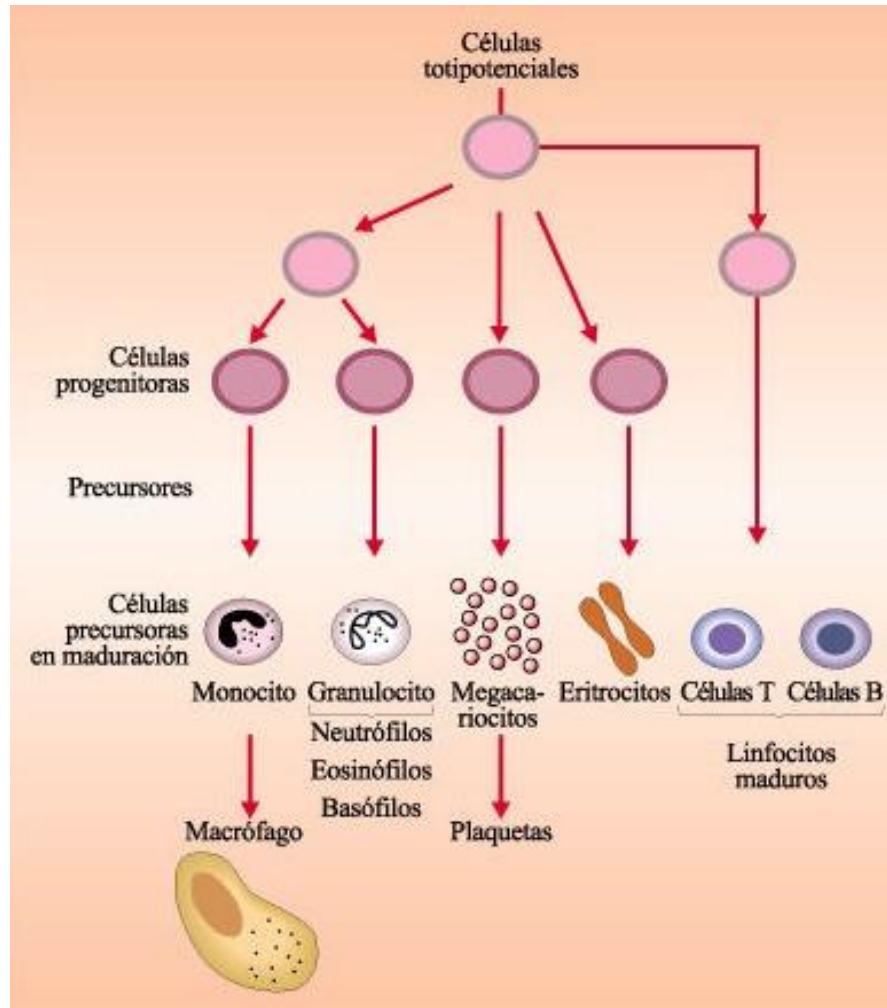


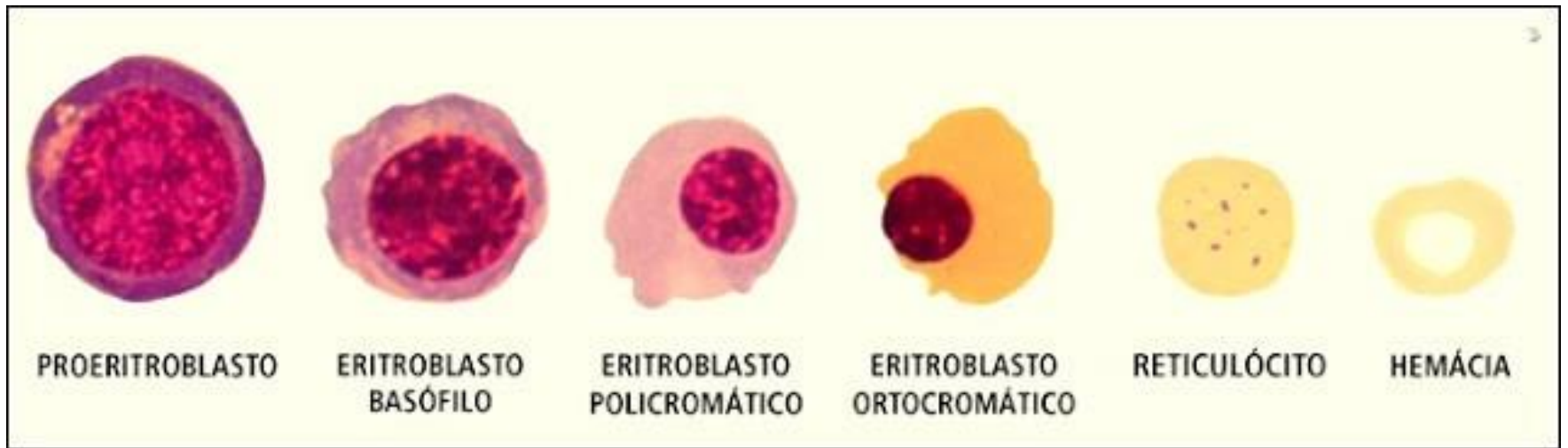
# Anemias

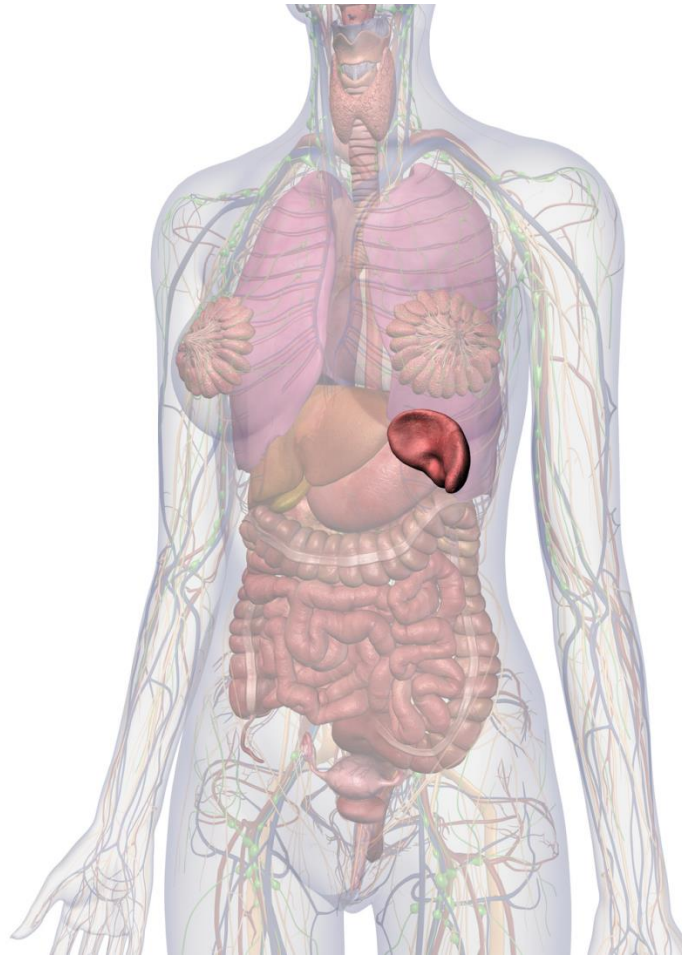
Chiara Beletato

# Hematopoiense

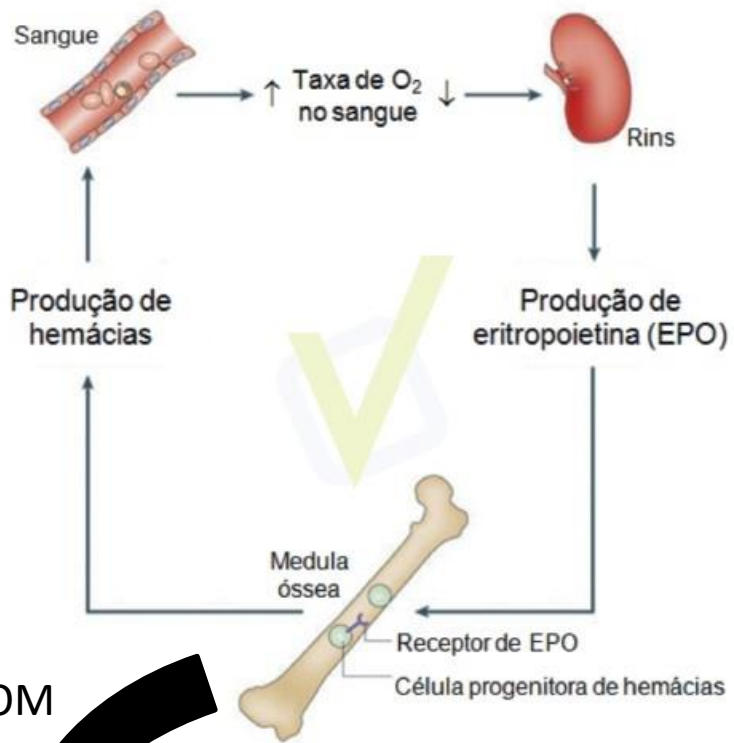


# Eritropoiese

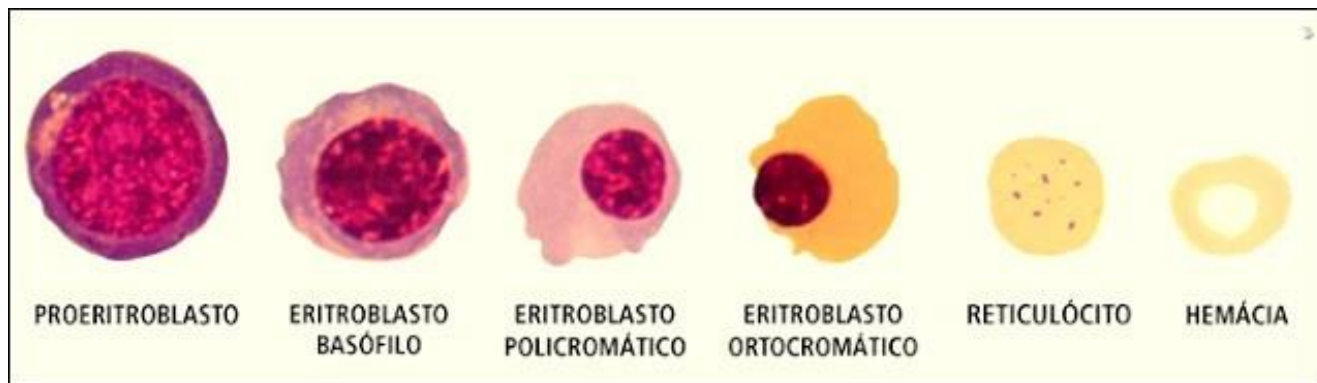


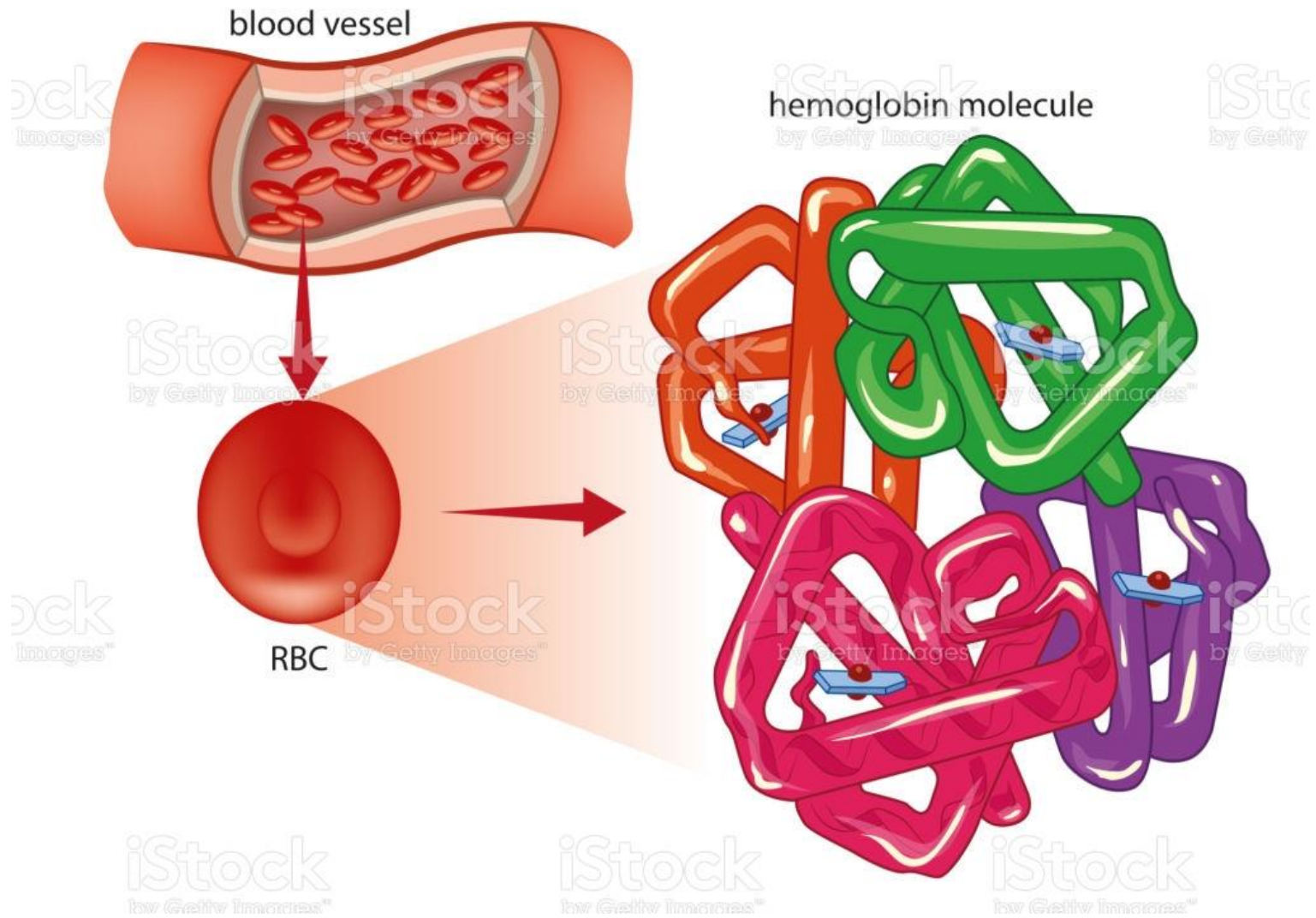


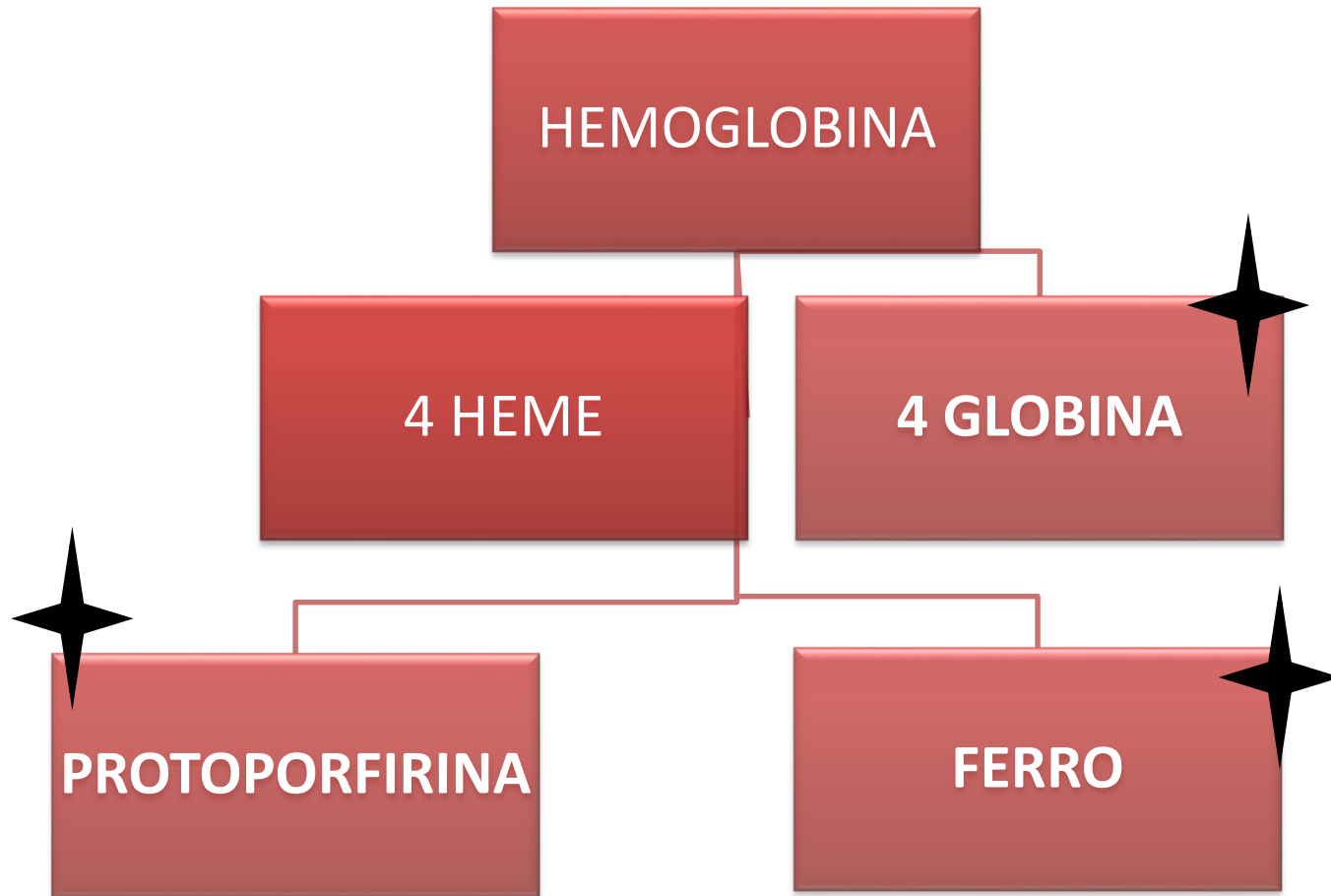
Hemocaterese



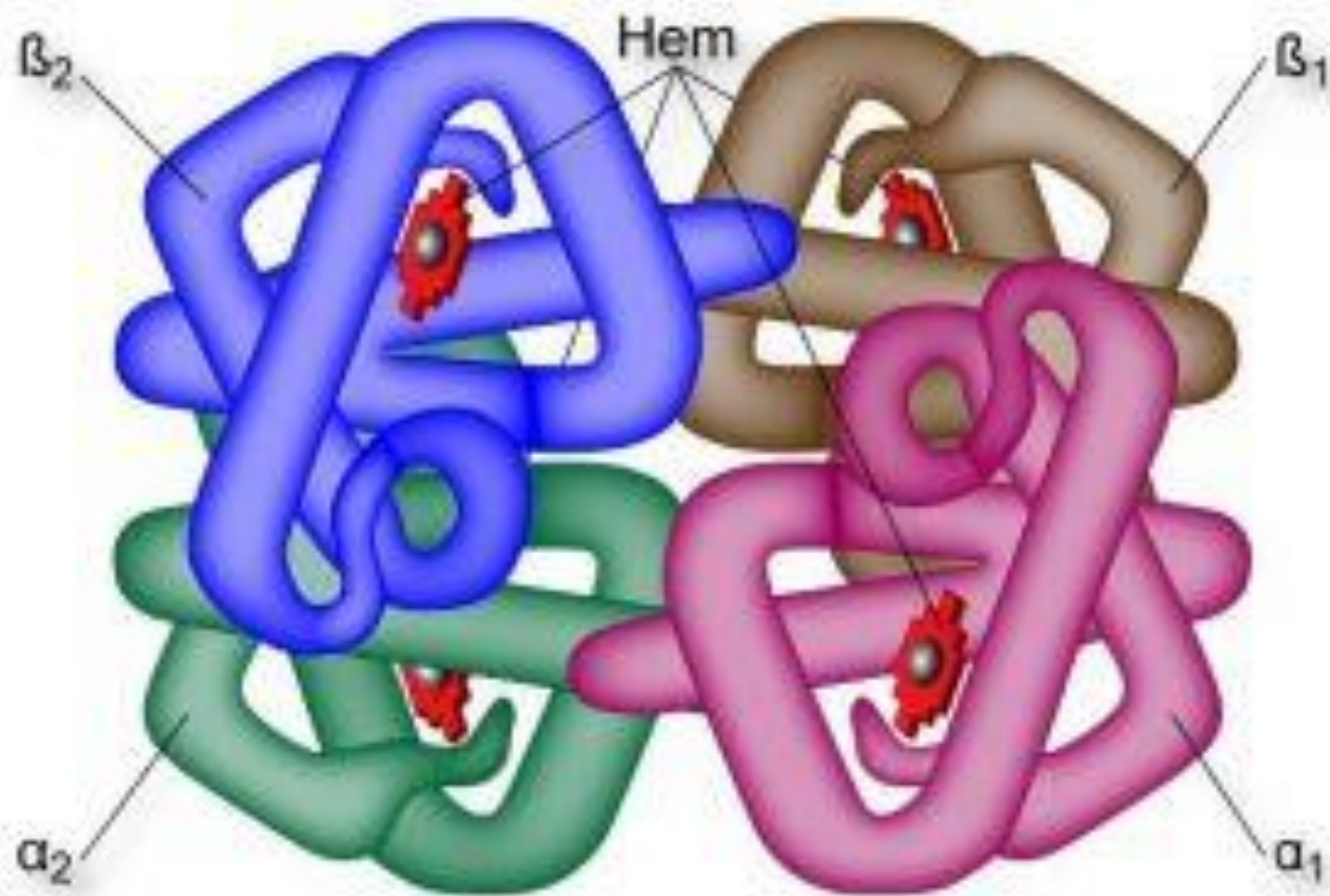
ZOOM





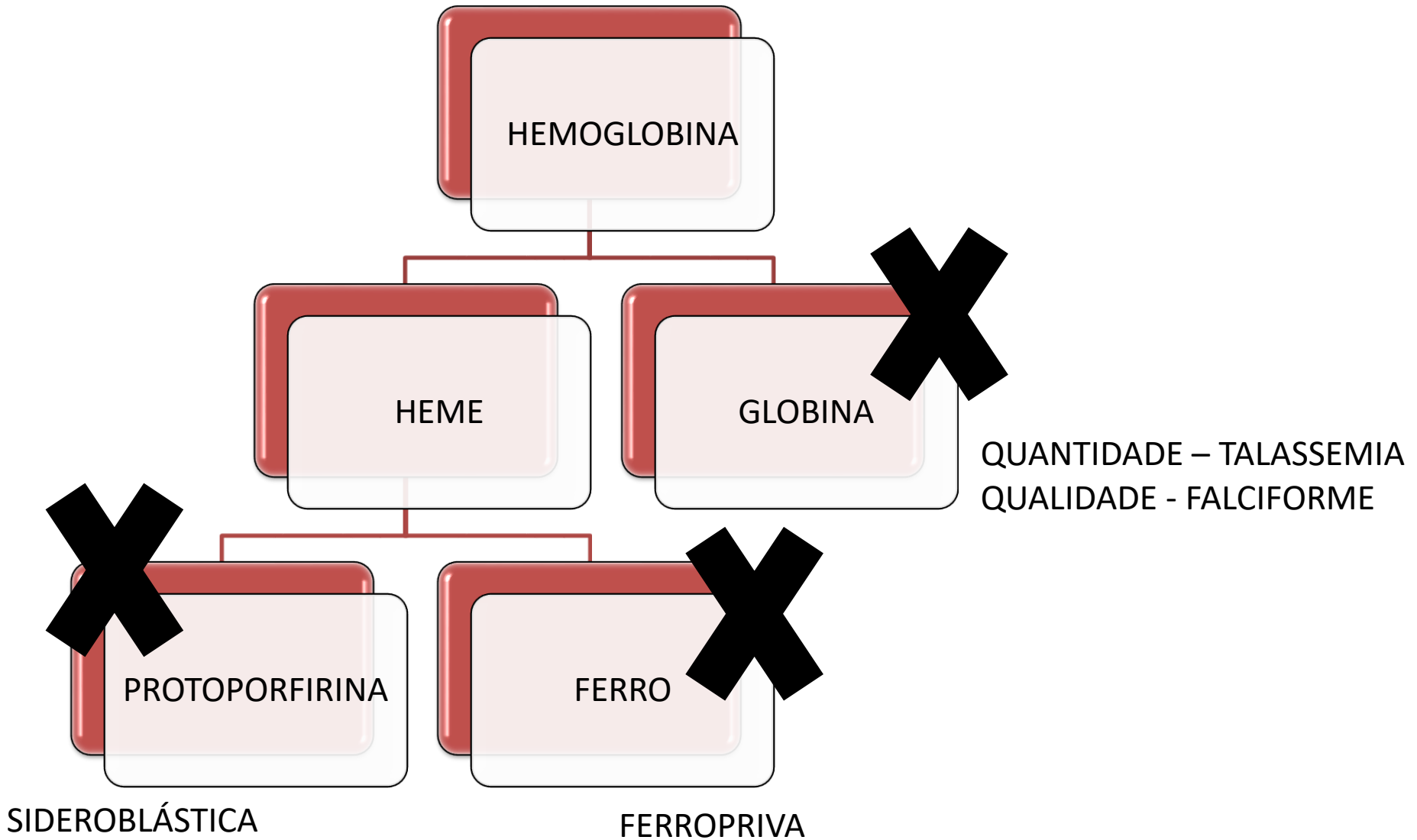








# Formação da Hemoglobina



# Valores normais

- Hemoglobina ( 12 – 17g/dl)
  - Mulher: 12 – 15
  - Homem: 13.5 – 17
- Hematócrito ( 36 – 50%)
  - Mulher: 36 – 44%
  - Homem: 39 – 50%
- Hemácias
  - 4 – 6 milhões

- Hemograma

- Hm: 4 – 6 milhões

- Hg: 12- 17g/dl

- Ht: 36 – 50%

- VCM: 80 – 100fL

- HCM: 28 – 32 pg

- CHCM: 32-35/dL

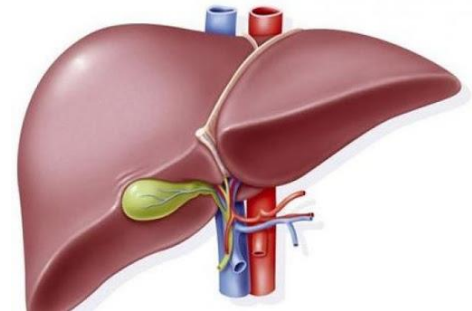
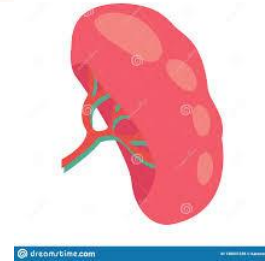
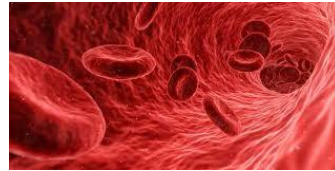
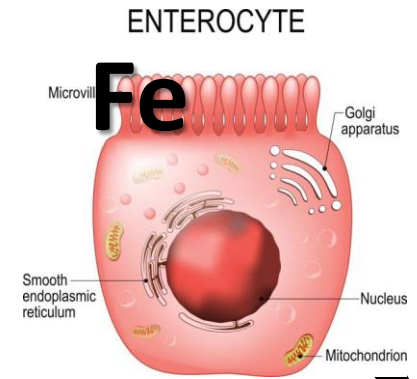
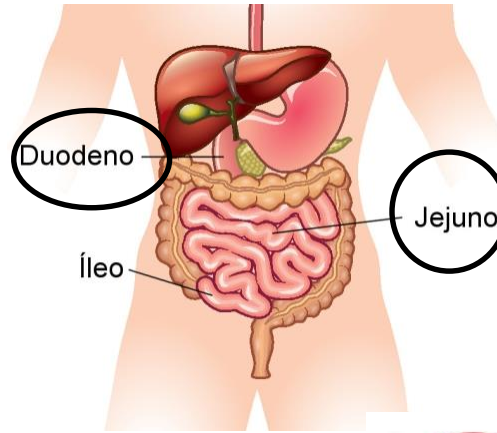
- RDW: 10- 14%

- Reticulócitos: 0,5 – 2%

# ANEMIAS HIPOPROLIFERATIVAS

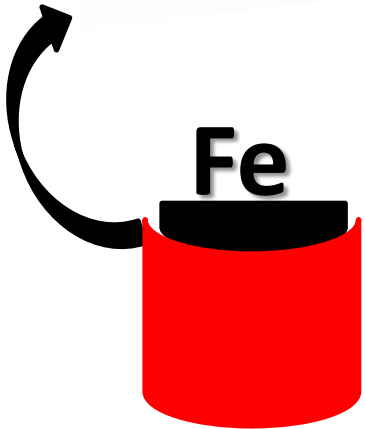
- Anemia Ferropriva
  - Anemia carencial mais comum.
  - Como é o ciclo do ferro?
  - Como faço o diagnóstico?

# Ciclo do Ferro



← TRANSFERRINA ←

TRANSFERRINA



# HEME + GLOBINA



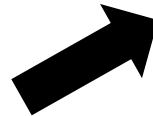
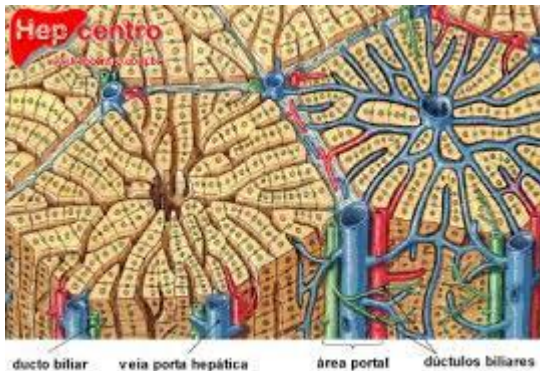
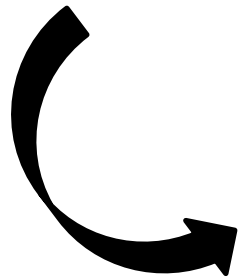
PROTOPORFIRINA IX + FERRO



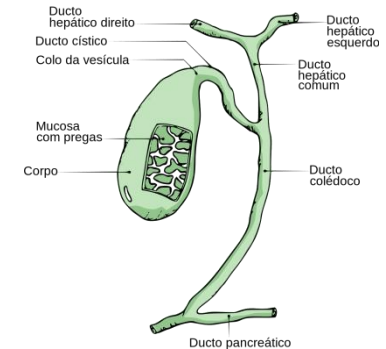
BILIVERDINA



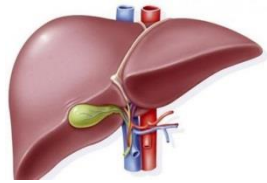
BILIRRUBINA INDIRETA



BILIRRUBINA DIRETA

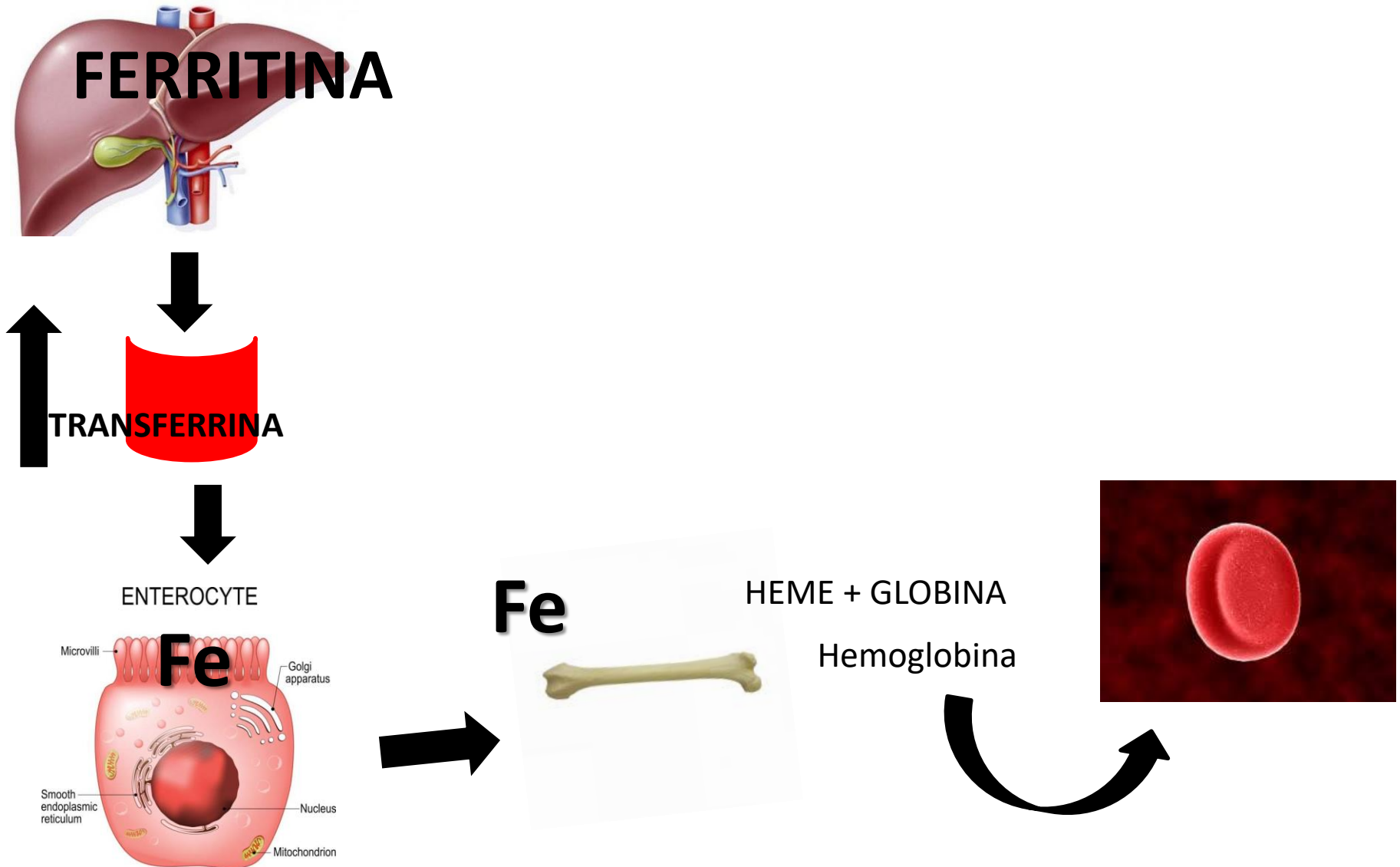


TRANSFERRINA



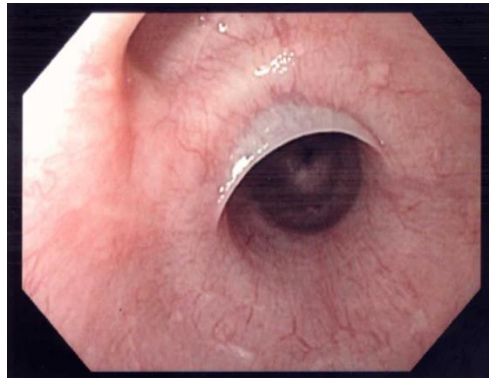


# Balanço negativo ferro...



# Quadro Clínico

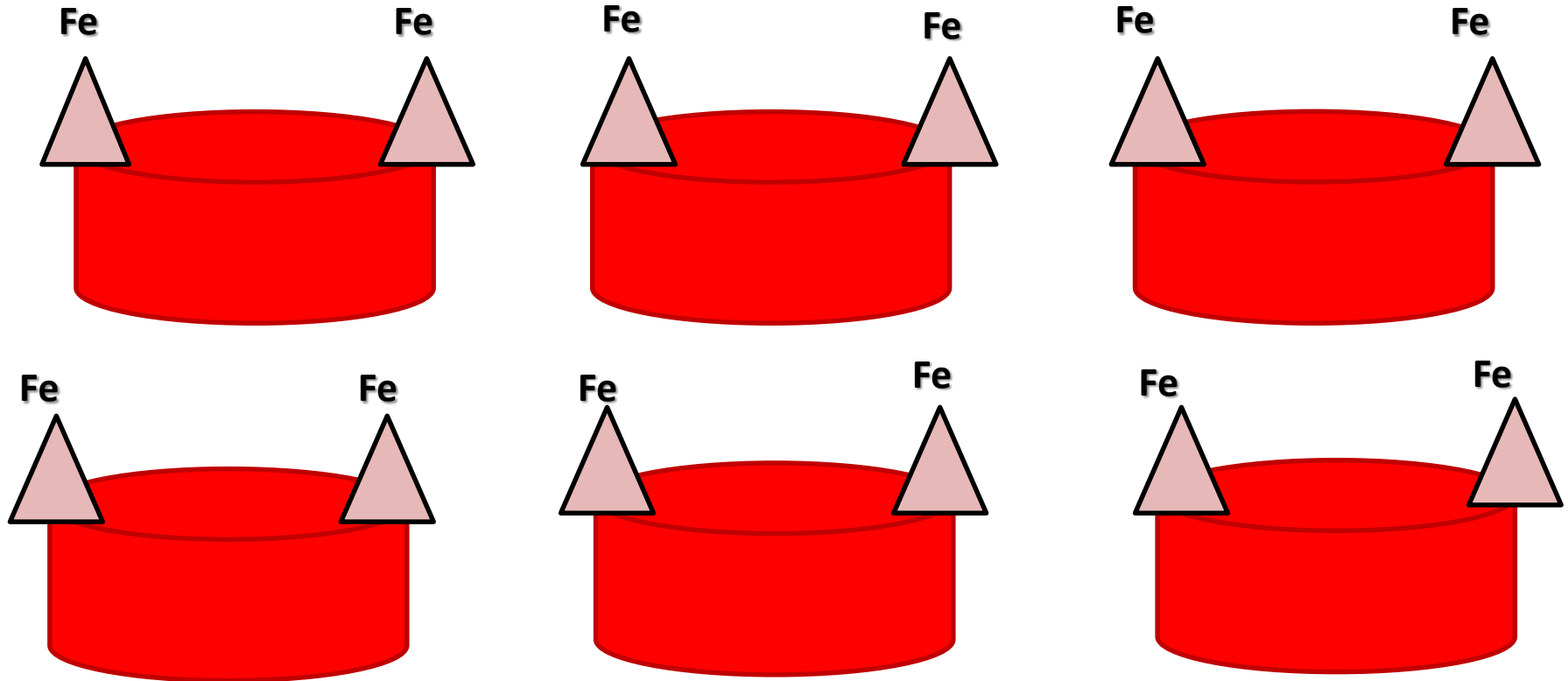
- Quadro clínico
  - Sd anêmica:
    - Cefaleia, astenia, isônia, pálido, angina ...
  - Anemia Ferropriva
    - Glossite
    - Queilite angular
    - Perversão do apetite ( PICA)
      - pagofagia (gosta de comer gelo)
    - Coiloníquia
      - Unha em forma de colher
    - Disfagia ( Plummer – Vinson)



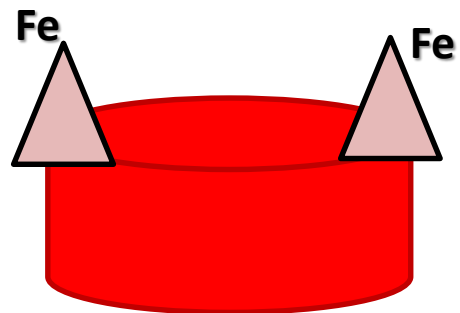
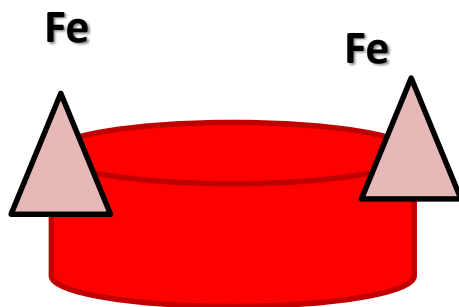
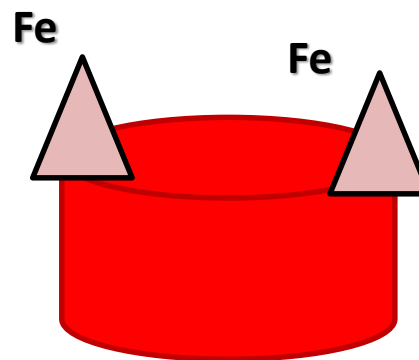
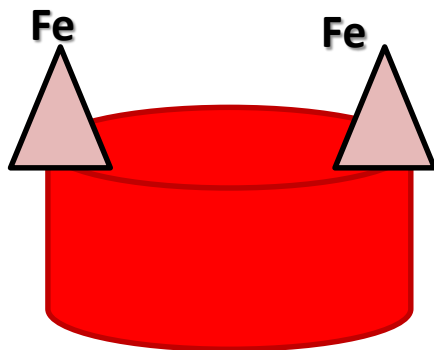
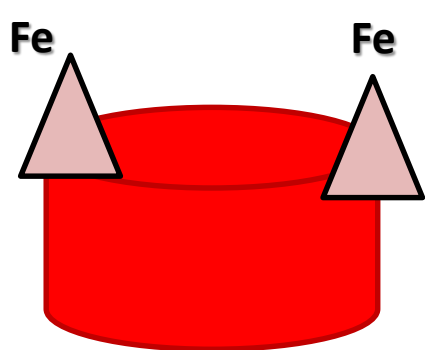
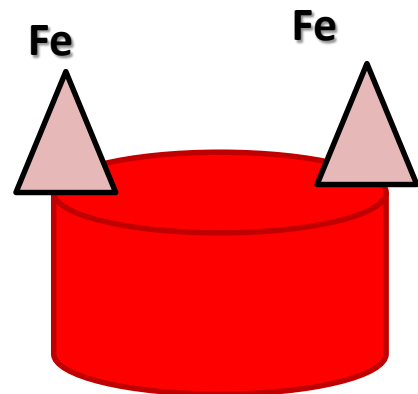
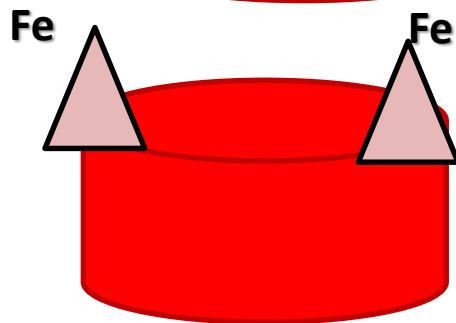
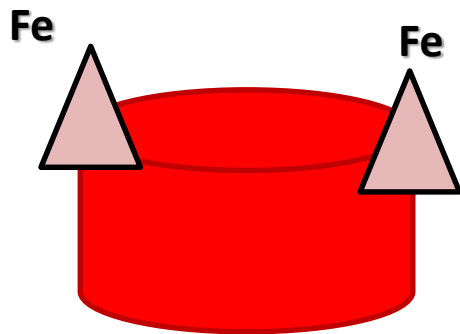
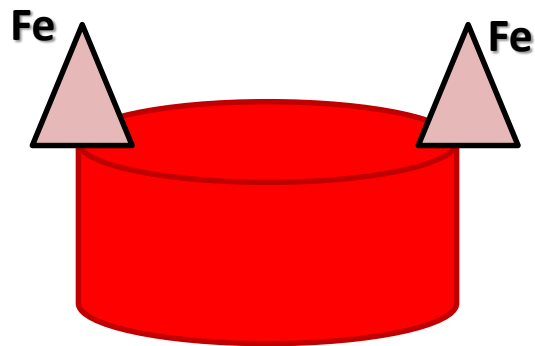
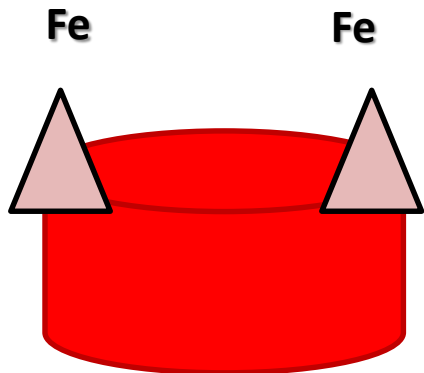
- Diagnóstico
  - Hemograma
    - Série vermelha
      - Hm –
      - HB –
      - Ht –
    - Índices Hematimétricos
      - VCM
        - »
      - HCM
  
      - RDW
        - »
    - Leucócitos
    - Plaquetas

- Padrões do ferro:
  - Ferro sérico
    -
  - Ferritina
  - TIBC →

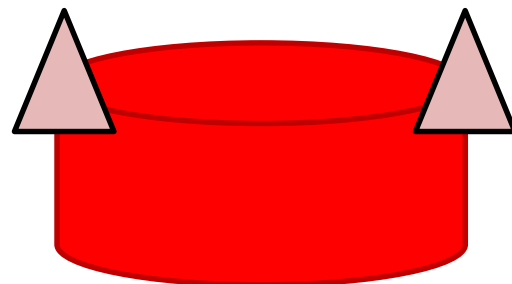
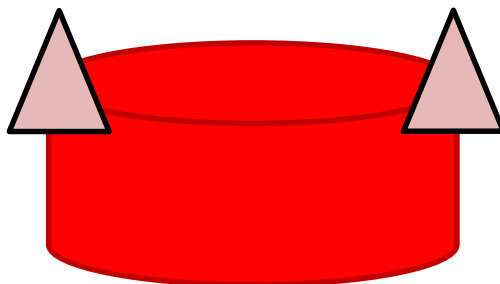
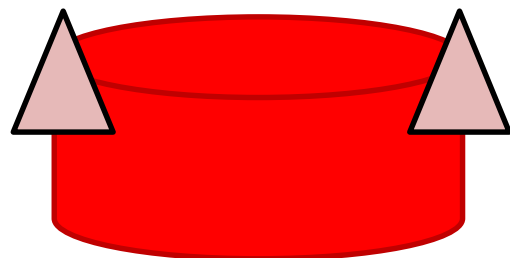
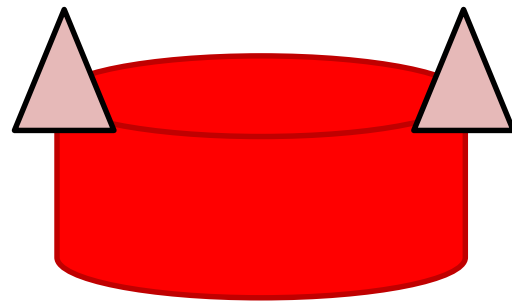
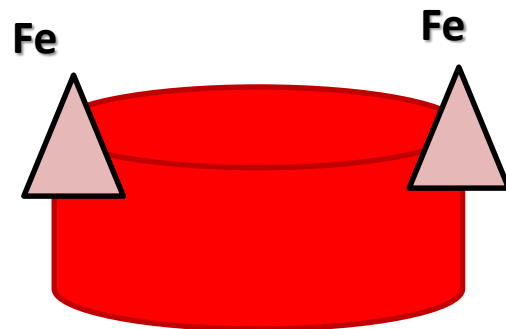
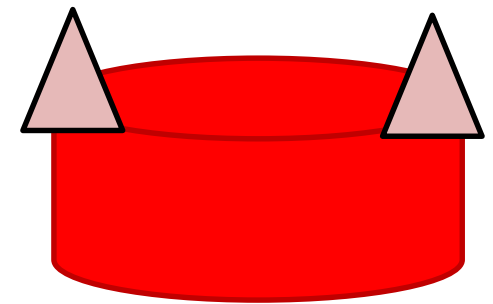
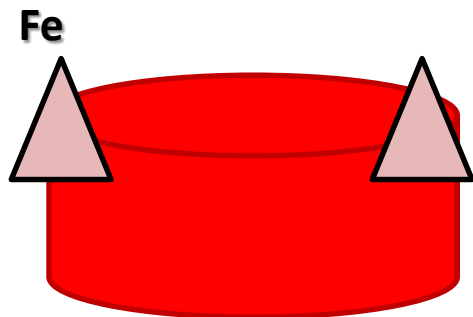
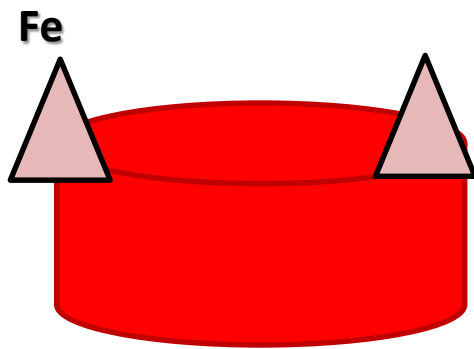
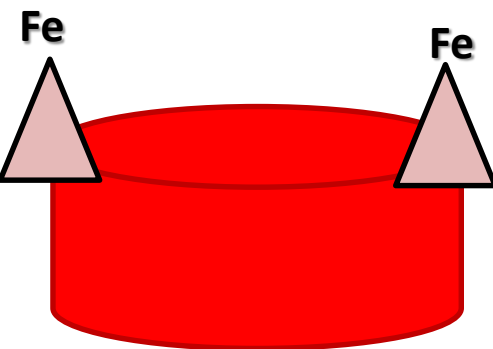
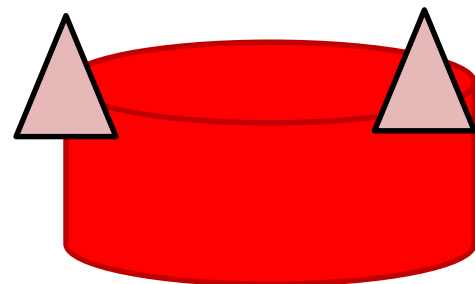
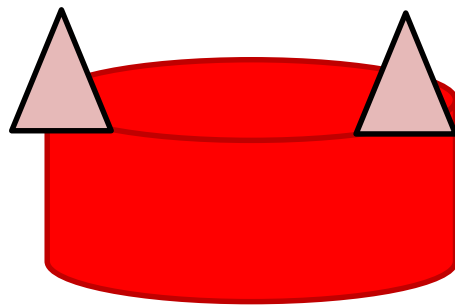
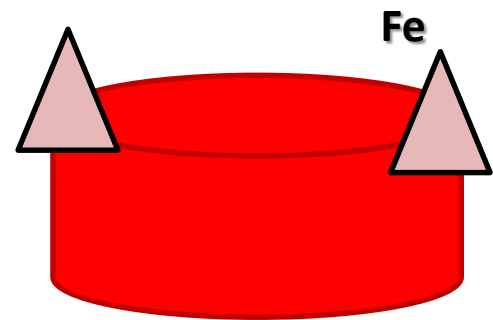
# Capacidade total de ligação do ferro (TIBIC)





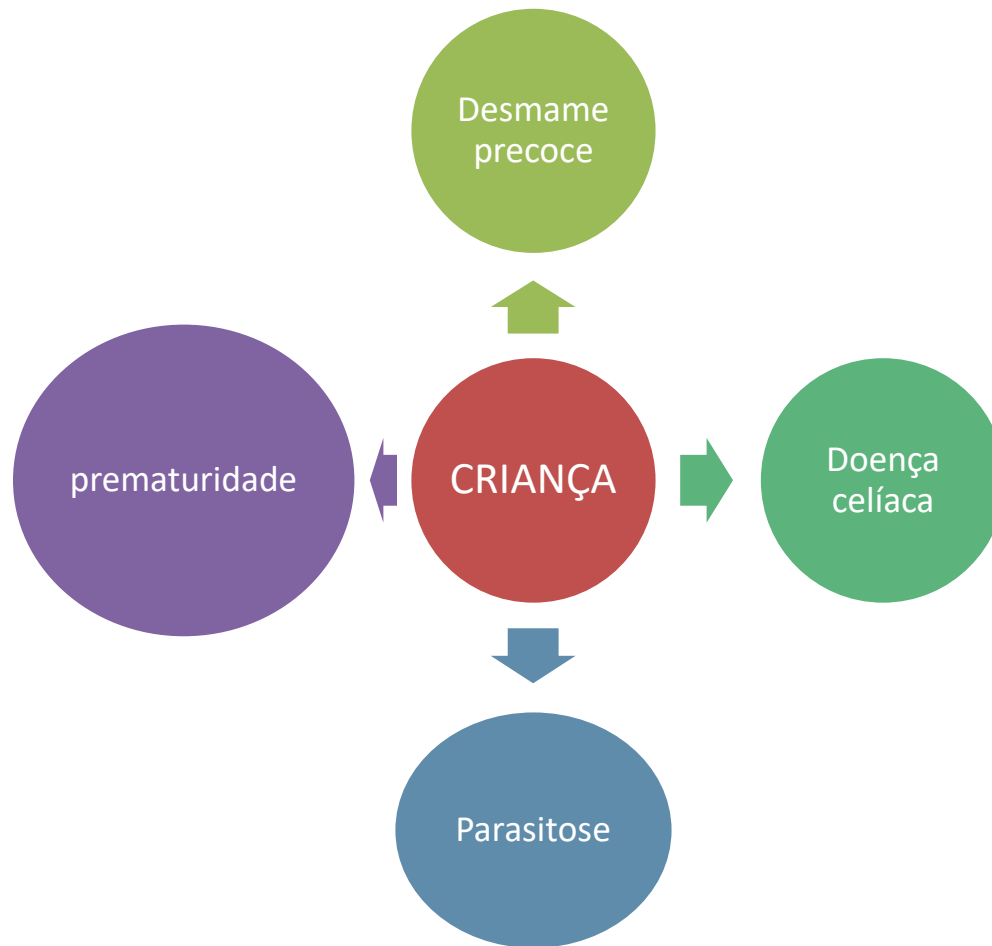


- Padrões do ferro:
  - Ferro sérico
  
  - Ferritina
    -
  - TIBIC
    -
  - Índice de saturação de transferrina →

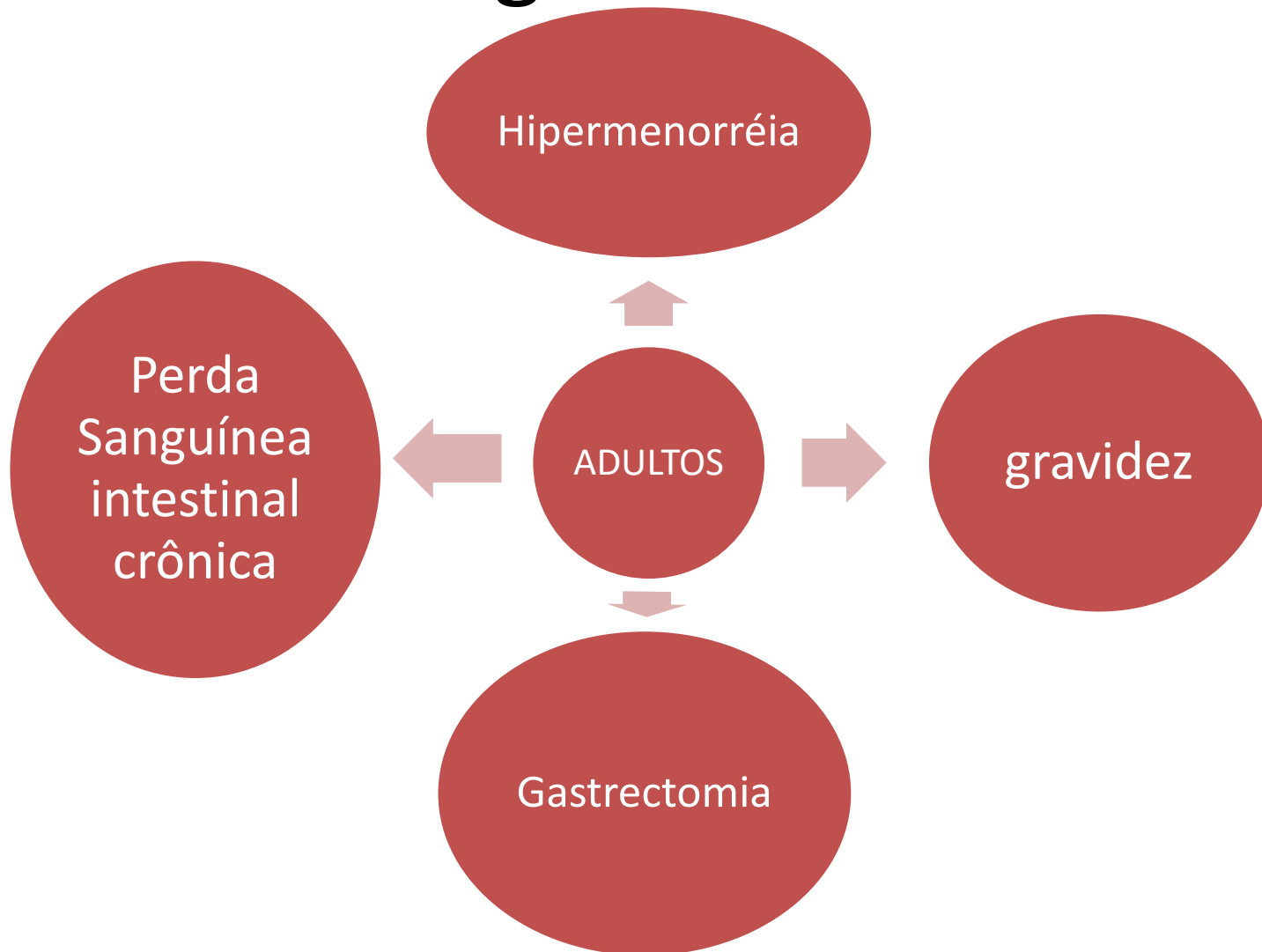


- Padrões do ferro:
  - Ferro sérico
    -
  - Ferritina
    -
  - TIBC
    -
  - Índice de saturação de transferrina
    -

# Investigando a causa



# Investigando a causa





# Anemia de doença crônica

- Anemia de doença crônica
  - Condição infecciosa, inflamatória, autoimune

↓  
CITOCINAS

- Diminui a meia vida das hemácias
- diminui a resposta medular à eritropoetina

↓  
HEPCIDINA

↓  
Aprisiona o ferro nos estoques **FERRITINA ALTA**  
Reduz a absorção intestinal do ferro **FERRO BAIXO**

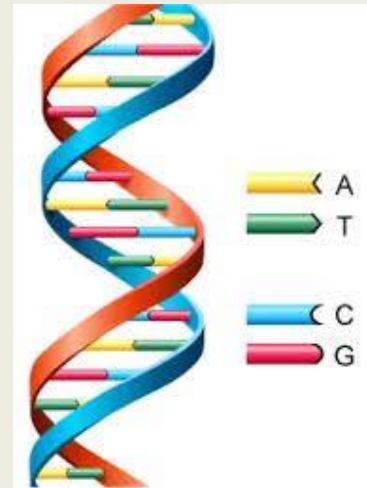
# Laboratório

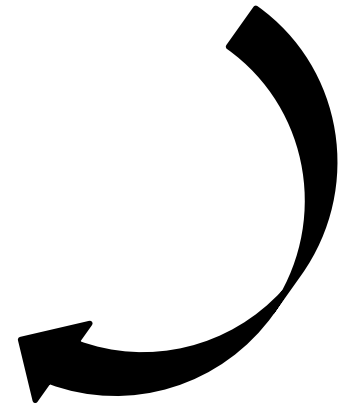
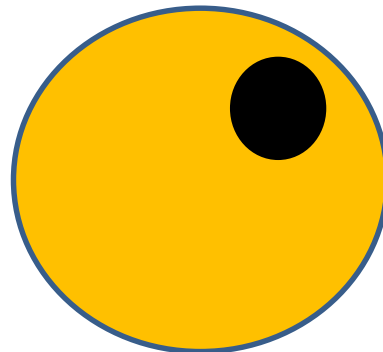
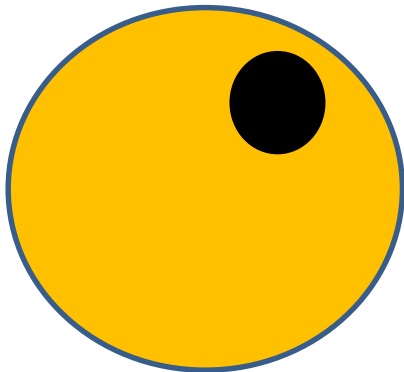
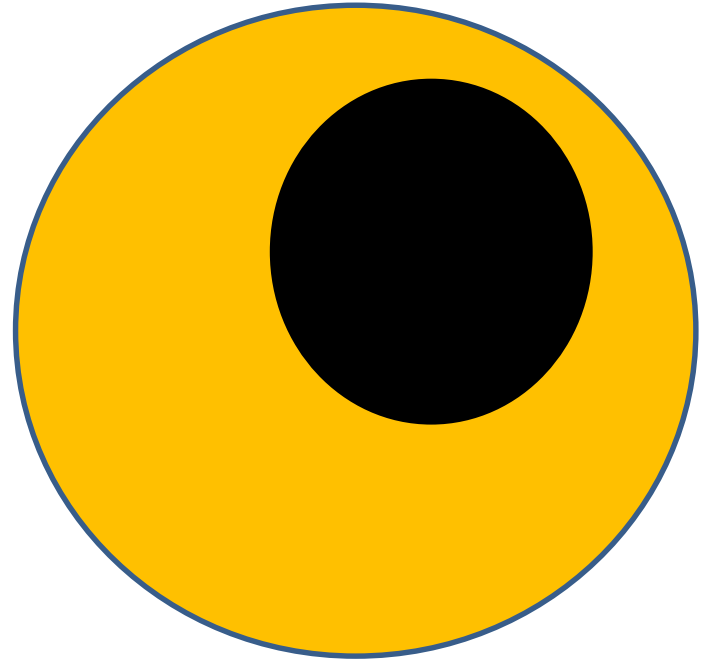
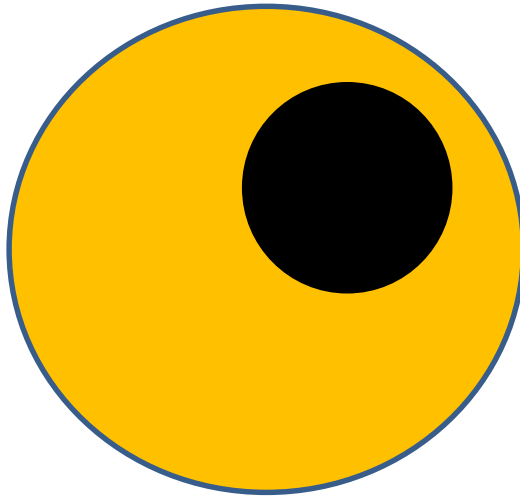
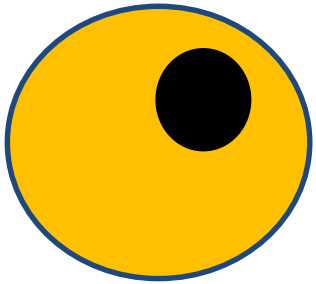
- HEMOGRAMA e Perfil do ferro :
  - VCM
  - Morfologia
  - Ferro sérico
  - TIBIC
    -
  - Ferritina
    -
  - Saturação de transferrina

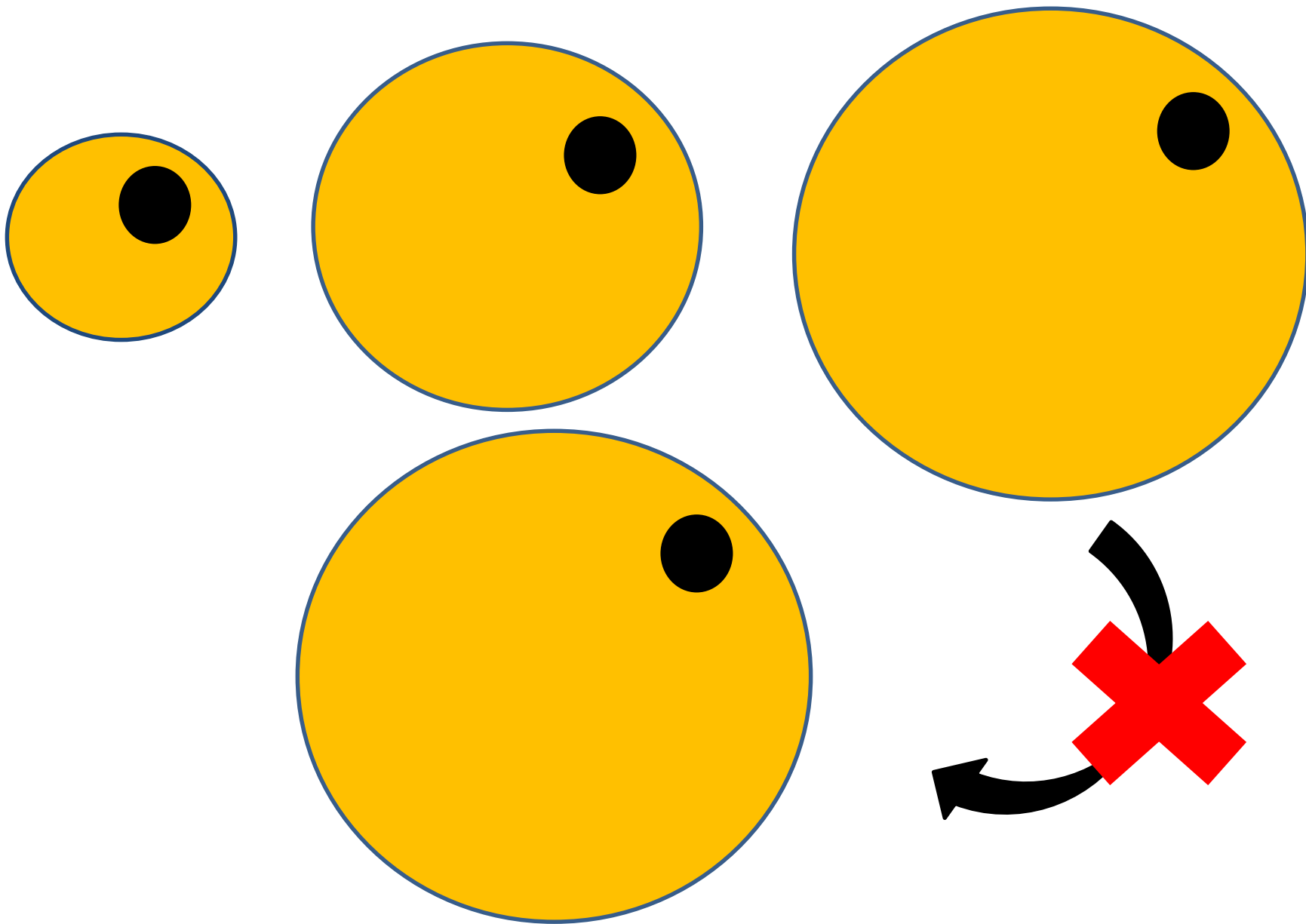
# ANEMIA MEGALOBLÁSTICA

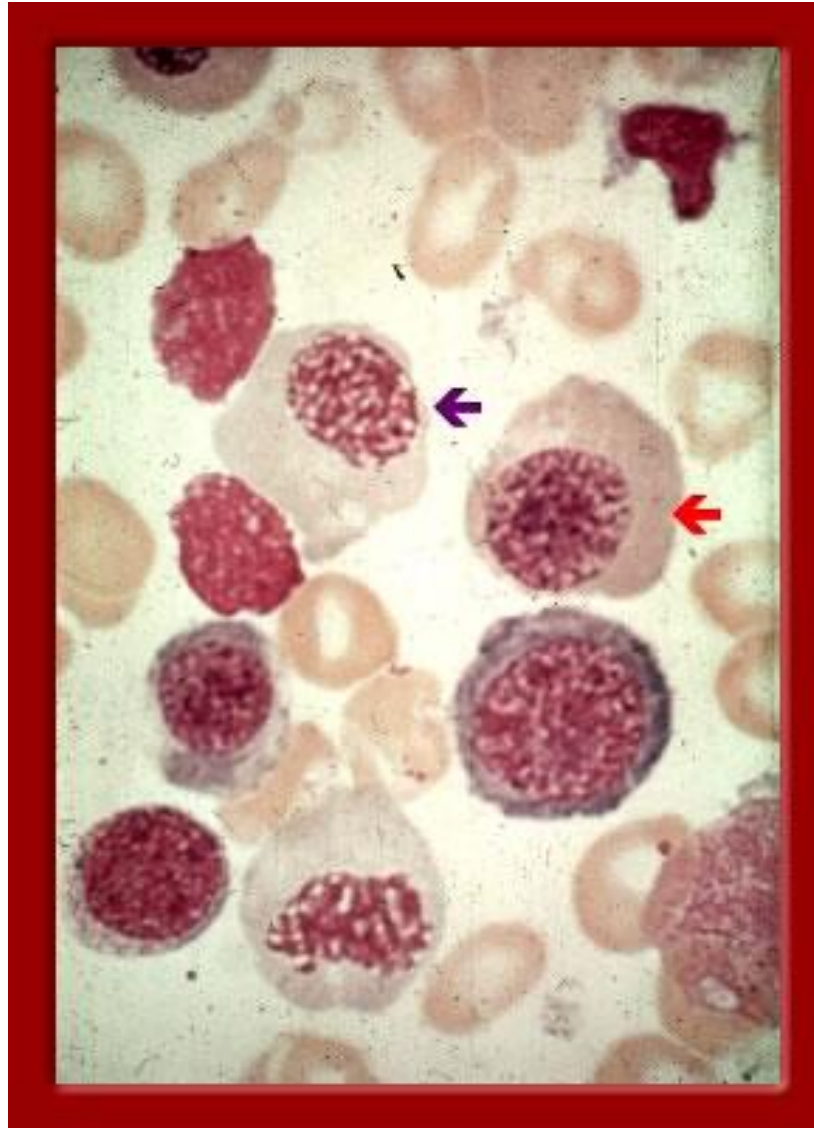
Vit B12

MTHF → THF







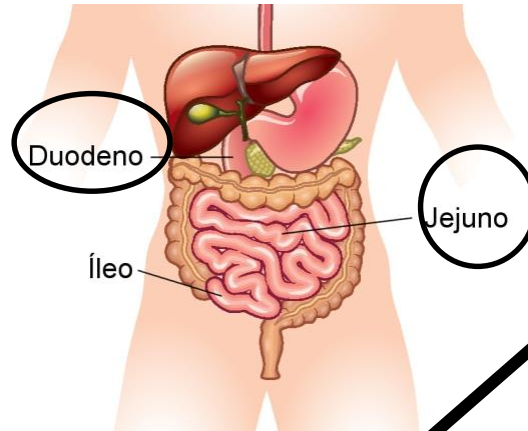




# Hemograma

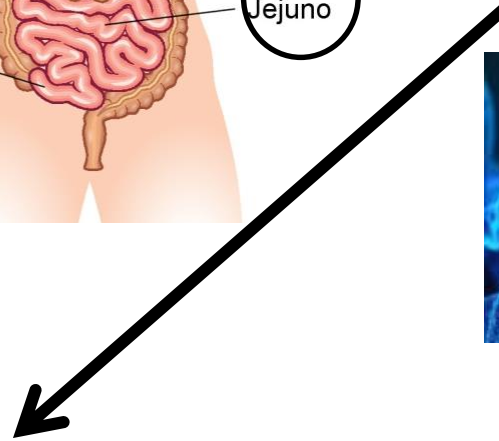
- Macrocíptica
- Normocrômica
- RDW
  
- Leucócitos
  
- Plaquetas
  
- BI
  
- LDH

# Absorção ÁCIDO FÓLICO



Vit B12

MTHF → THF



METIL

+

HOMOCISTEÍNA

METIONINA



THF

DHF - r



DHF

- Causas de def. ácido fólico??
  - Ingestão deficiente
    - Criança não come salada
    - Alcoolismo
  - Gestante
  - Hemólise crônica
  - Medicamentos

# Absorção da VIT B12



**Vit B12 +  
PROTEINA**



LIGANTE R

**Vit B12 +  
LIGANTE R**

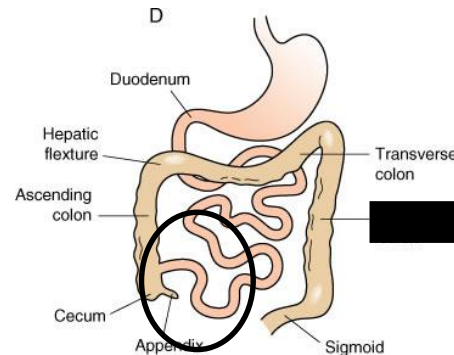
**Vit B12 +  
Pepsina**

LIGANTE R  
VIT B12  
PROTEINA

Pepsina + FI

**Vit B12 + FI**

**Vit B12**



- Causas de Def. VitB12
  - Não ingere carne
  - Anemia perniciosa
  - Gastrectomia
  - Pancreatite crônica
  - Doença íleal
    - Tb íleo
    - Lifoma de ileo
    - Dça Crohn
  - Diphylobothrium latum

- Quadro clínico
  - Carencial
    - glossite
    - Queilite angular
    - Diarreia
  - DEF B12
    - Síndrome neurológica
    - Doenças auto imune associada (Perniciosa)

- Por que que faz sintomas neurológicos ?

↓ Vit B12

↑ Acido metil malônico → Succinil Coenzima A ↓

- Laboratório
  - Hb
    -
  - Hg
    -
  - Ht
    -
  - VCM
  - Hcm
    -
  - Rdw
    -
  - Plaquetas e leucócitos
    -



- LDH

  - 

- BI

- Carência de b12 ou folato??

  - 

    - 

      - .

    - Homocisteína

      - alta

        - .

# Referências

- Cecil
- Harrison