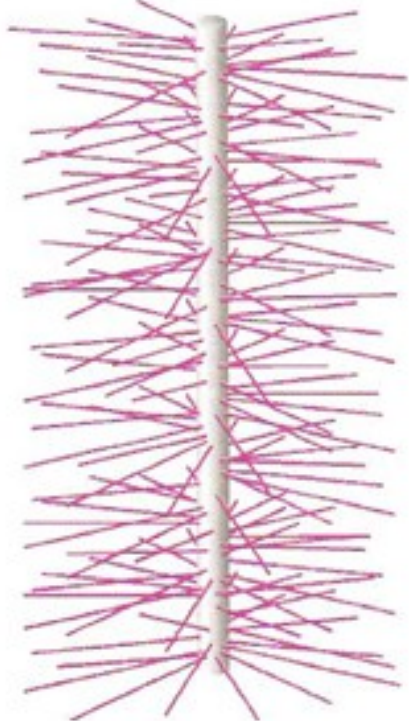
# Sistema Colágeno e Elástico



# Sistema Colágeno e Elástico

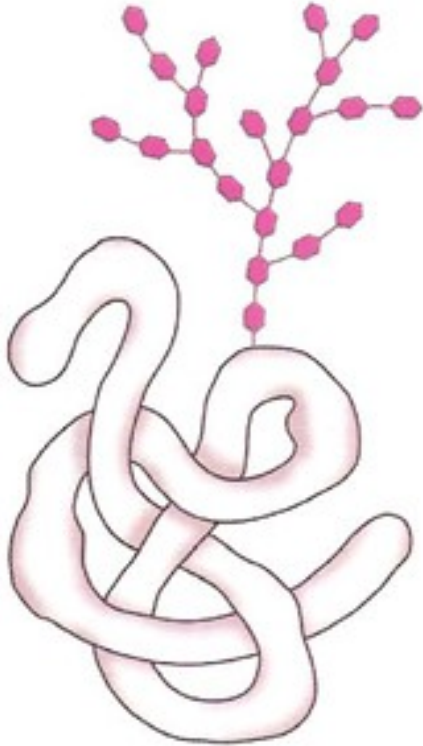


# Substância Fundamental



**A**

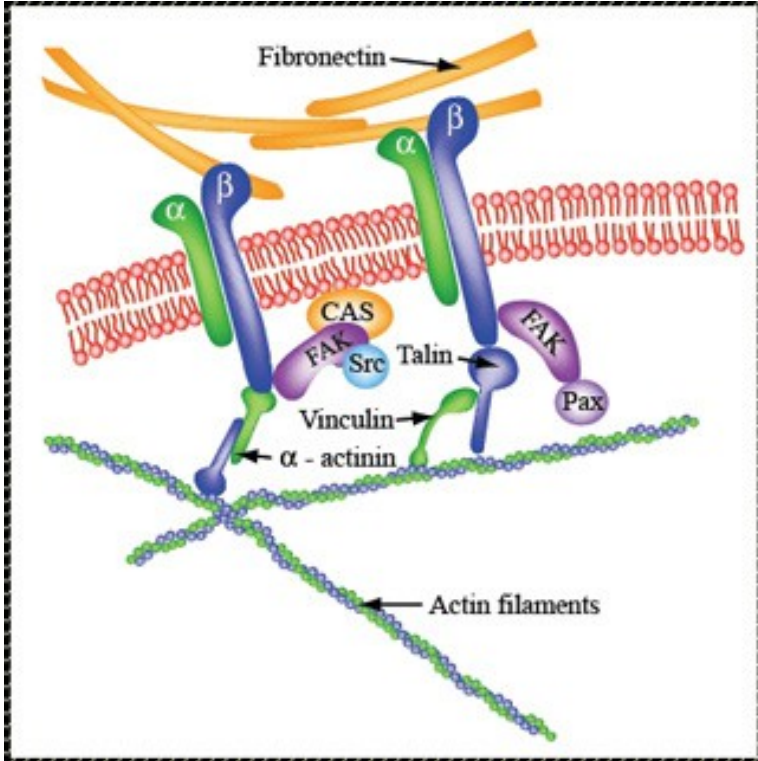
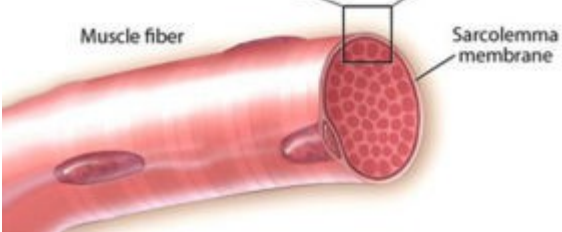
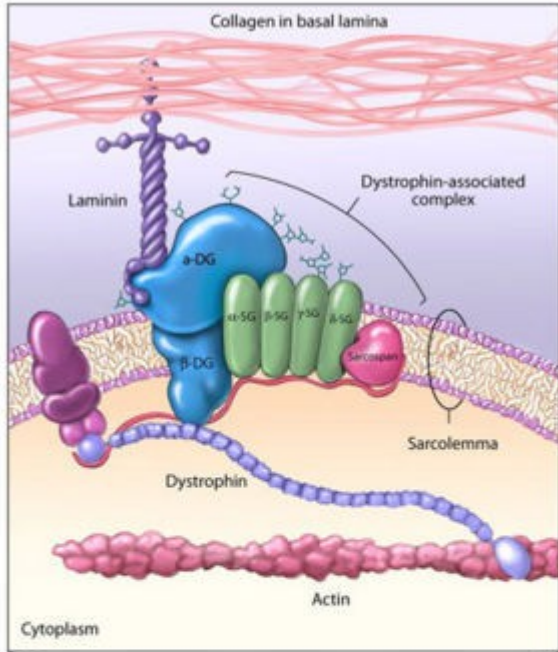
**Proteoglicanas**



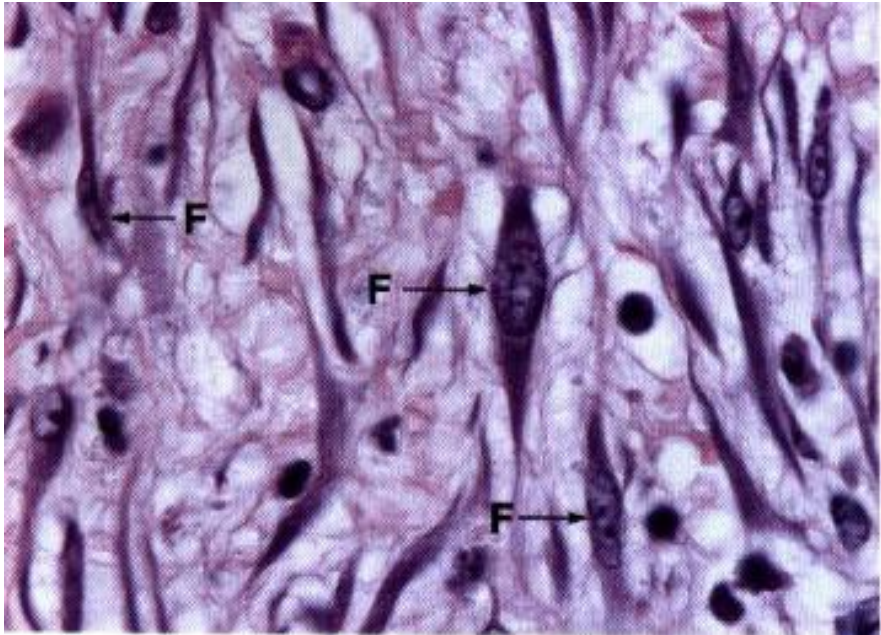
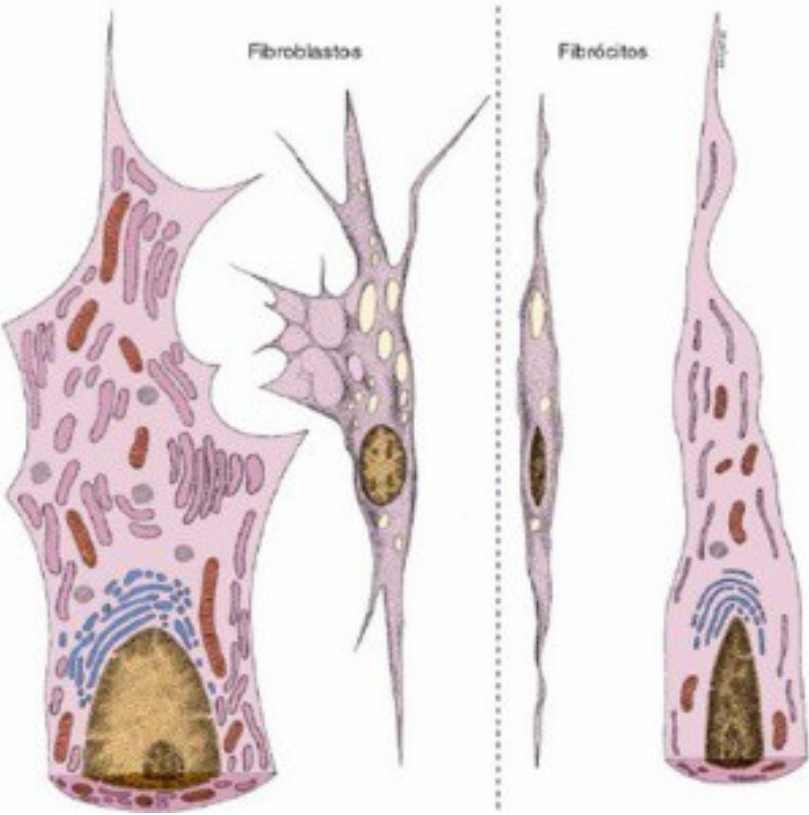
**B**

**Glicoproteínas adesivas**

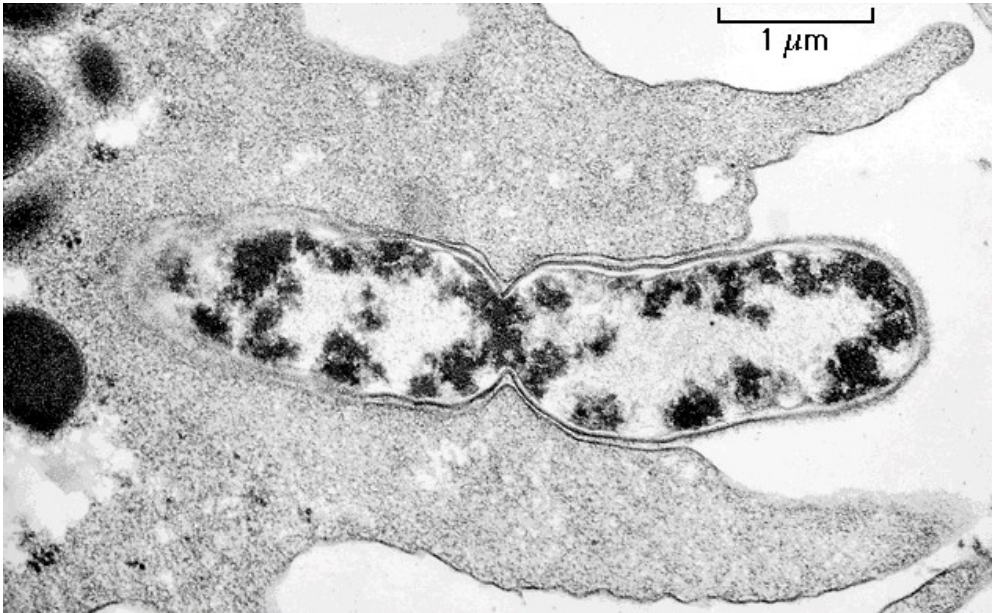
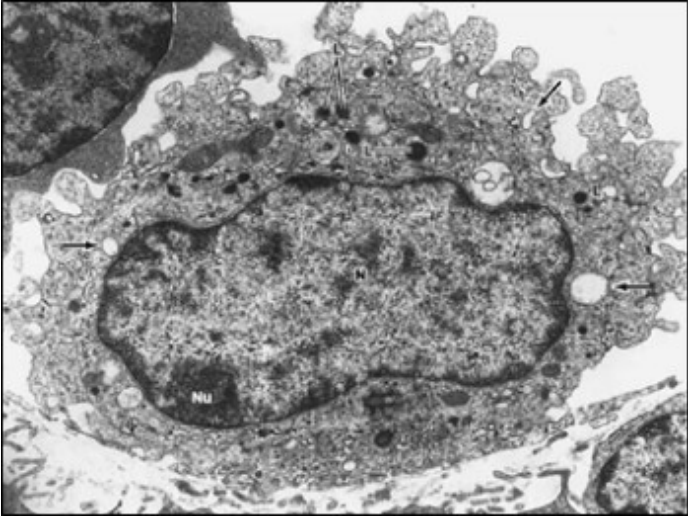
# Substância Fundamental



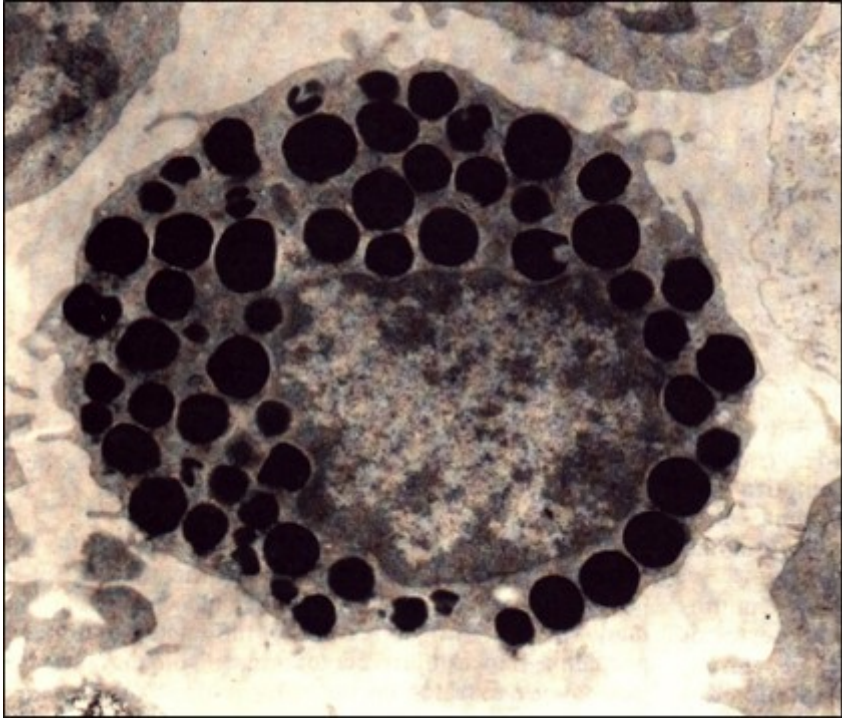
# Células do Tecido conjuntivo - fibroblasto



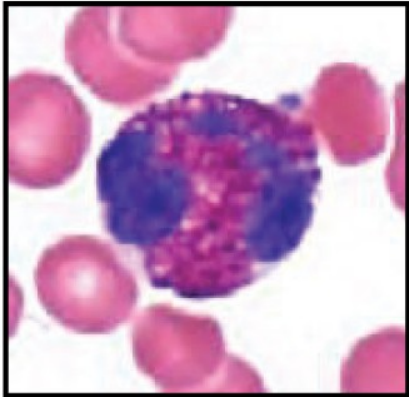
# Células do Tecido conjuntivo - macrófago



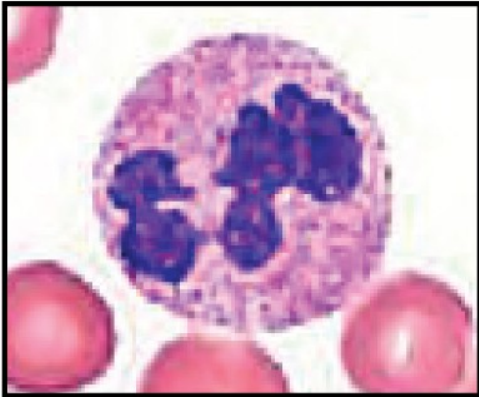
*Células do Tecido conjuntivo - mastócito*



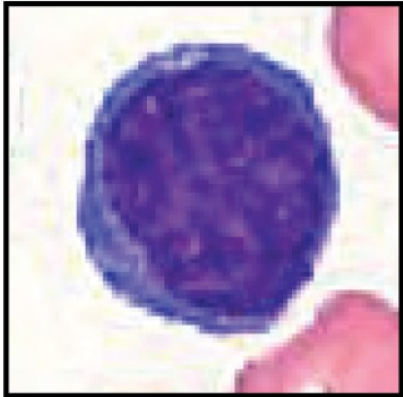
# Células do Tecido conjuntivo - leucócitos



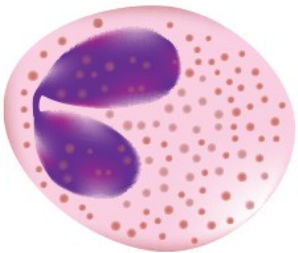
Eosinophil



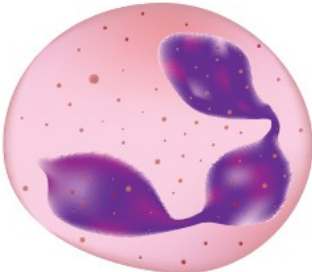
Neutrophil



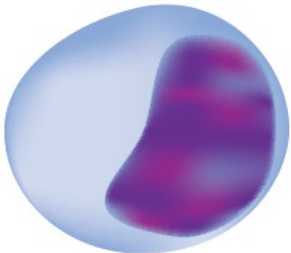
Lymphocyte



Eosinophil



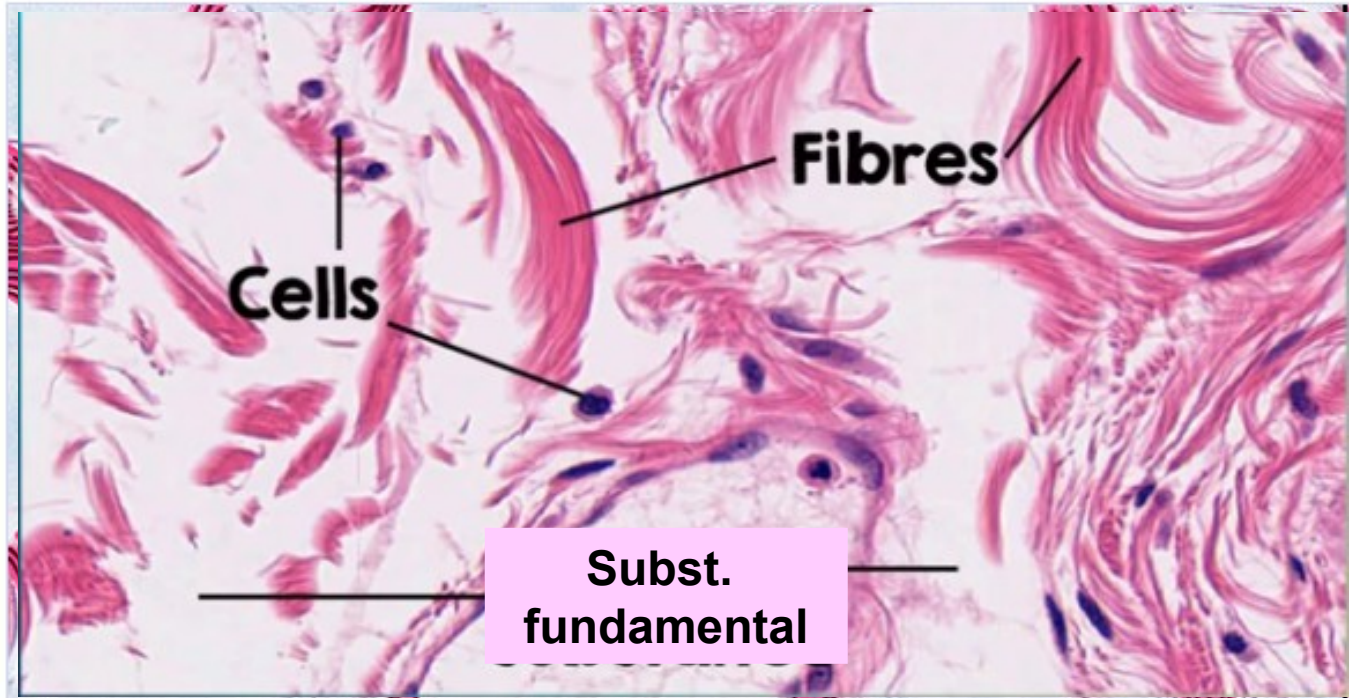
Neutrophil



Lymphocyte



## *Tecido Conjuntivo: Propriamente Dito Frouxo*



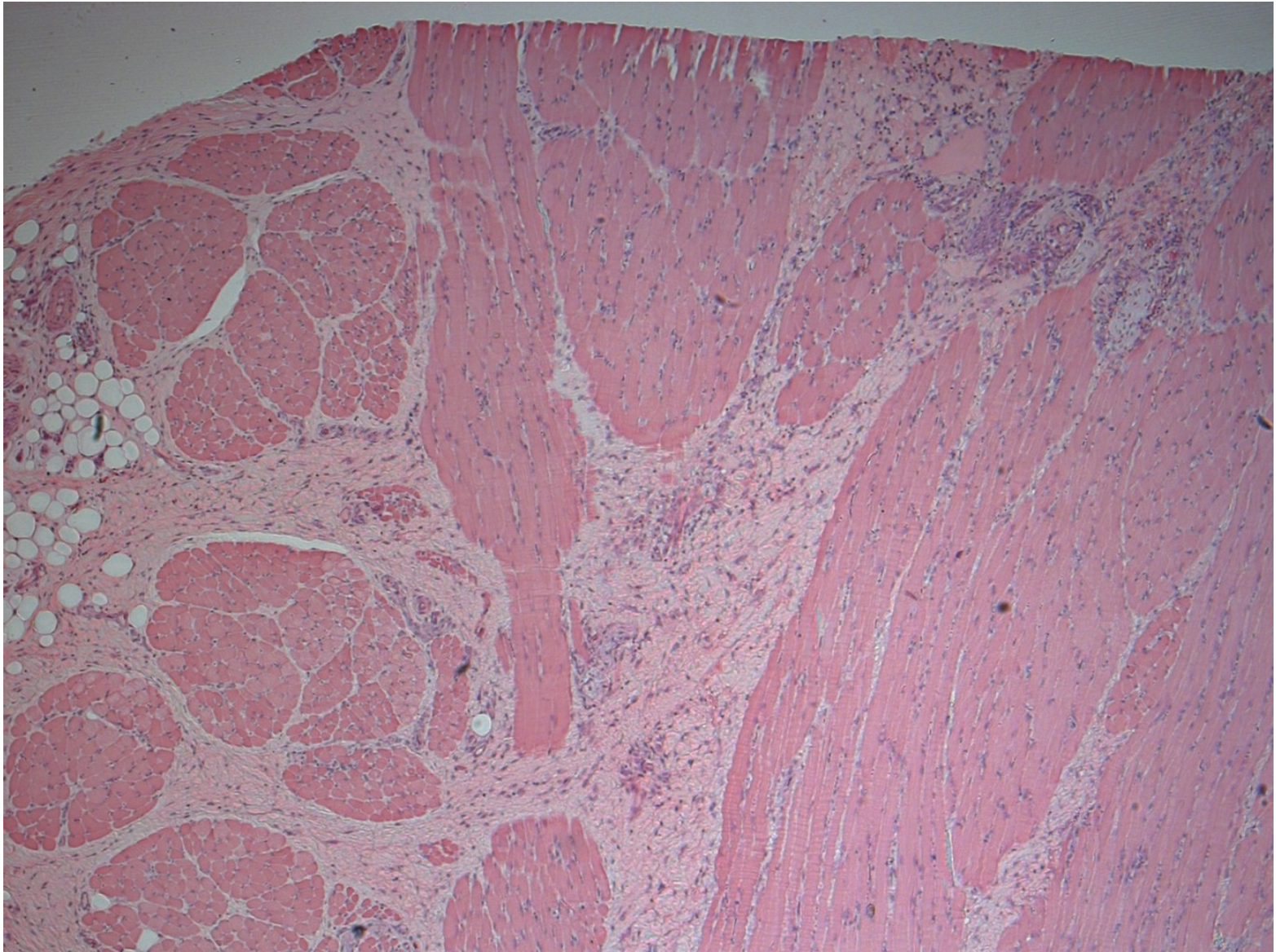
© The University of Adelaide, all rights reserved

## **WHITE STRIPING**



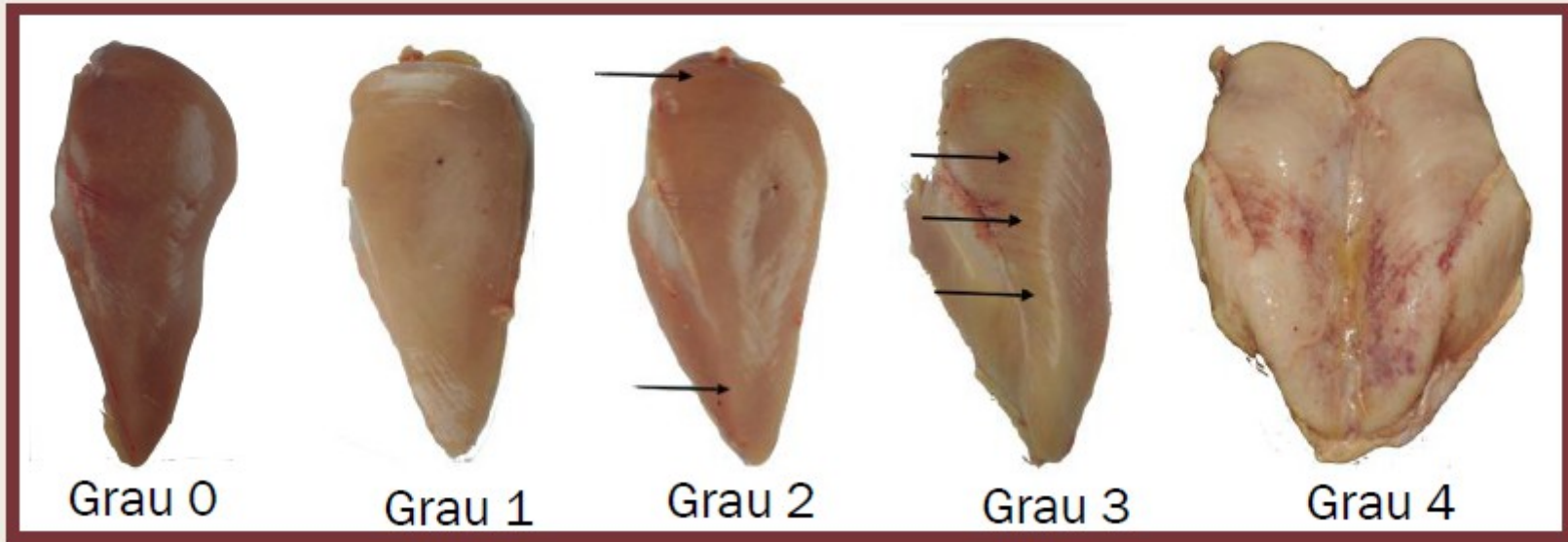
Kuttappan *et al.* (2012).

# *Tecido Conjuntivo: Propriamente Dito Frouxo*



Natália A. Aguiar

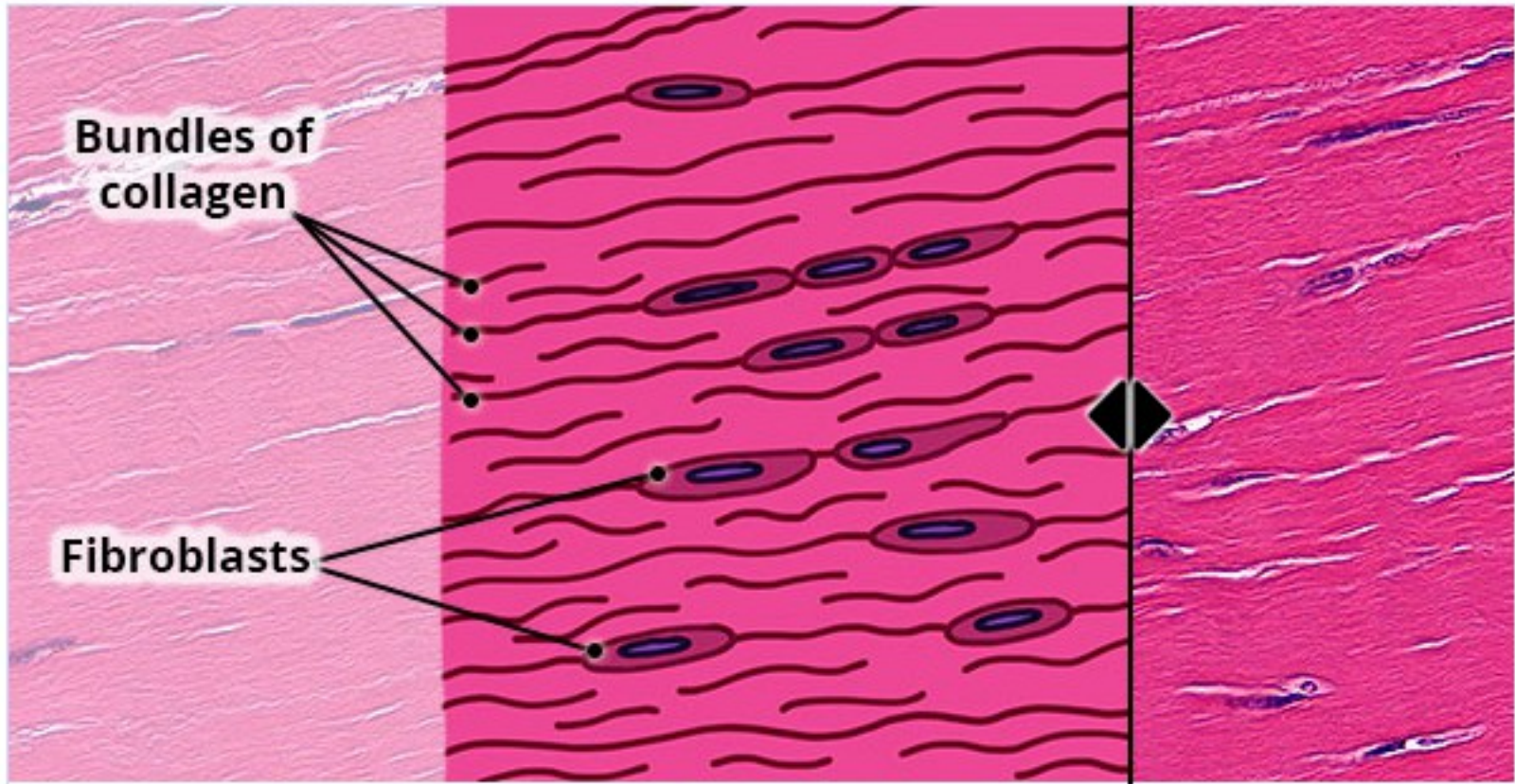
# MIOPATIA PEITORAL - WOODEN BREAST



Ferreira et al. (2016), Cruz et al (2017).

# *Tecido Conjuntivo: Propriamente Dito Denso Modelado*

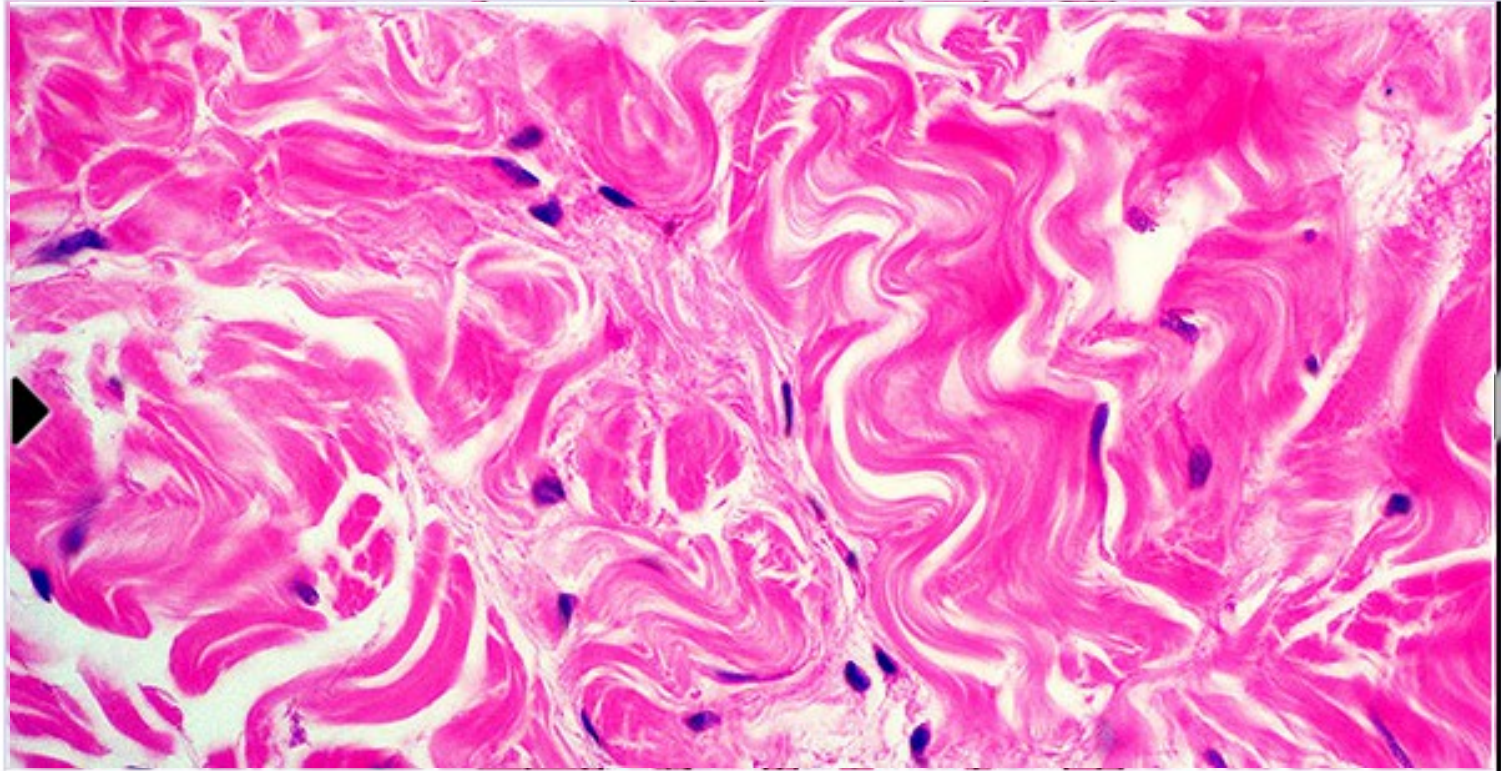
## Dense Regular Tissue



# Tecido Conjuntivo: Propriamente Dito Denso Modelado



## *Tecido Conjuntivo: Propriamente Dito Denso Não Modelado*

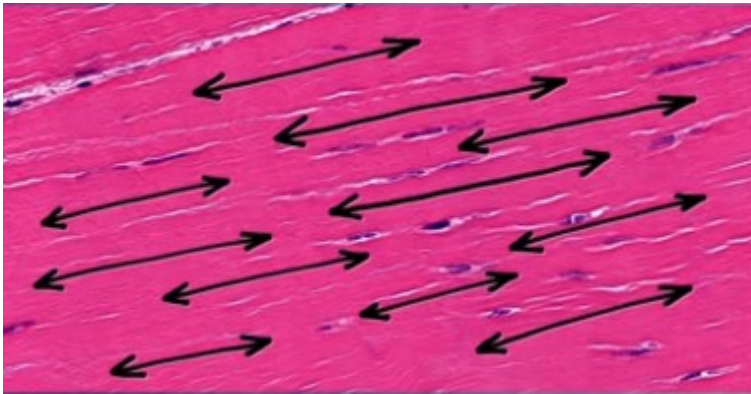


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# Tecido Conjuntivo: Propriamente Dito Denso

## Denso Modelado

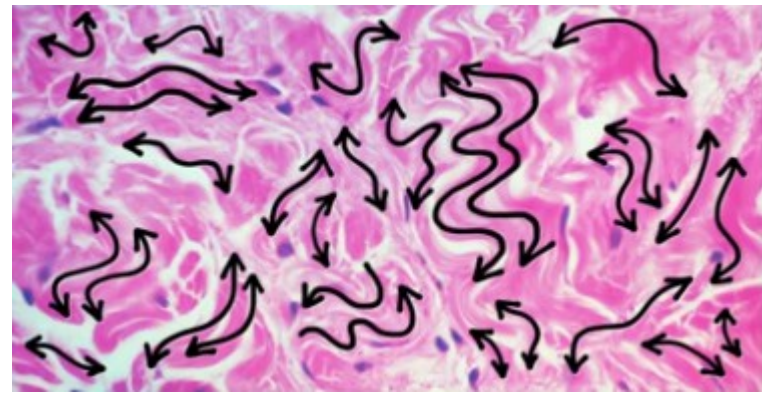
(tendões, ligamentos)



**Resistência em uma direção**

## Denso não Modelado

(derme da pele)

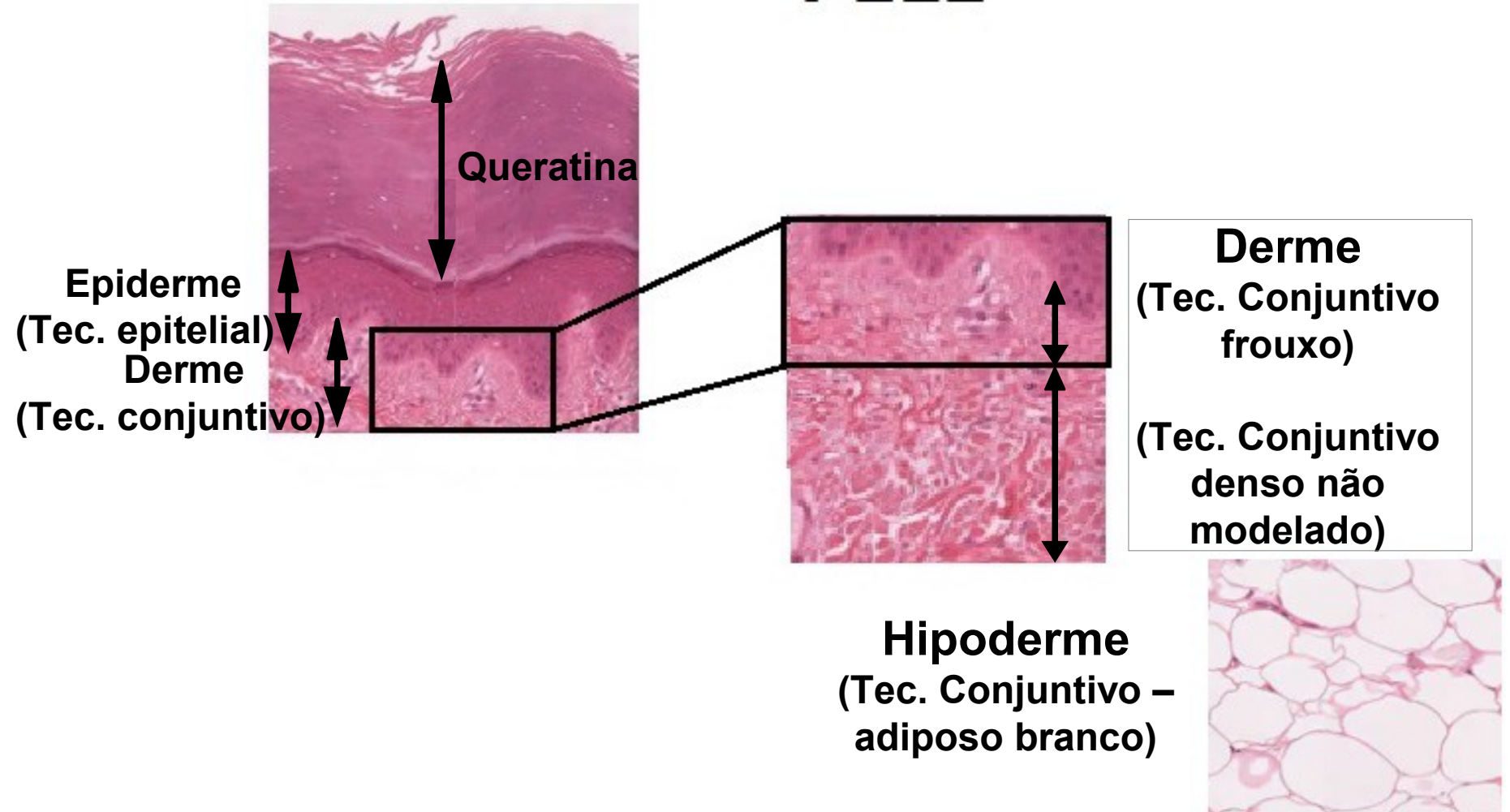


**Resistência em diferentes direções**



# Tecido Conjuntivo: Propriamente Dito Denso Não Modelado

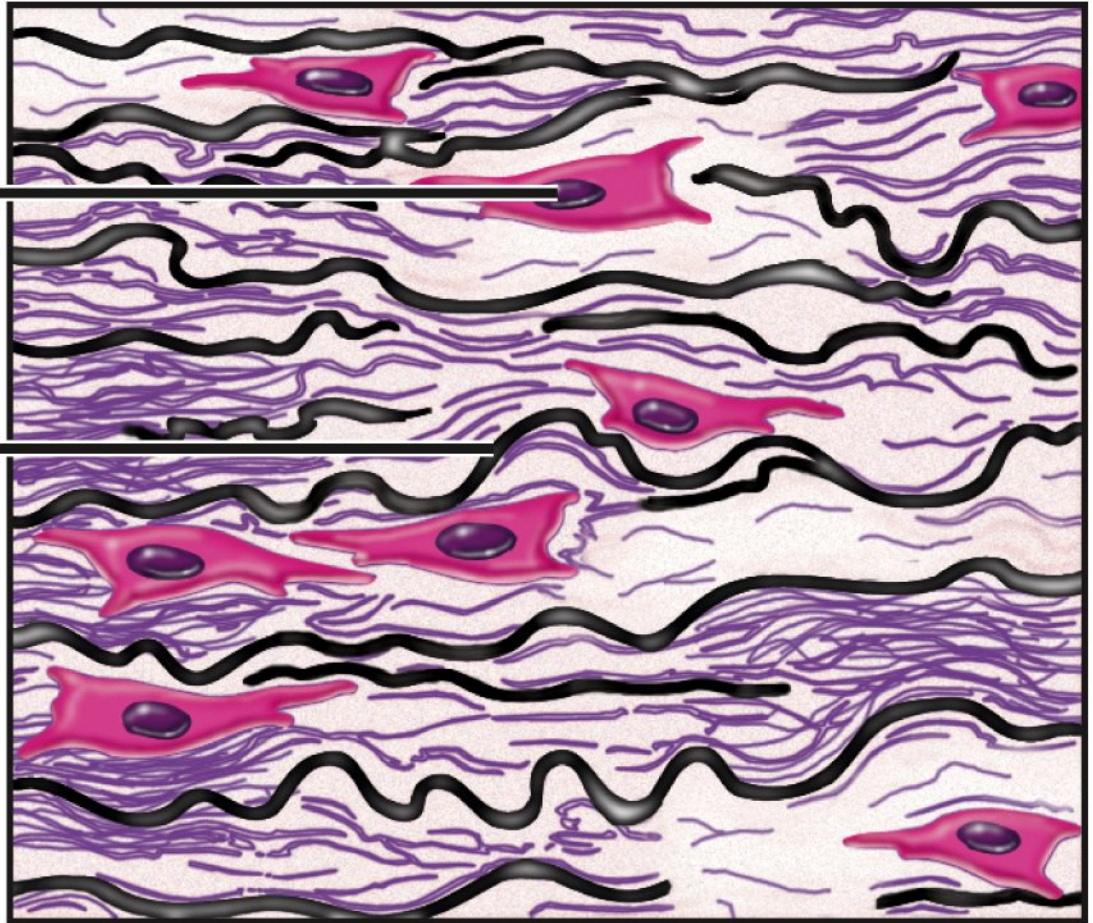
## PELE



# Tecido Conjuntivo: Elástico

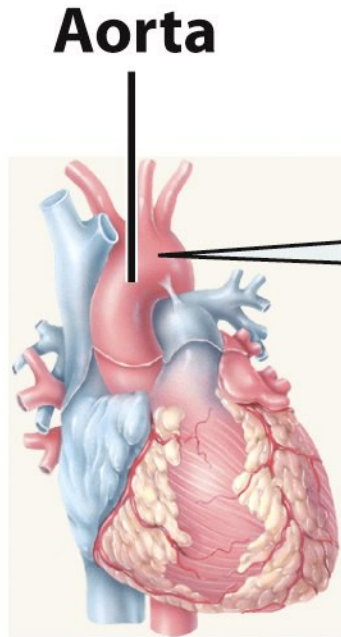
Fibroblasto

Feixe de material elástico



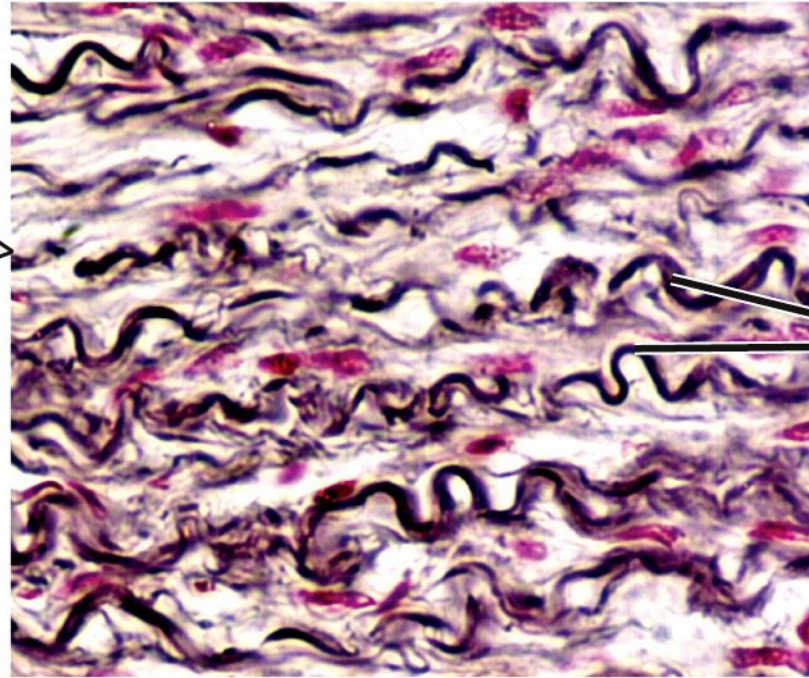
## TECIDO CONJUNTIVO ELÁSTICO

# Tecido Conjuntivo: Elástico



**Aorta**

**Coração**

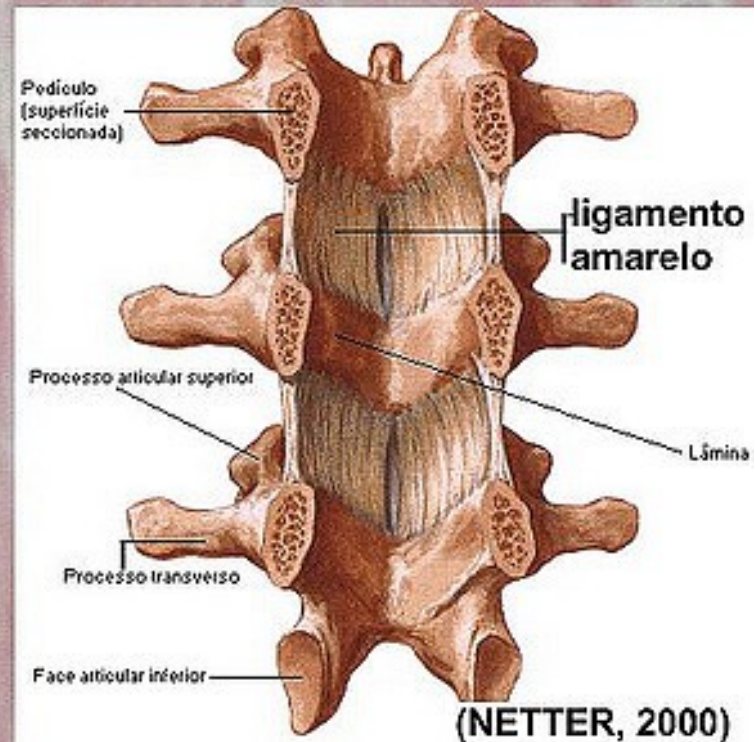
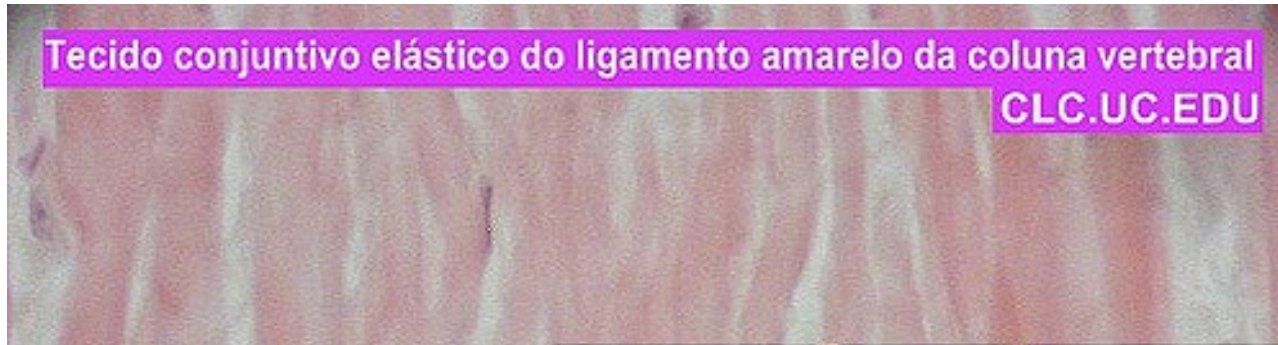


**Feixe  
de  
material  
elástico**

**LM** 435x

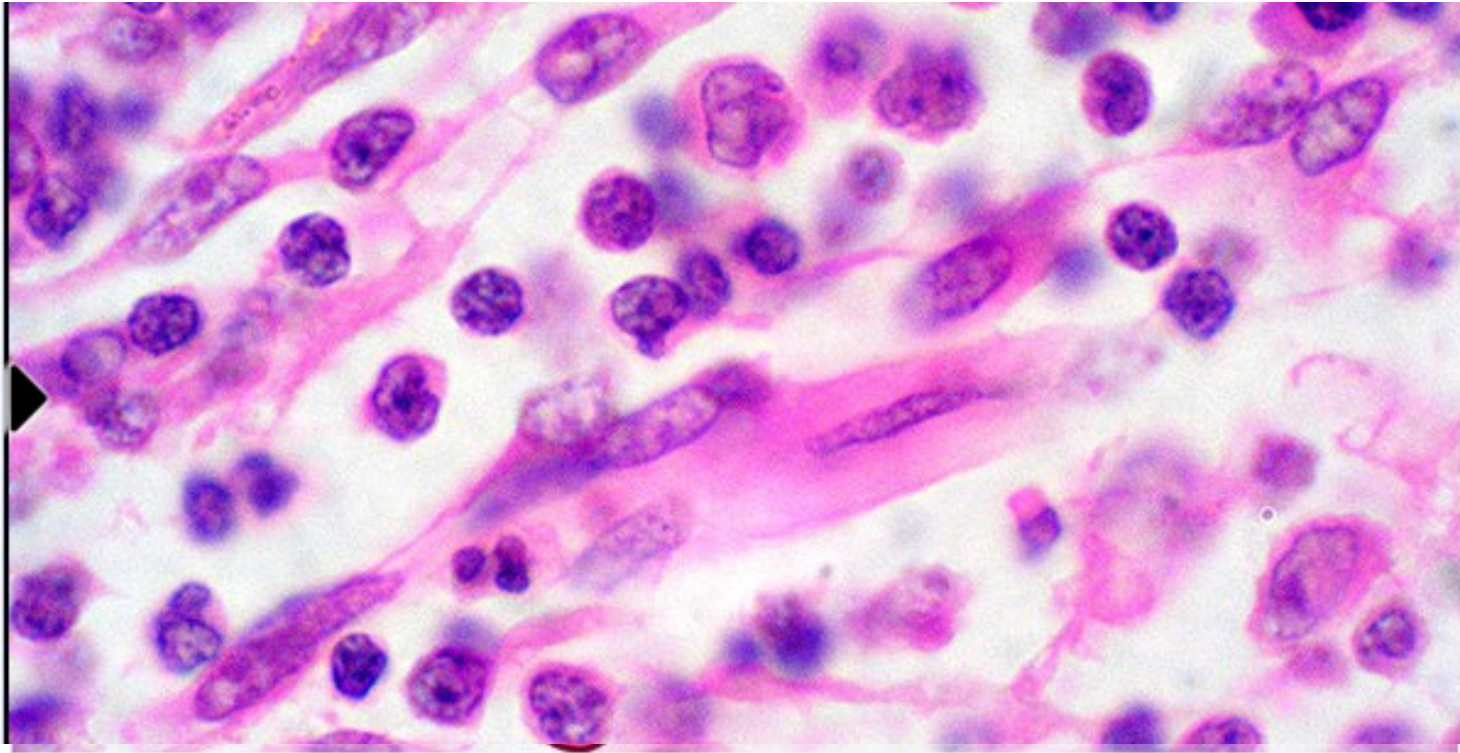
**Visão da seção do tecido  
conjuntivo elástico da aorta**

# Tecido Conjuntivo: Elástico



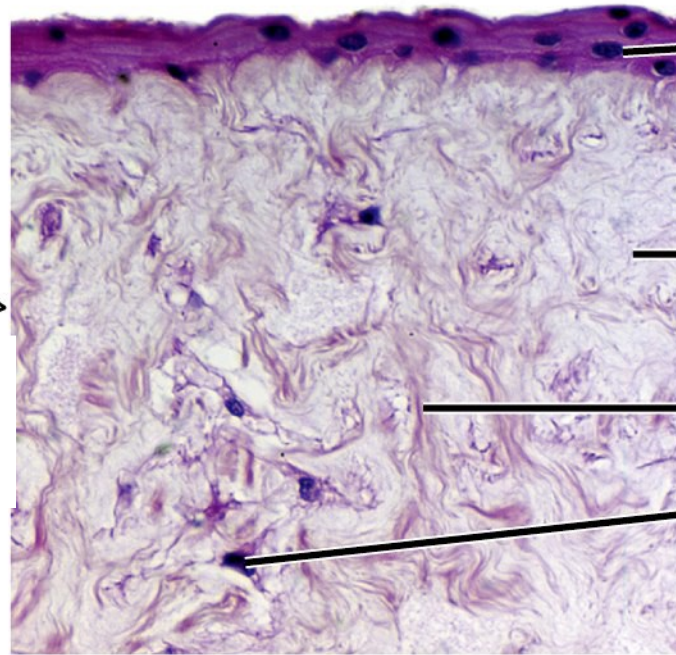
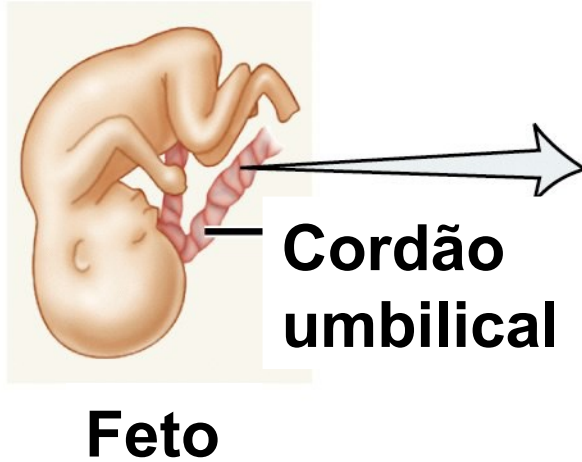
## *Tecido Conjuntivo: Reticular*

### **Tecido conjuntivo reticular ou hematopoético**



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# Tecido Conjuntivo: Mucoso



**Superfície epitelial do cordão umbilical**

**Substância fundamental**

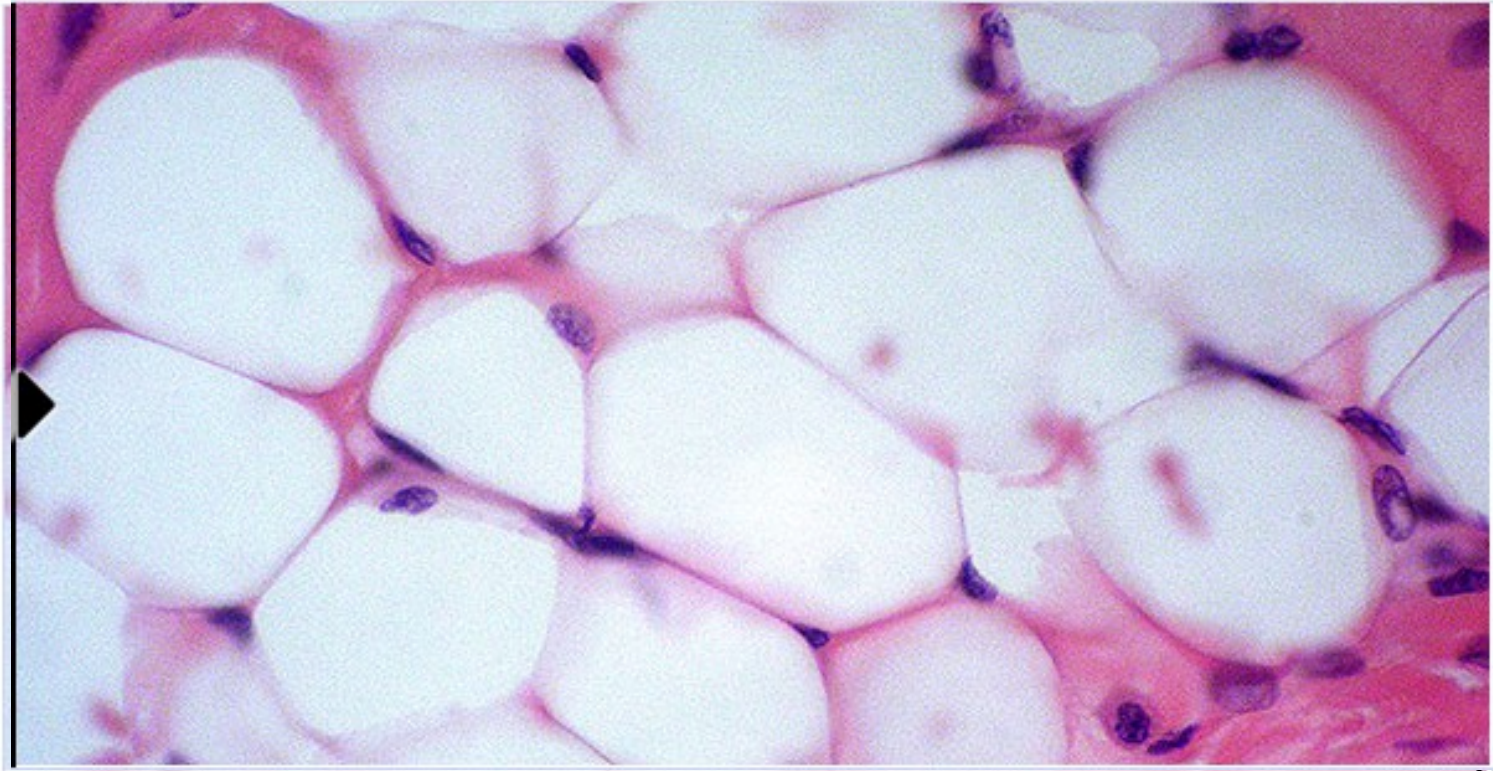
**Fibras colágenas**

**Núcleo do fibroblasto**

**LM 275x**

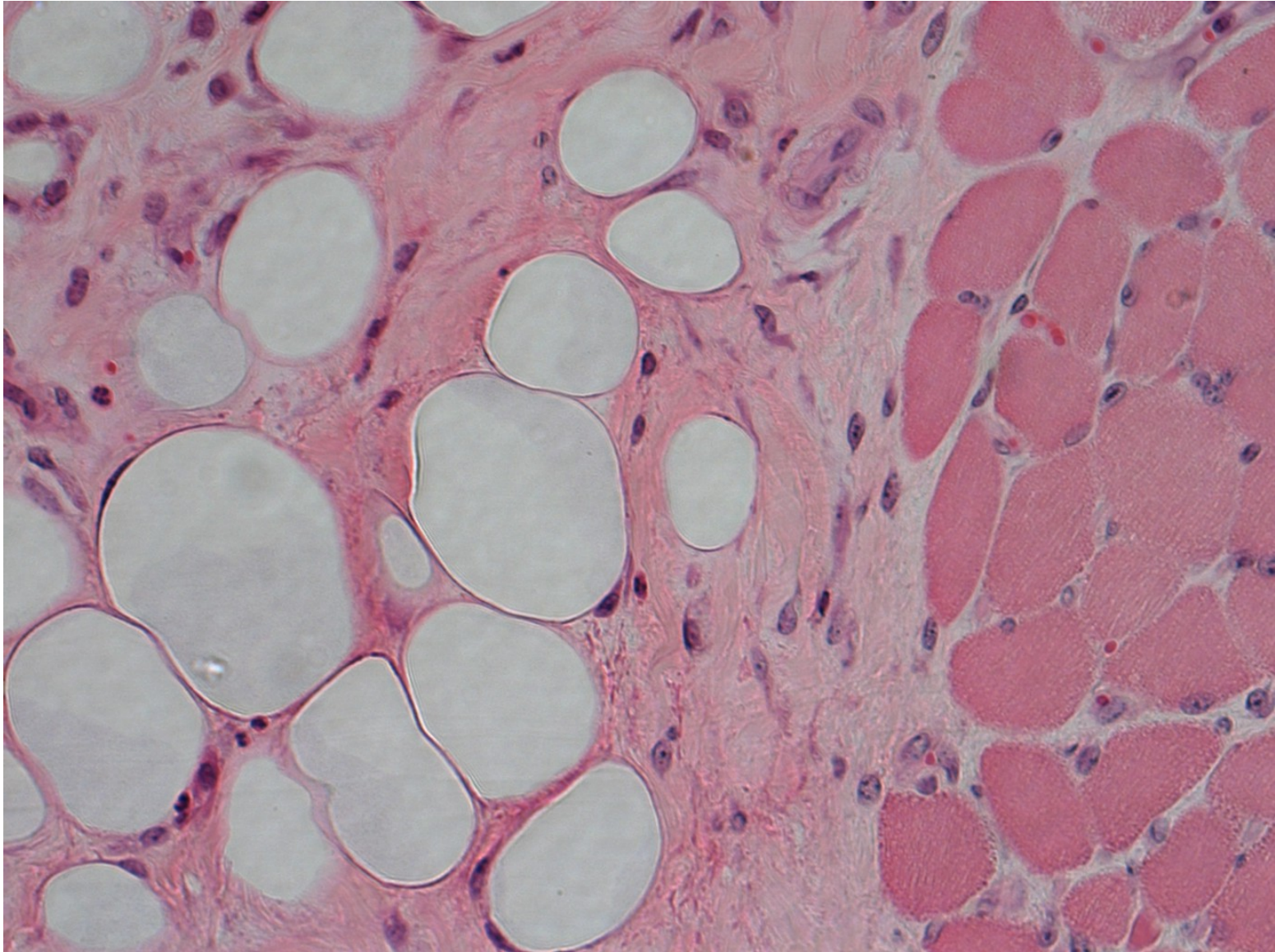
**Visão da seção do tecido conjuntivo mucoso do cordão umbilical**

## *Tecido Conjuntivo: Adiposo*



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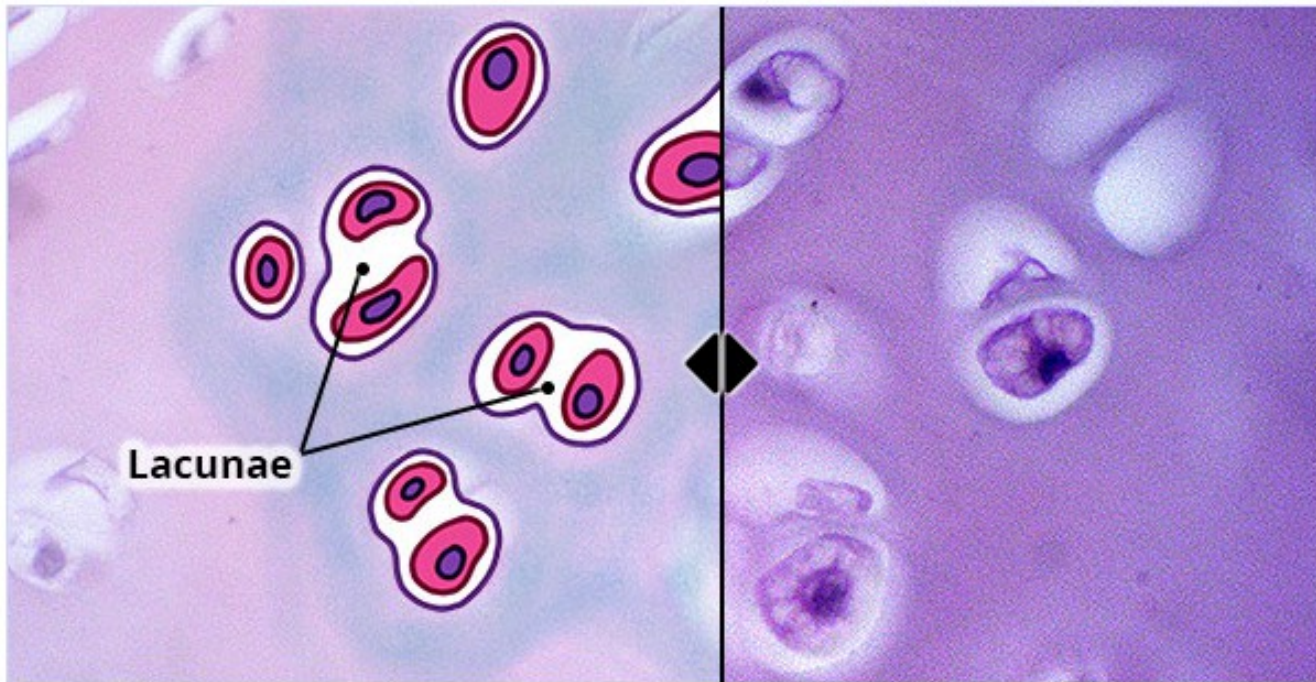
## *Tecido Conjuntivo: Adiposo*



Natália A. Aguiar

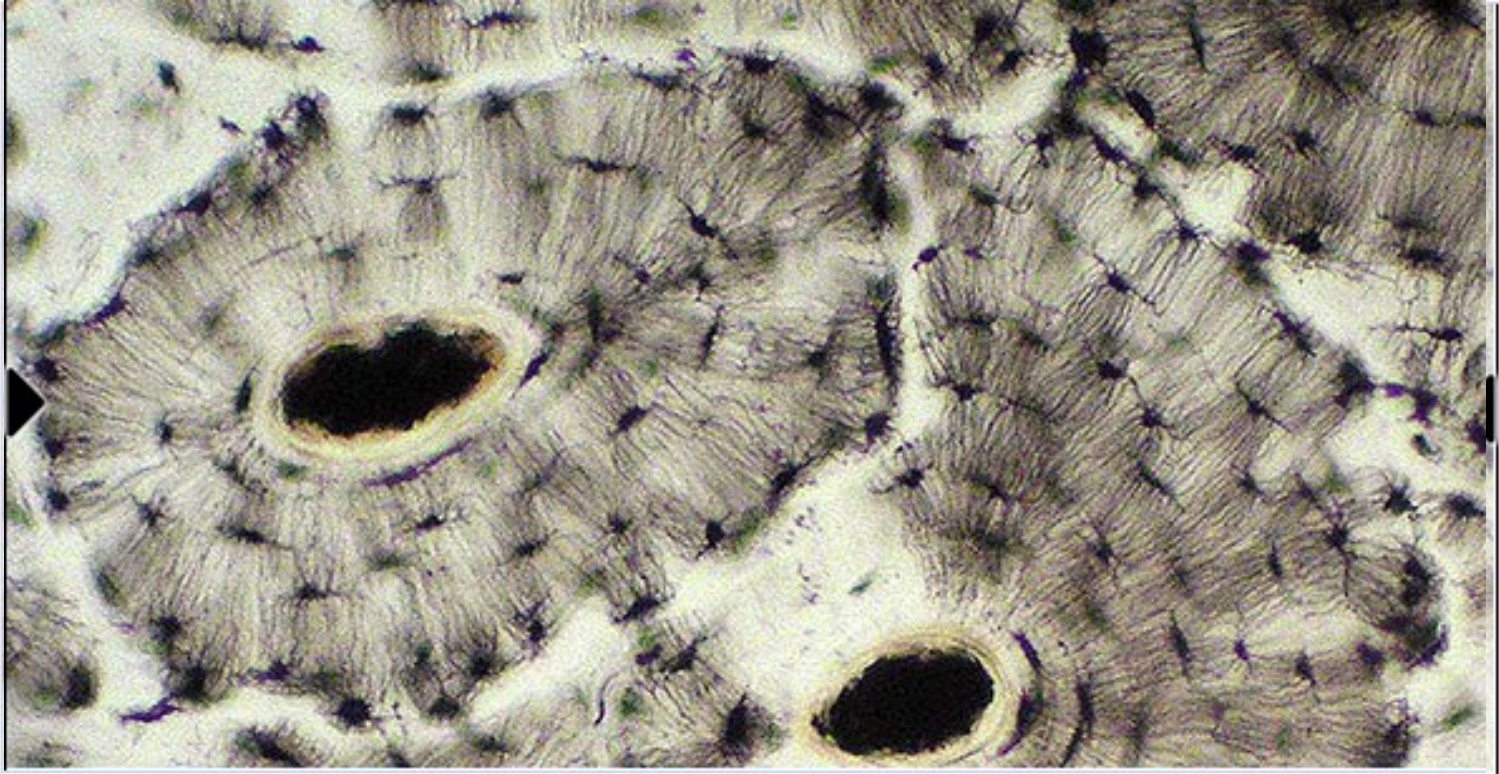


# Tecido Conjuntivo: Cartilaginoso



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# *Tecido Conjuntivo: Ósseo*



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# Flúidos Corpóreos: Sangue

# Funções do sangue

## Funções (5-8% do PC):

### ✓ Meio de transporte:

→ Gases, nutrientes, hormônios, produtos do metabolismo, eletrólitos (sais inorgânicos);

### ✓ Regulador:

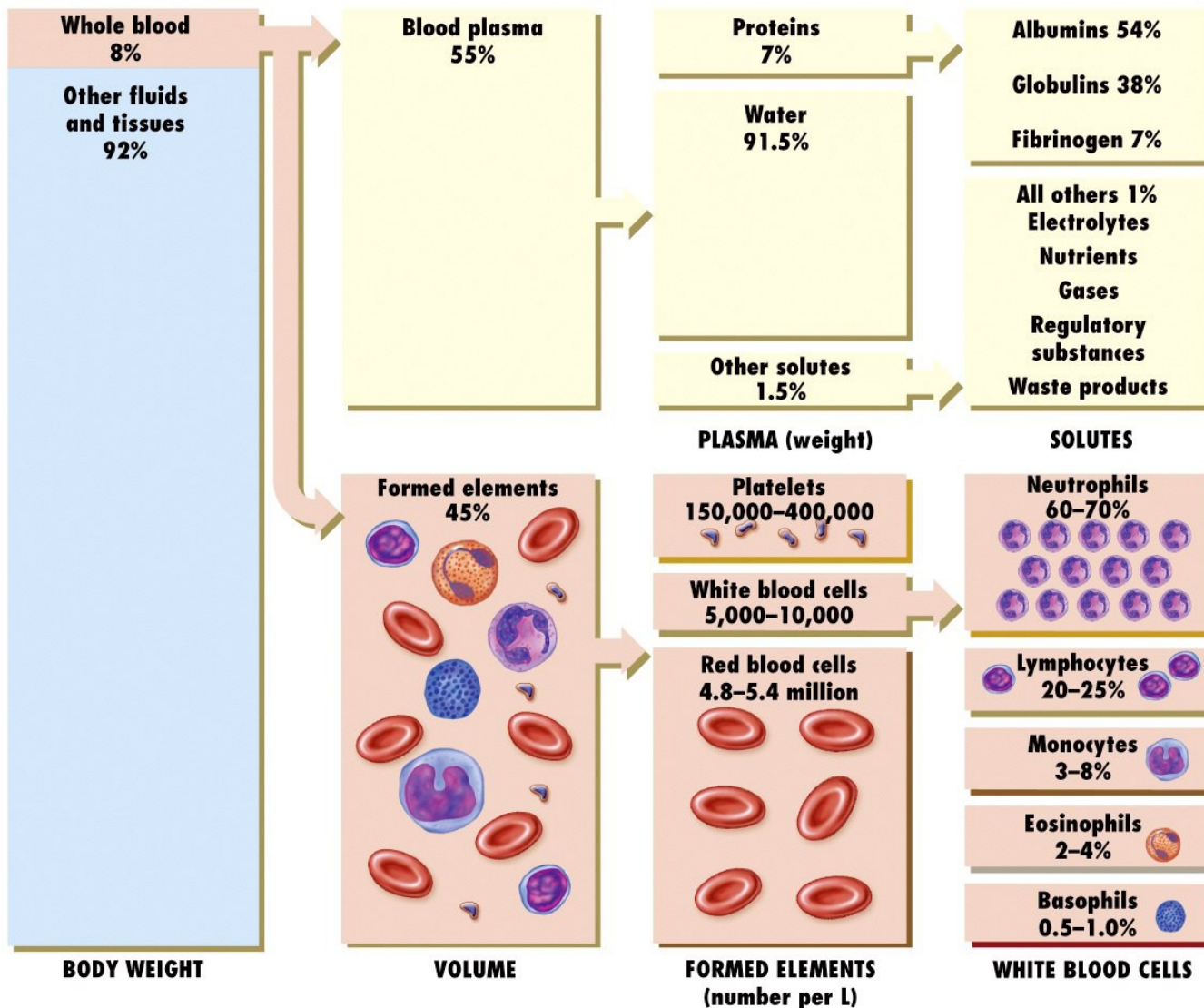
→ Sistema ácido-base;  
→ Osmótico e temperatura;

### ✓ Proteção:

→ Coagulação;  
→ Elementos de defesa.



# Composição do sangue: resumo



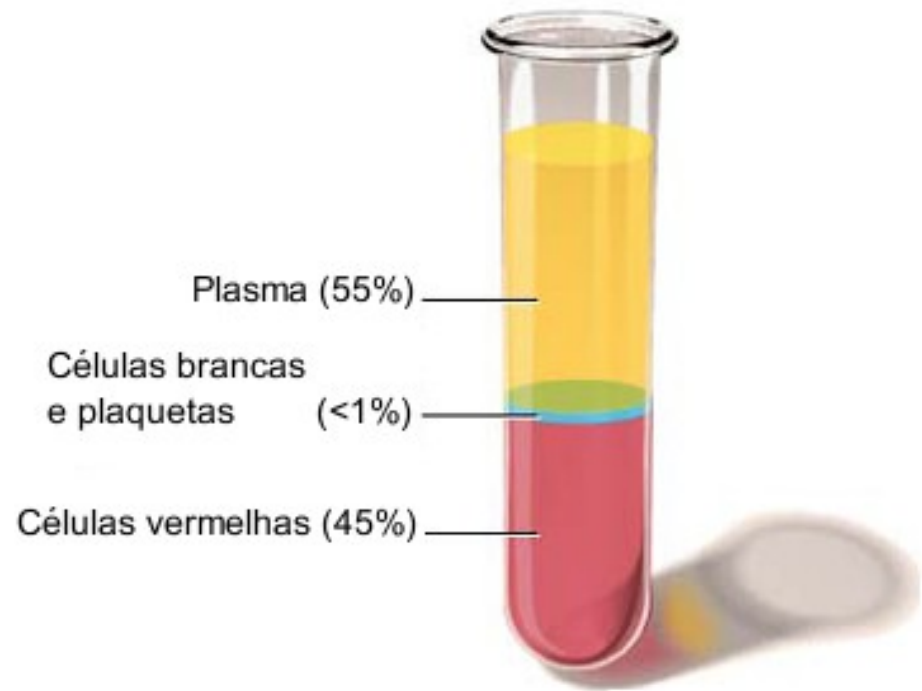
## Components of blood

Figure 19-1b Principles of Anatomy and Physiology, 11/e

## Composição do sangue

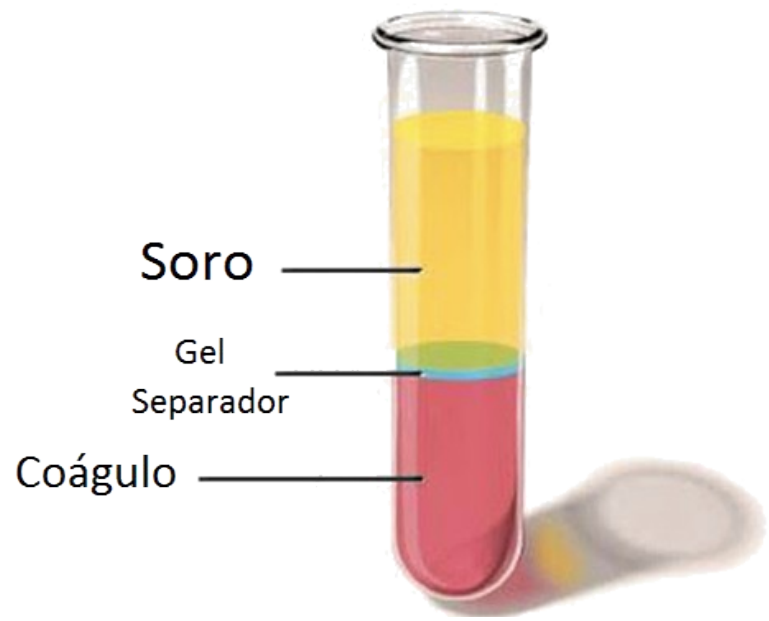
Elementos figurados – 40 - 55%;

Plasma – 45 - 60%.



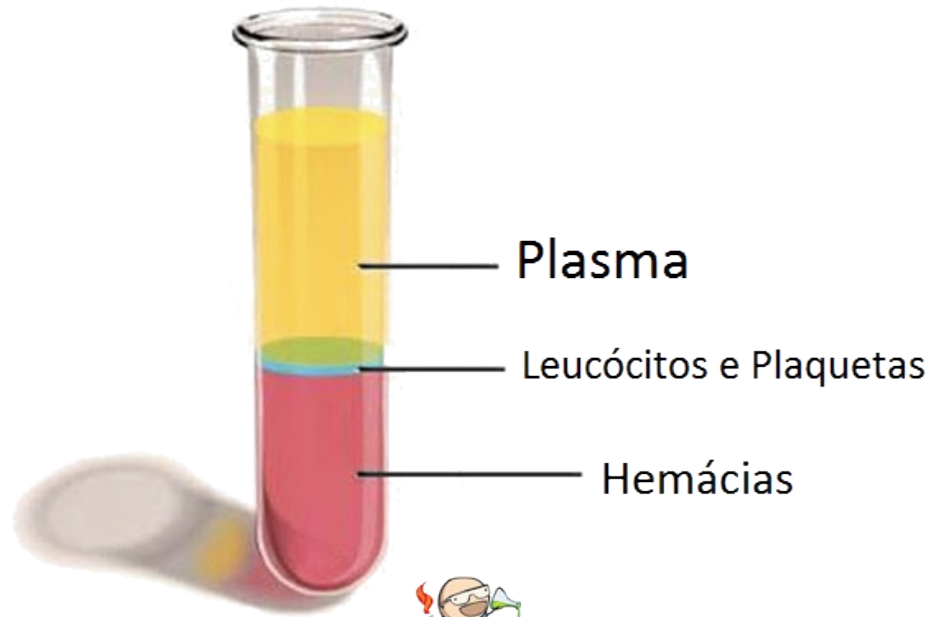
# Composição do sangue

Tubo de tampa Amarela



Fatores da coagulação não presentes

Tubo de tampa Roxa



Todos os fatores da coagulação presentes

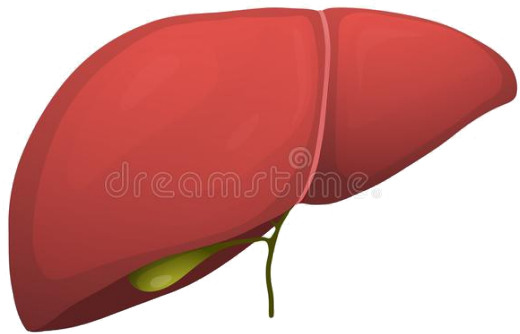
## Composição do sangue: resumo

Água	%	90
Proteínas	g/dL	7 a 9 (e.g. albuminas, globulinas, fibrinogênio etc.)
Colesterol	mg/dL	60 a 200
Gorduras neutras		150
Glicose		40 - 120
Nitrogênio da Uréia		8 a 30
Ácido úrico		0,1 a 3
Creatinina		1 a 2
Sódio		mEq/L
Potássio	2,5 a 6,7	
Cálcio	4,5 a 6,0	
Fósforo	2 a 7	
Magnésio	1,5 a 3	
Cloro	95 a 120	

Fonte:  
Dukes  
Fisiologia dos  
animais  
domésticos -  
modificado



# Proteínas plasmáticas



- Albumina

- Algumas globulinas ( $\gamma$ )

- Fibrinogênio

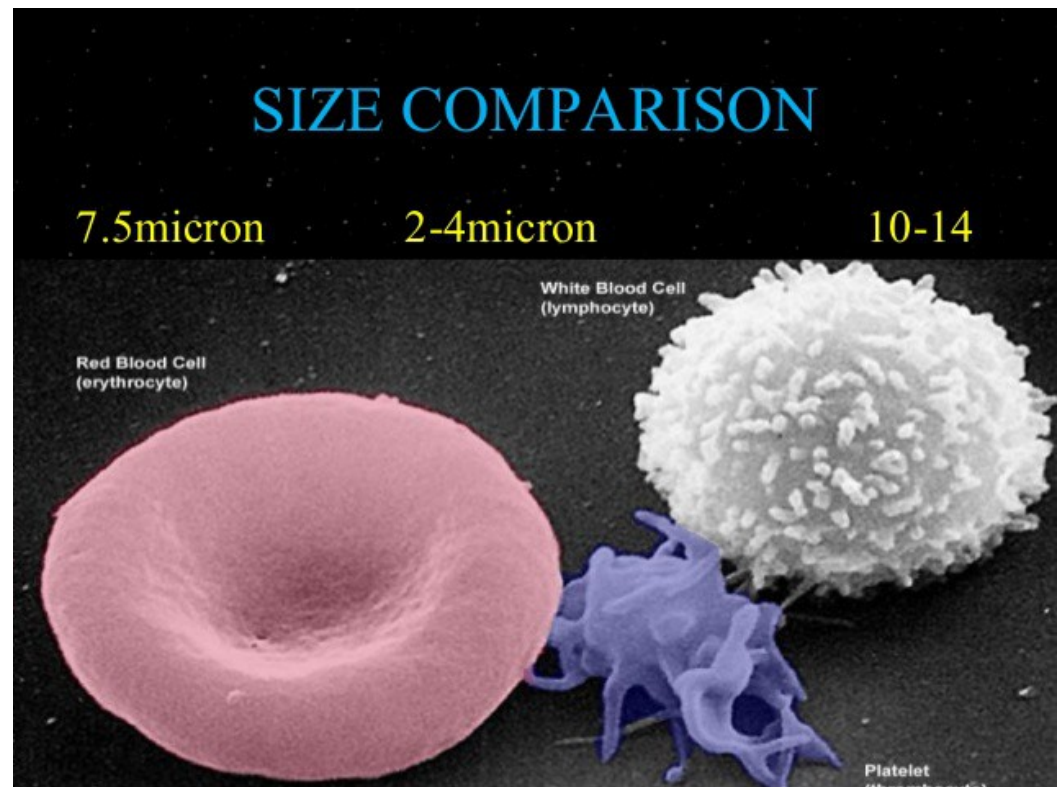
Aminoácidos dos processos digestivos é inadequado.

PT plasmáticas podem ser degradadas a aminoácidos por células do SMF

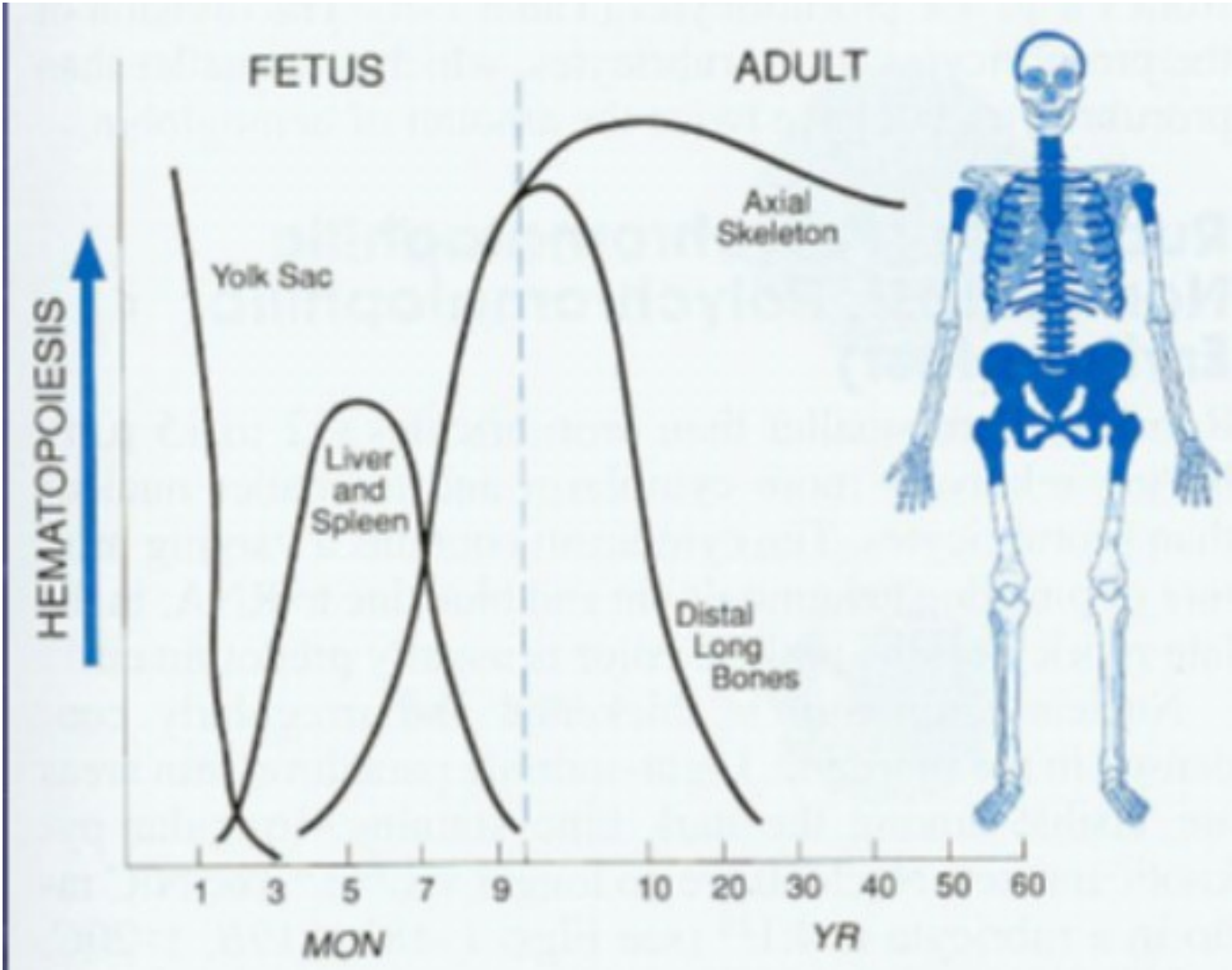
> disponíveis para a síntese de proteínas celulares

## Composição do sangue: ELEMENTOS FIGURADOS

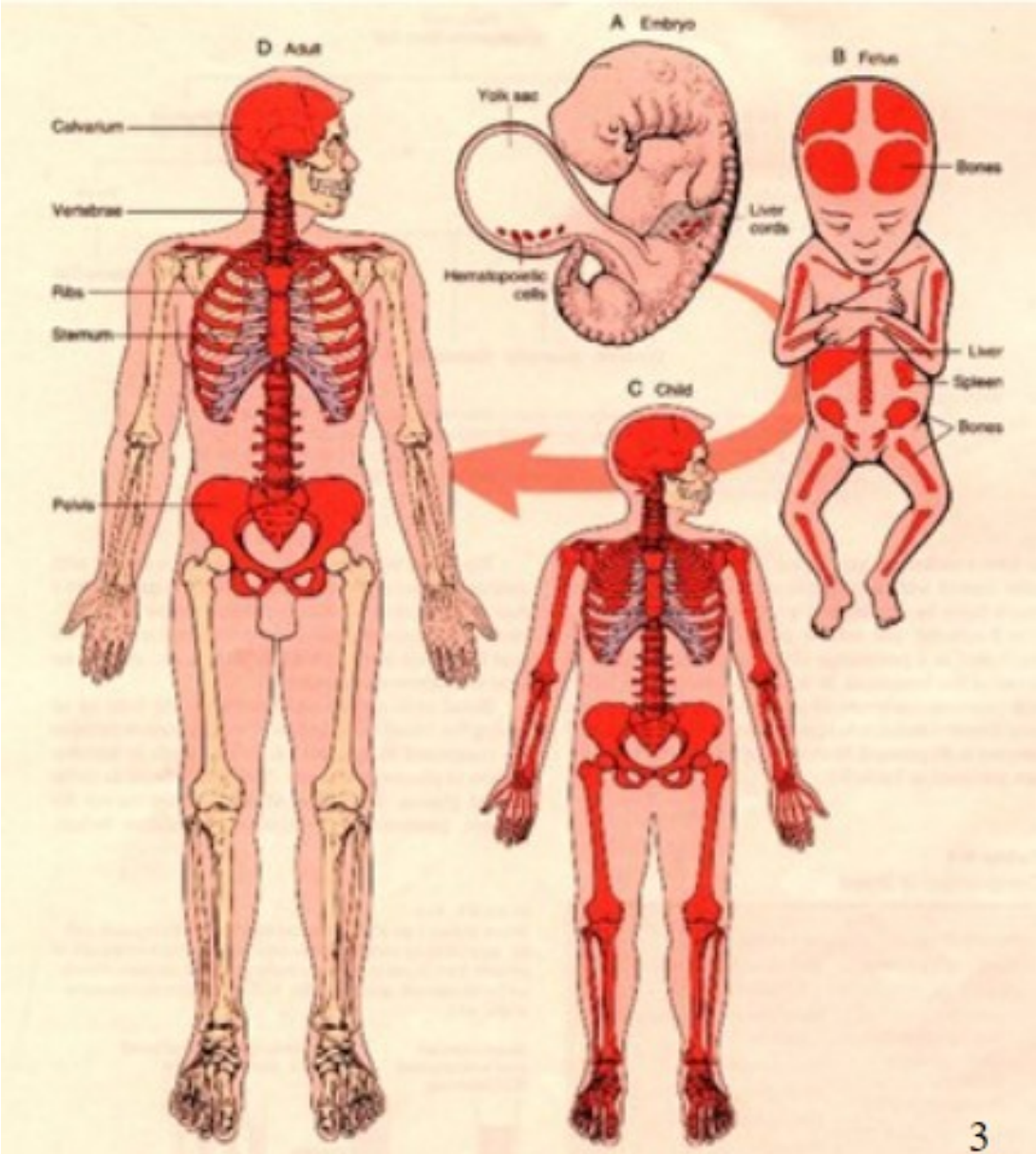
- ✓ Glóbulos vermelhos: hemácias e eritrócitos;
- ✓ Glóbulos brancos: leucócitos;
- ✓ Plaquetas.



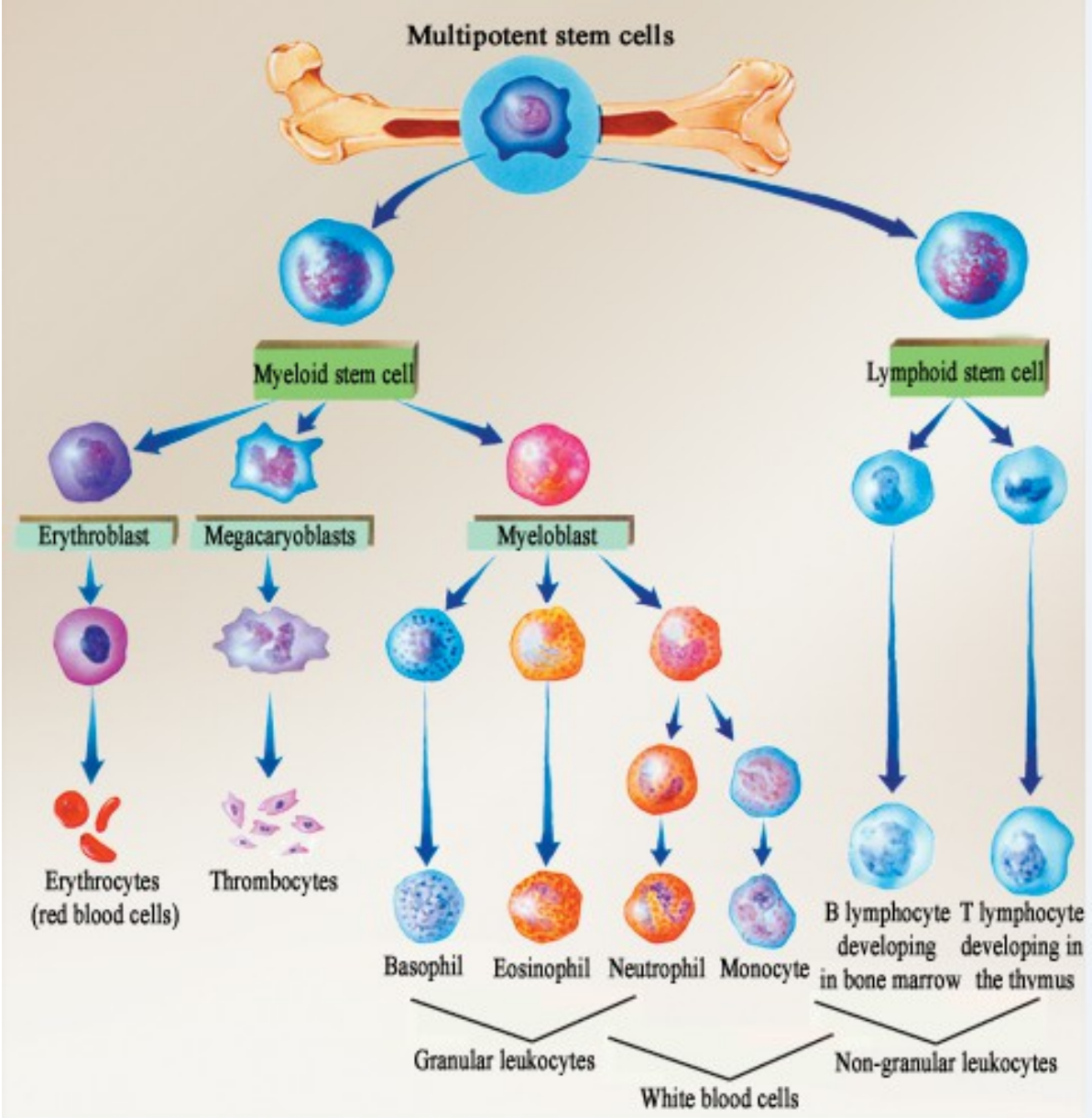
# Produção do sangue: HEMOCITOPOIESE



# Produção do sangue: HEMOCITOPOIESE



# Composição do sangue: ELEMENTOS FIGURADOS



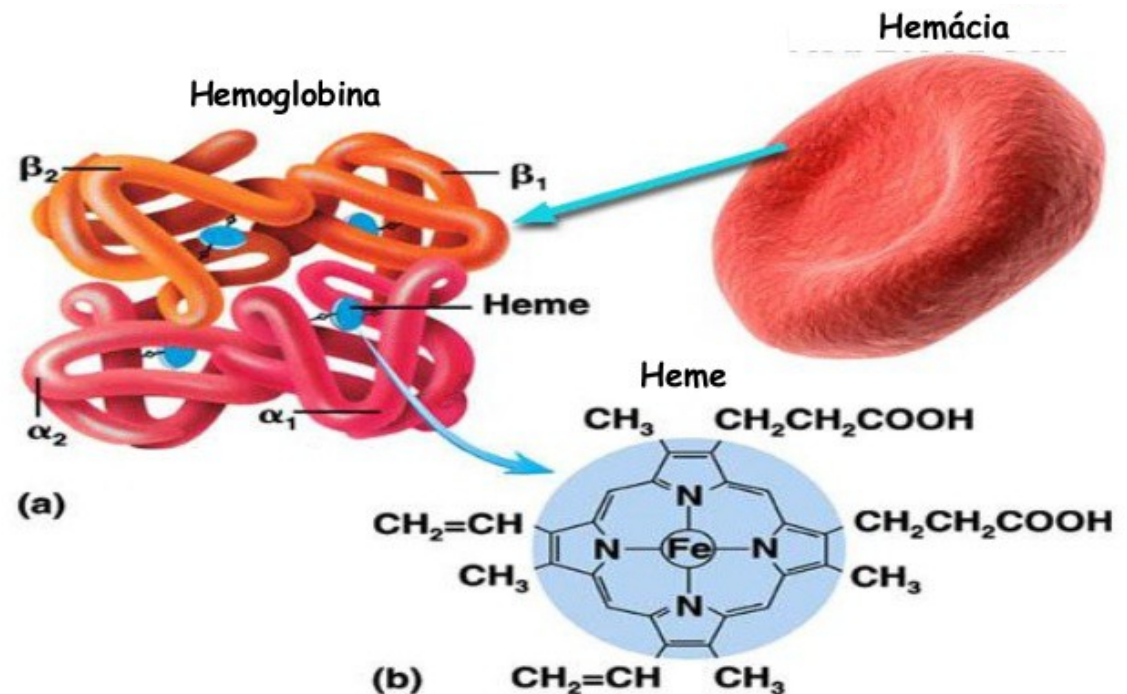
A microscopic view of several red blood cells (erythrocytes) in a blood vessel. The cells are biconcave discs, appearing as reddish, oval shapes with a darker center. The background is a dark, reddish-brown color, suggesting the surrounding plasma. The text "Glóbulos vermelhos" is overlaid in the center in a yellow, sans-serif font.

Glóbulos vermelhos

## Composição do sangue: ELEMENTOS FIGURADOS

Glóbulos vermelhos = Eritrócitos ou hemácias

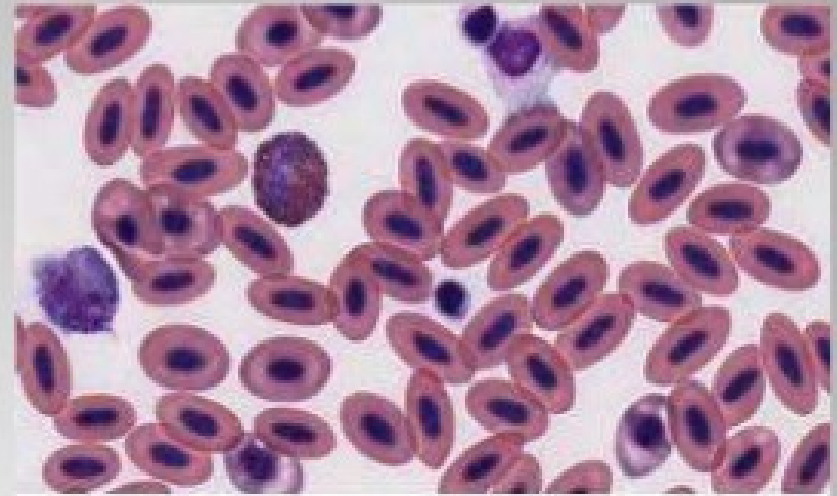
- O principal componente dos eritrócitos é a **hemoglobina (Hb)**
  - 1/3 do conteúdo do eritrócito
  - Água e estroma



## Composição do sangue: ELEMENTOS FIGURADOS

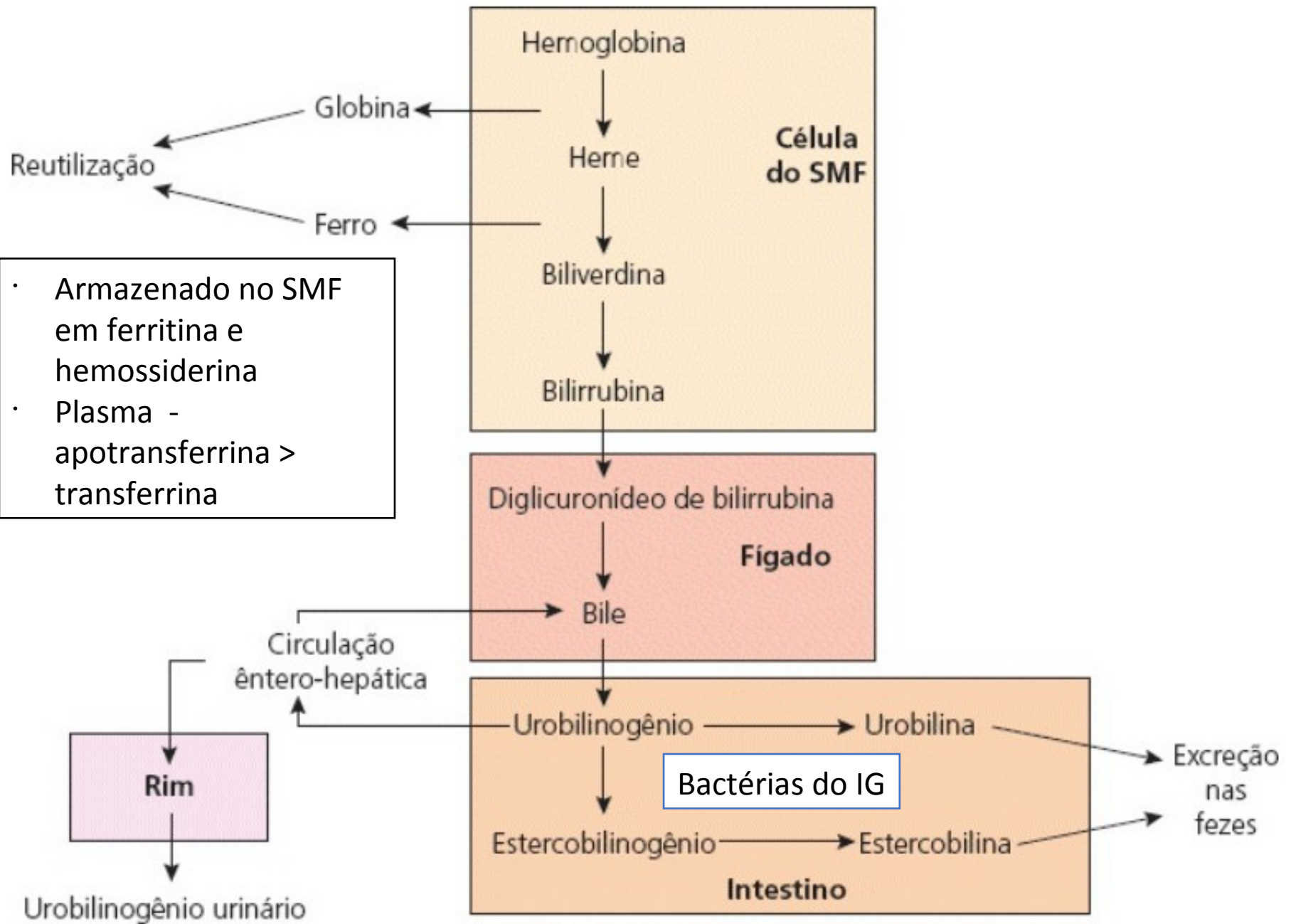


**Camelid** : Erythrocytes normal elliptical in shape and no central pallor.

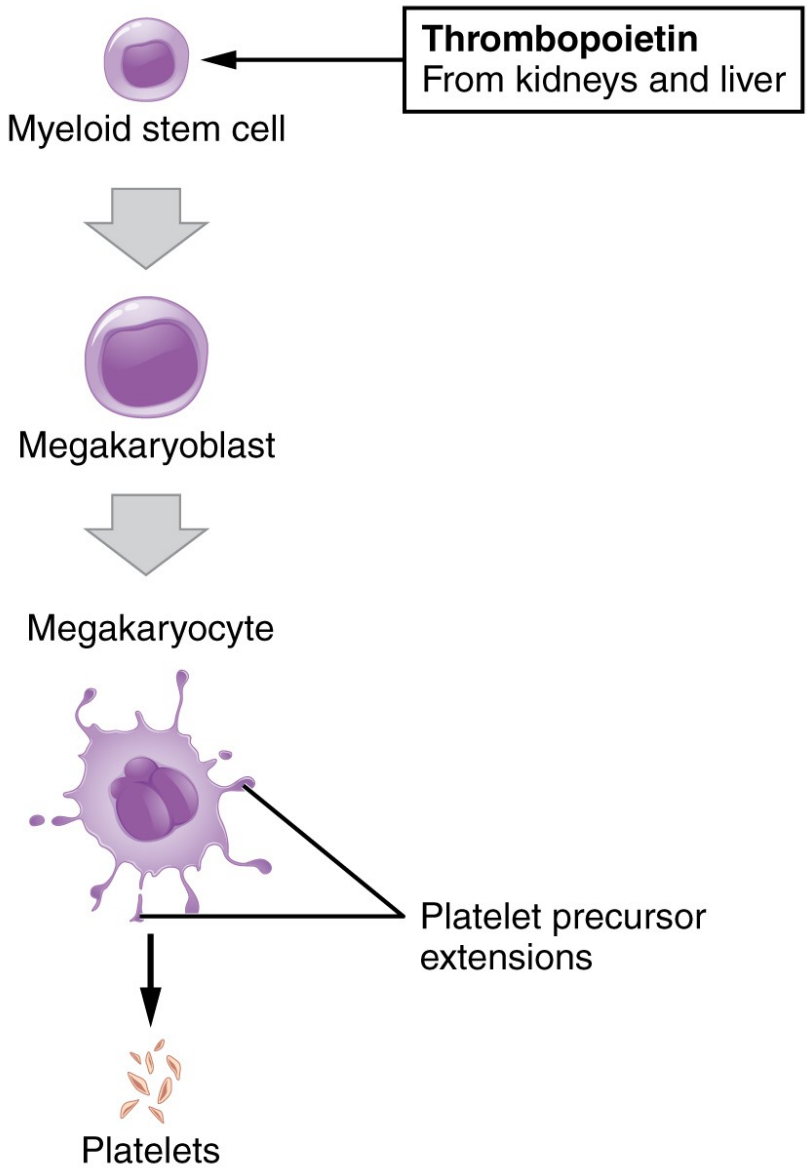


**Avian, Amphibian, Fish** : Mature erythrocytes of the chicken are very different from those of domestic mammals. They are large, elongated, flat cells with an oval nucleus.





# Composição do sangue: ELEMENTOS FIGURADOS



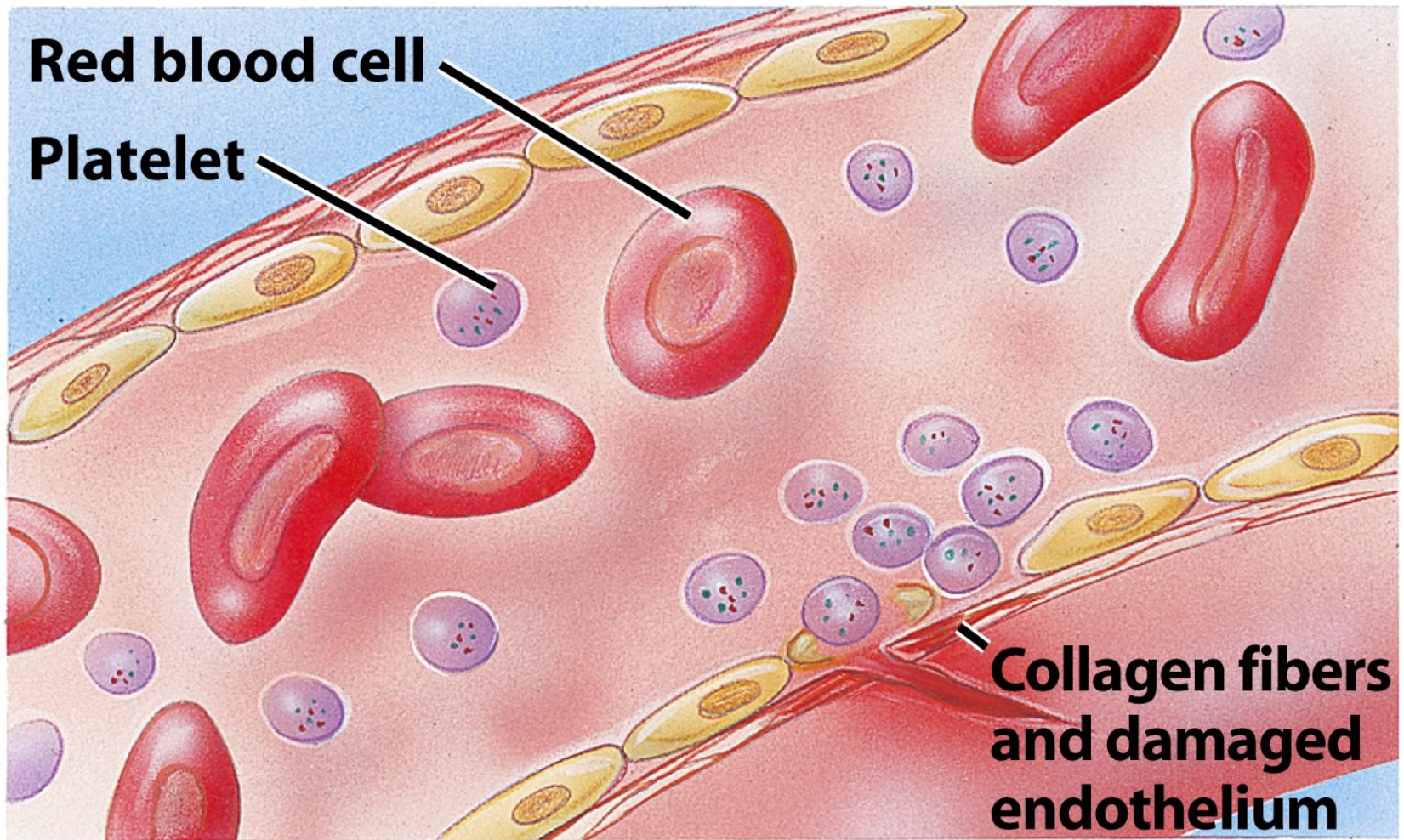
## Plaquetas

## *Composição do sangue: ELEMENTOS FIGURADOS*

### Plaquetas

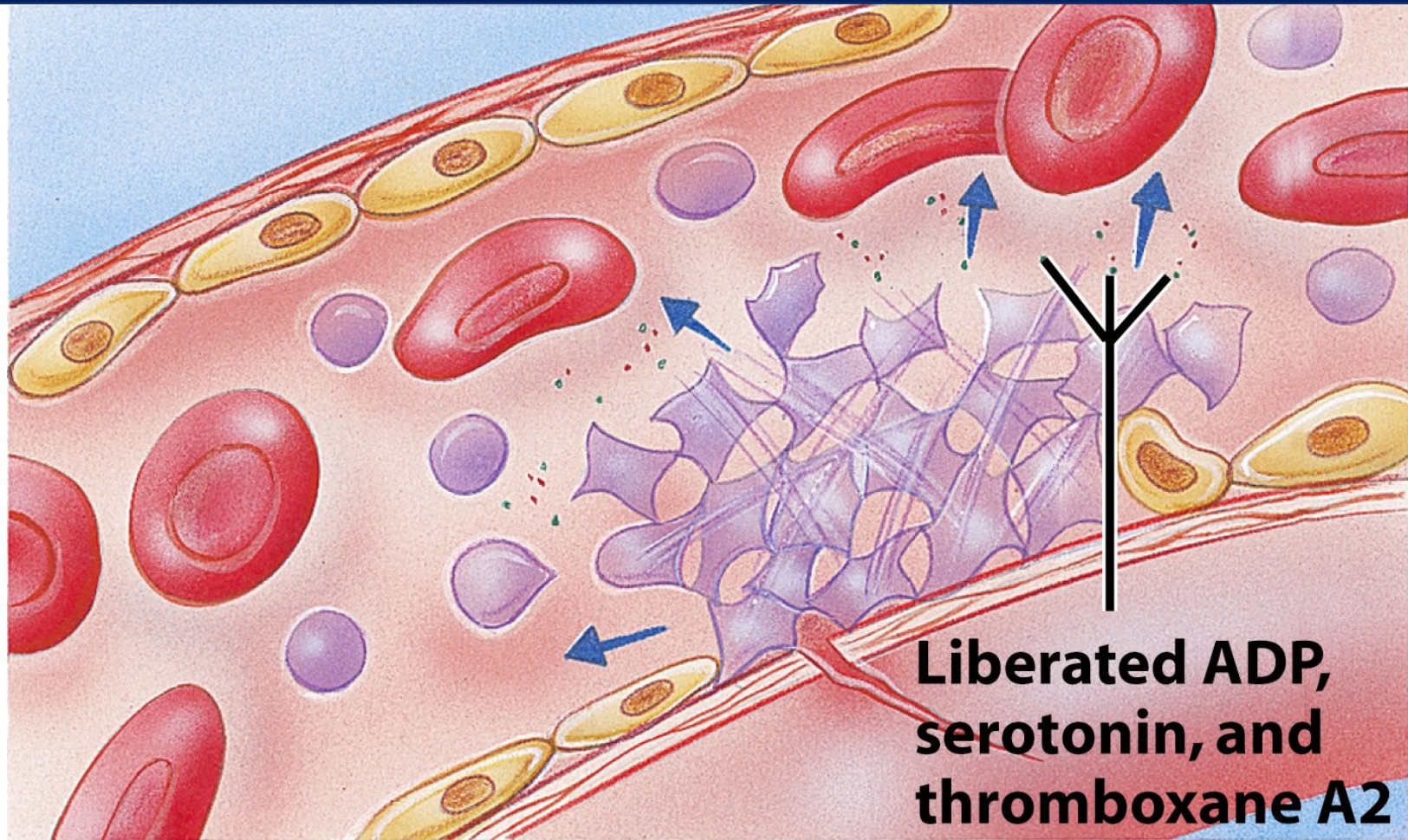


# Composição do sangue: ELEMENTOS FIGURADOS - PLAQUETAS



## 1 Agregação primária das plaquetas

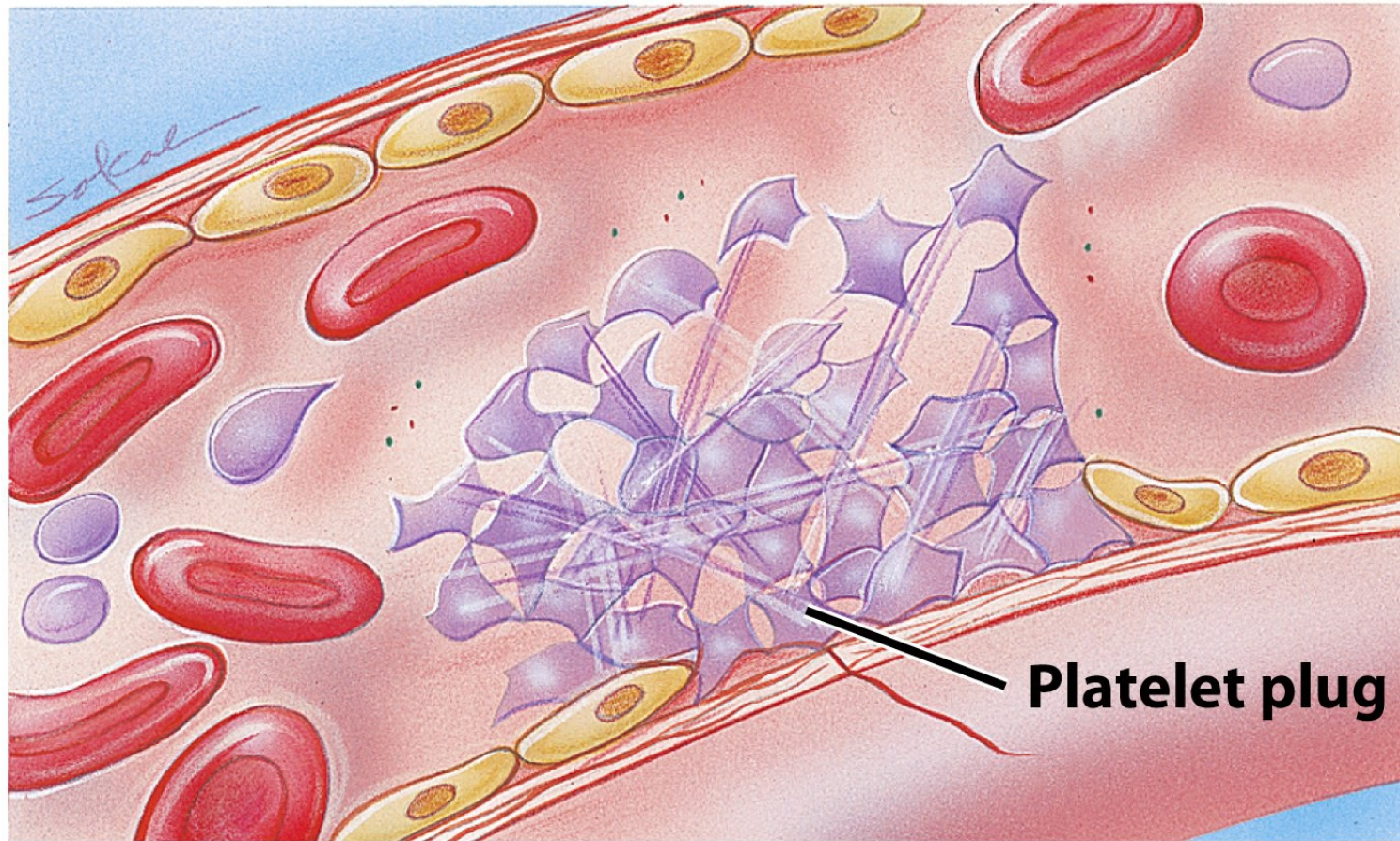
## Composição do sangue: ELEMENTOS FIGURADOS - PLAQUETAS



2

Tampão plaquetário seguido de agregação secundária

# Composição do sangue: ELEMENTOS FIGURADOS - PLAQUETAS

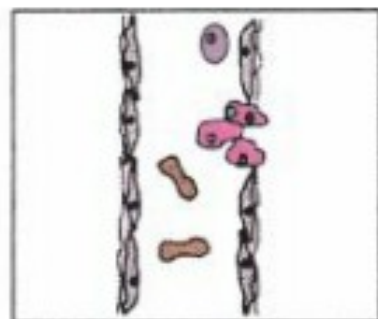


3

**Formação do coágulo com  
plaquetas e fibrina**

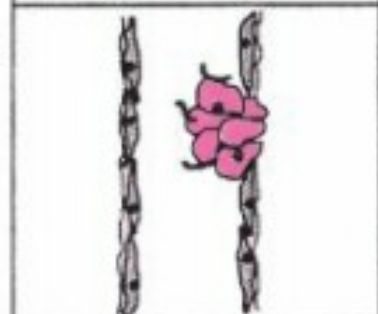
Figure 19-9 part 3 Principles of Anatomy and Physiology  
© 2006 John Wiley & Sons

1



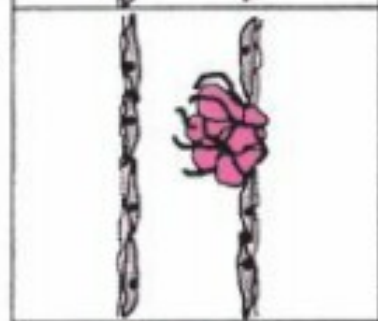
- Lesão vascular
- Vasoconstrição
- Adesão das plaquetas

2



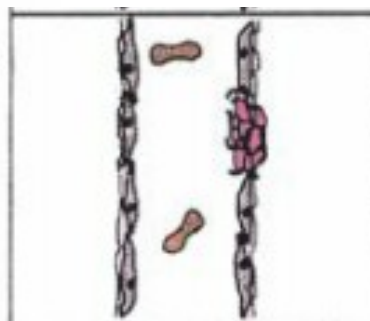
- Recrutamento das plaquetas
- Agregação plaquetária
- Início da formação de fibrina
- Tampão hemostático primário

3



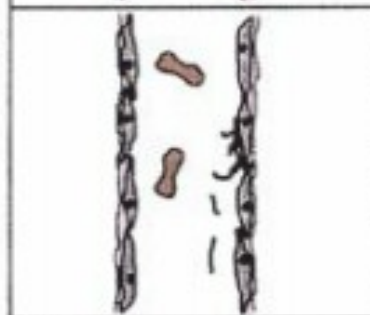
- Reforço do tampão com fibrina
- Formação de trombo

4



- Retração do coágulo
- Ativação da fibrinólise

5



- Reparo endotelial
- Degradação do coágulo de fibrina

A grayscale micrograph showing a central white blood cell (leukocyte) with a large, multi-lobed nucleus and a granular cytoplasm. The cell is surrounded by other cells, which appear as smoother, more rounded shapes. The text "Glóbulos brancos" is overlaid in orange on the central cell.

Glóbulos brancos



# Composição do sangue: ELEMENTOS FIGURADOS

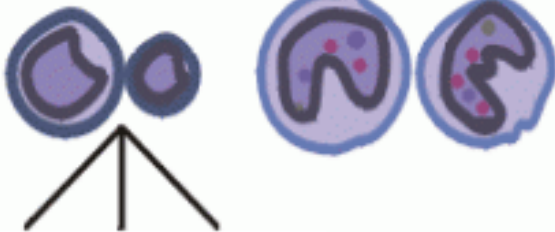
## Glóbulos brancos = leucócitos

# LEUCÓCITOS

## Agranular

Linfócitos  
20-25%

Monócitos  
3-8%



Célula T, Célula B, NK

## Granular

Basófilos  
0,5-1%

Neutrófilos  
60-70%

Eosinófilos  
2-4%

### GRANULÓCITOS



Neutrófilo



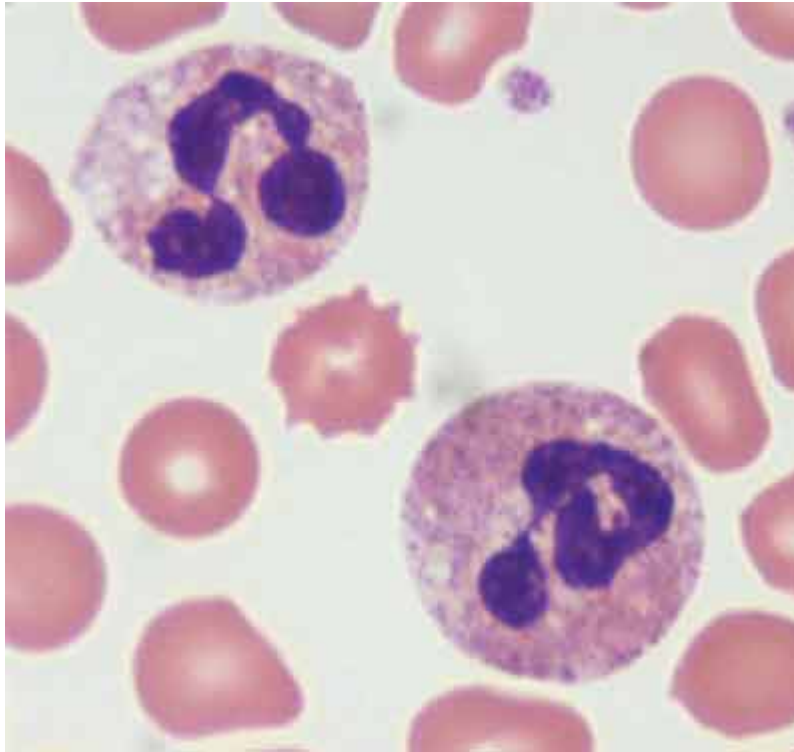
Eosinófilo



Basófilo

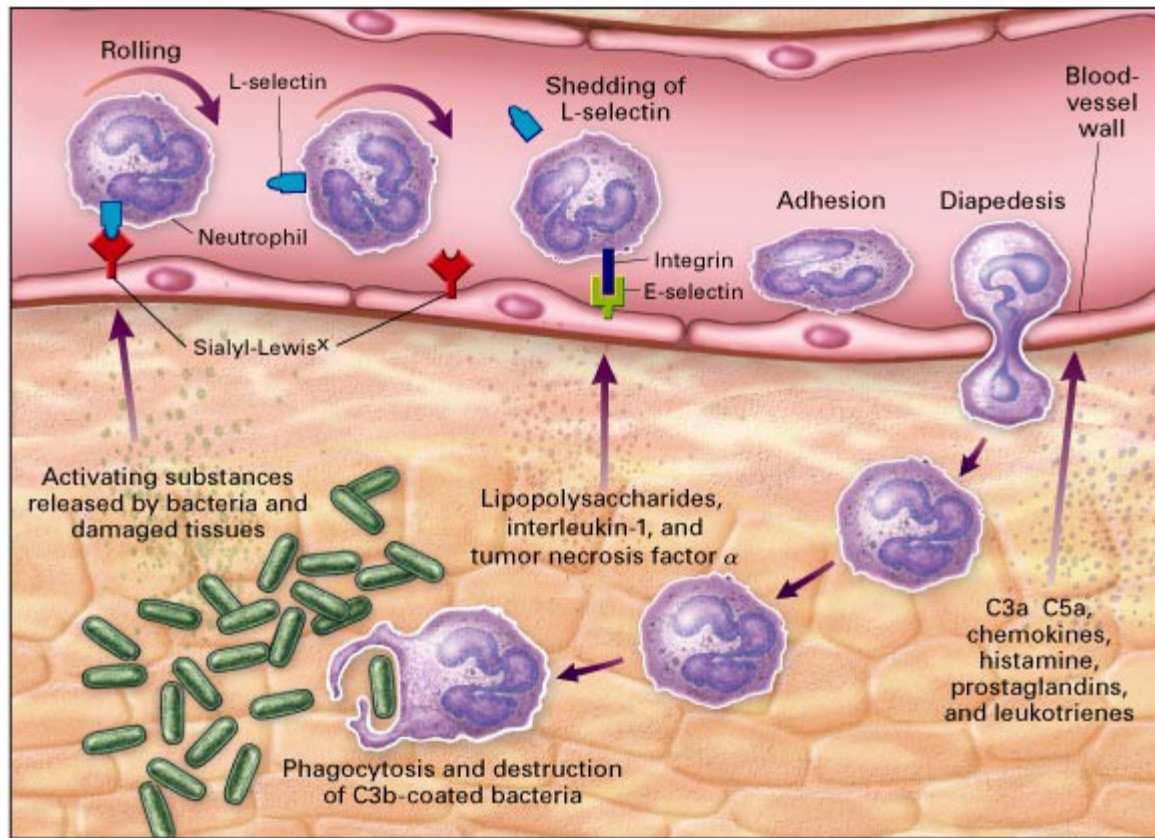
## *Composição do sangue: ELEMENTOS FIGURADOS*

### Granulócito Neutrófilo

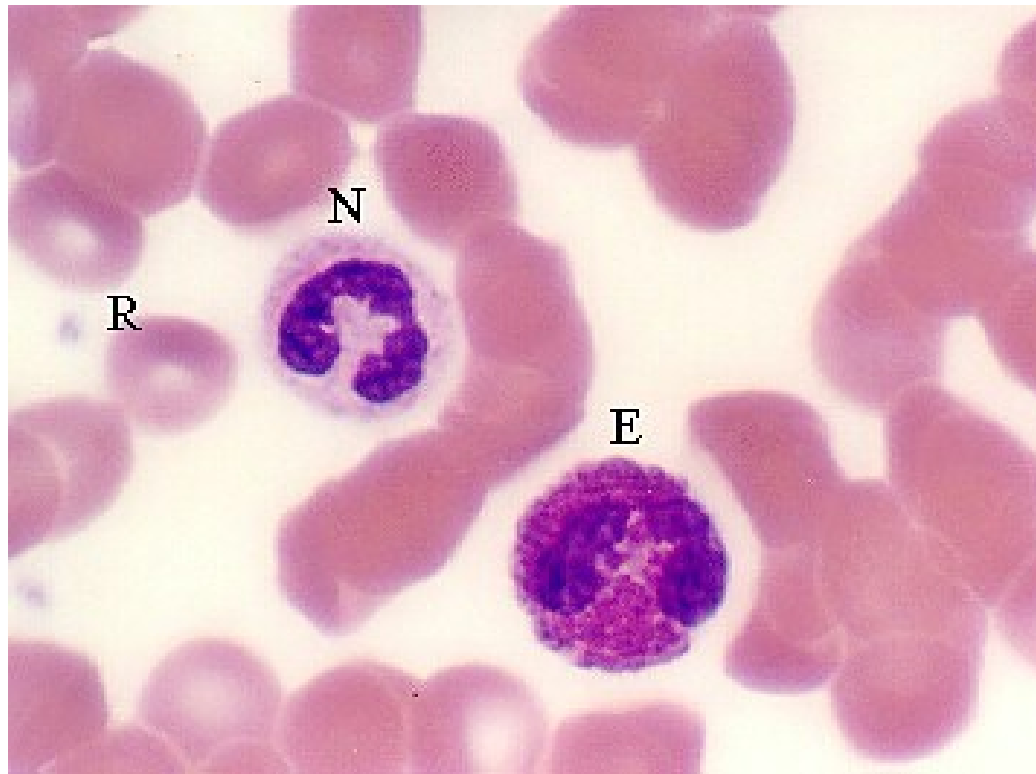


# Composição do sangue: ELEMENTOS FIGURADOS

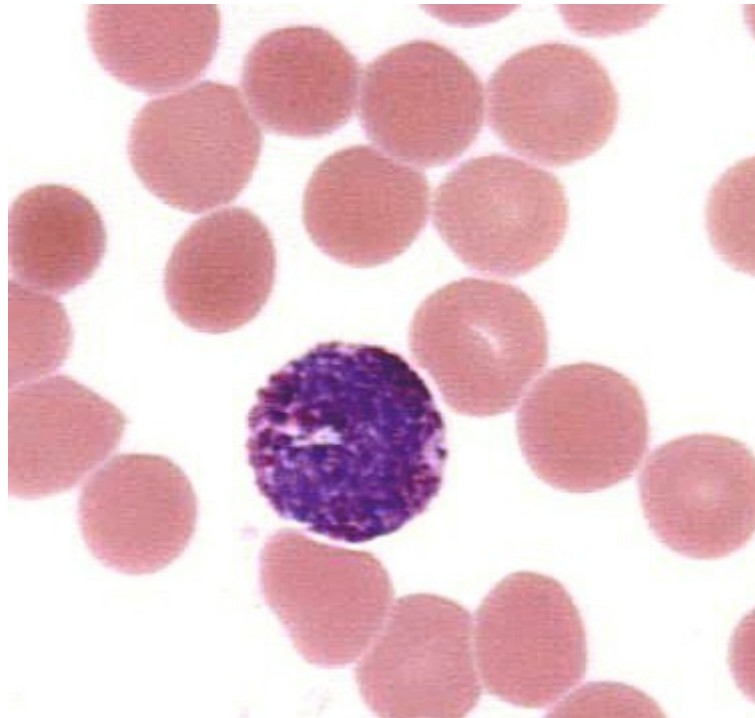
## Granulócito Neutrófilo



## Granulócito Eosinófilo



## Granulócito Basófilo



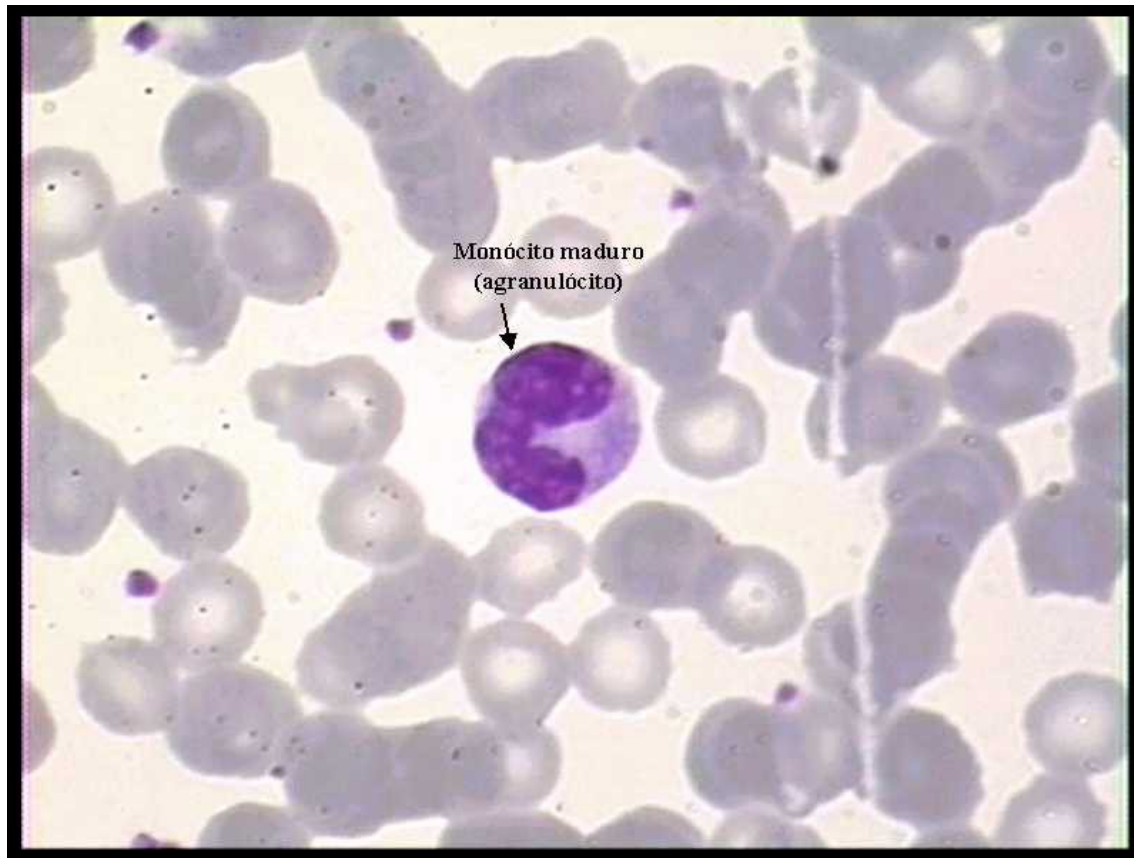
## *Composição do sangue: ELEMENTOS FIGURADOS*

### Agranulócito Linfócito



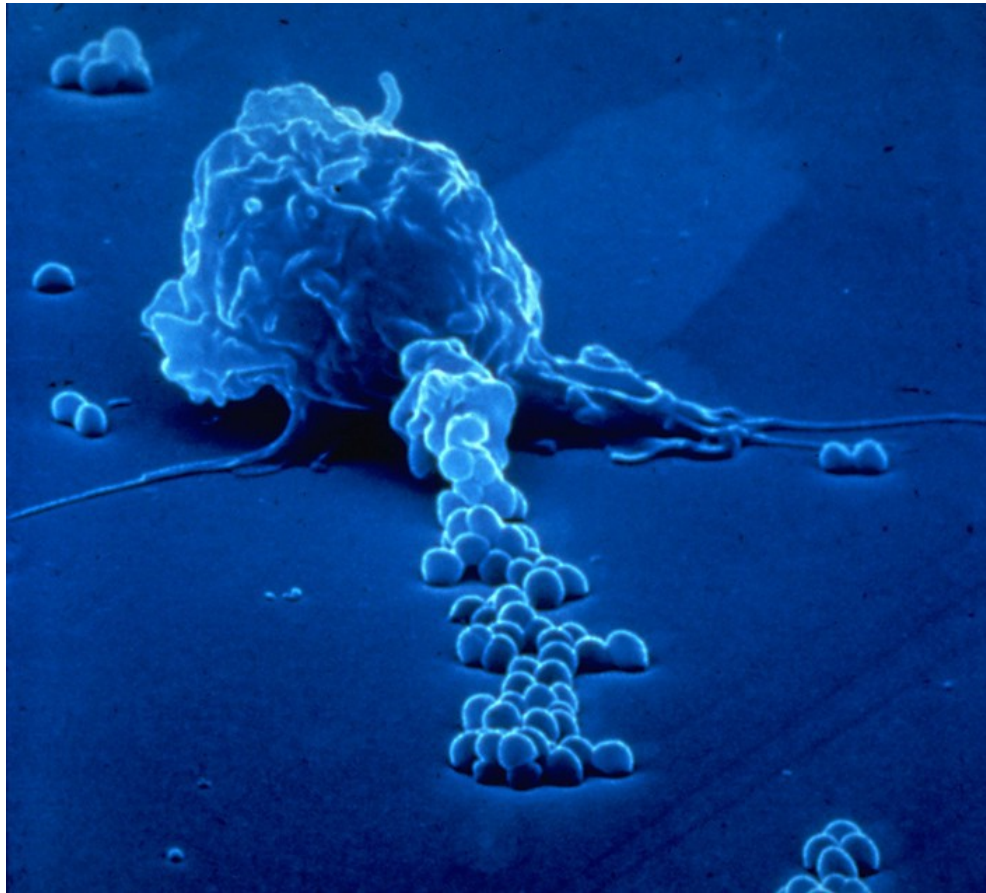
## Composição do sangue: ELEMENTOS FIGURADOS

### Agranulócito Monócito



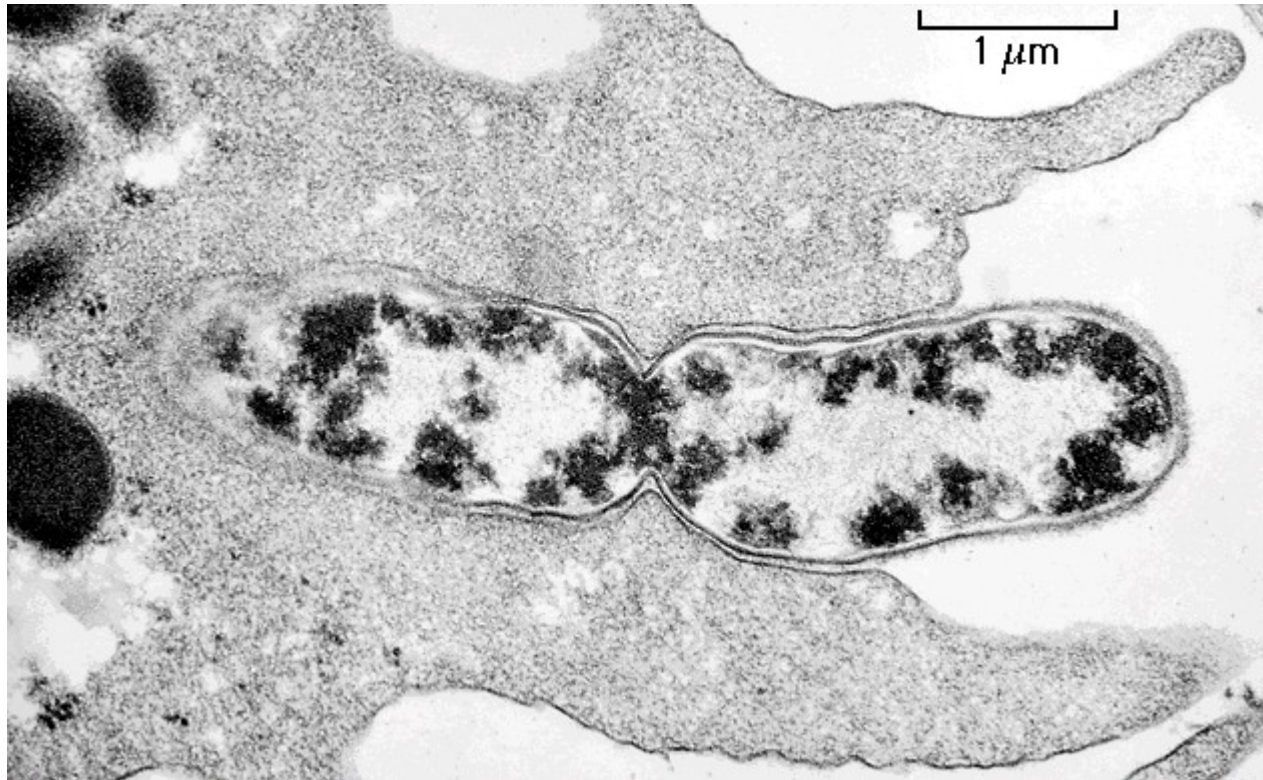
## *Composição do sangue: ELEMENTOS FIGURADOS*

### Agranulócito Monócito





# Fagocitose



# Imunidade Adquirida Mediada por Células

