

# Haemoglobin

# HAEMOGLOBIN

- The Oxygen carrying pigment in vertebrate RBC
- A globular protein with molecular weight of 64,450
- Composed of - 4 polypeptide chains  
- 4 Haem molecules

Haem + Globin = Haemoglobin



# Synthesis of Haemoglobin (Hb)

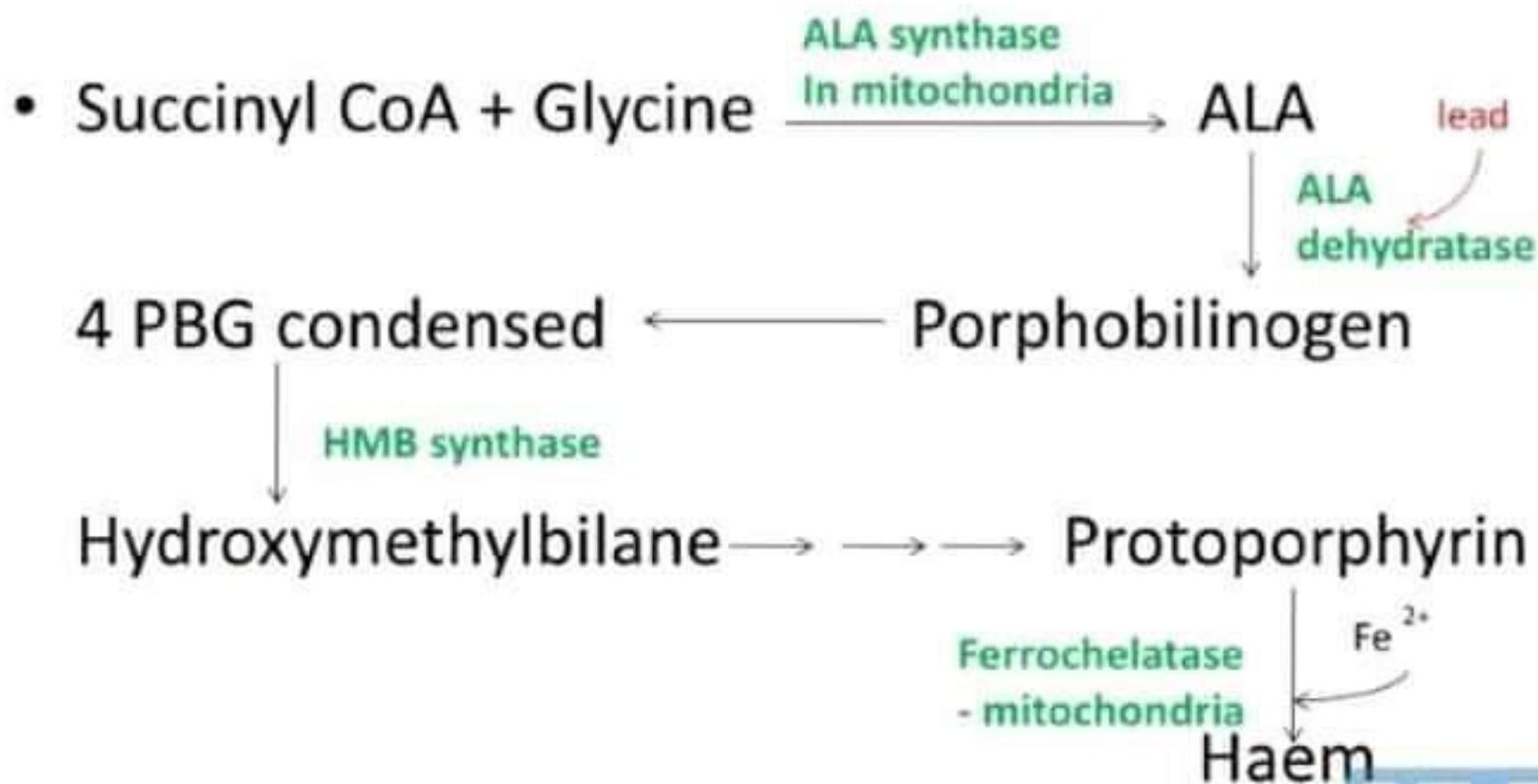
- Haem & globin produced at two different sites in the cells
  - Haem in mitochondria
  - Globin in polyribosomes
- Well synchronized

# Haemoglobin synthesis

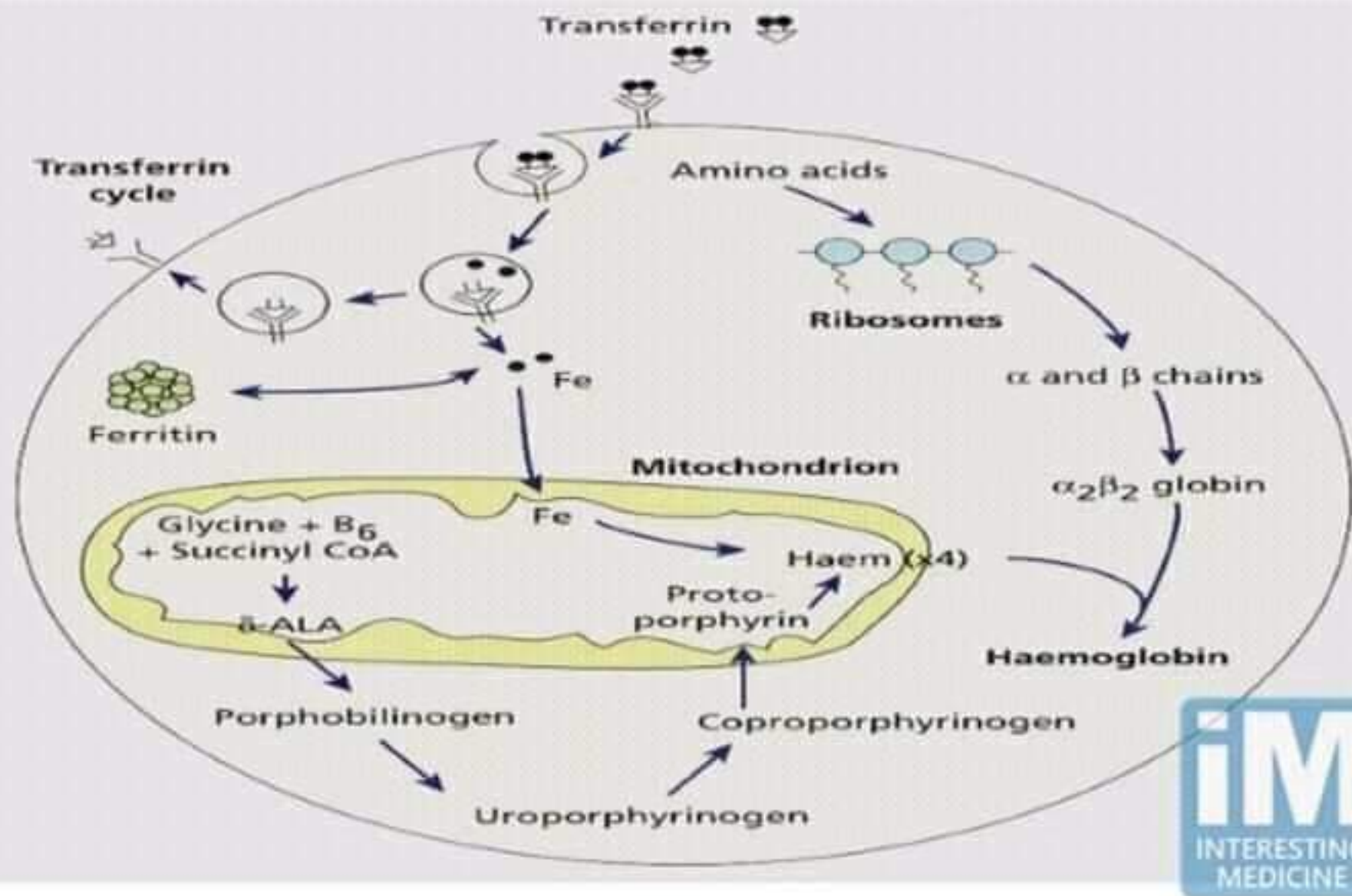
- Globin chains – Protein synthesis
  - Haem synthesis
    - In many cells. Mainly – erythroid precursor cells, immature RBC, hepatocytes
- Not in mature RBC (lack mitochondria)
- Synthesized from succinyl CoA & Glycine



## Haem synthesis cont...

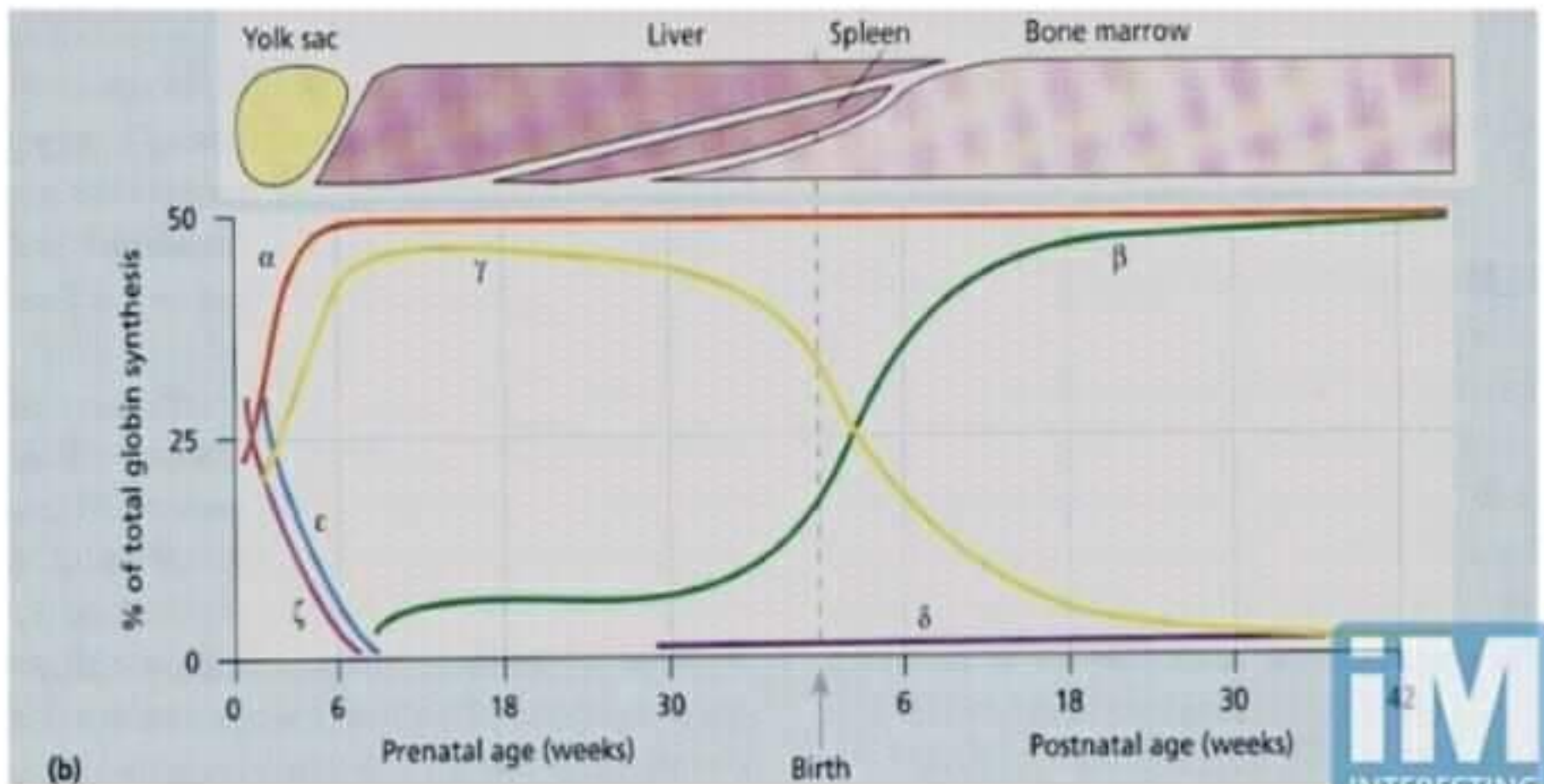


# Synthesis of Haemoglobin

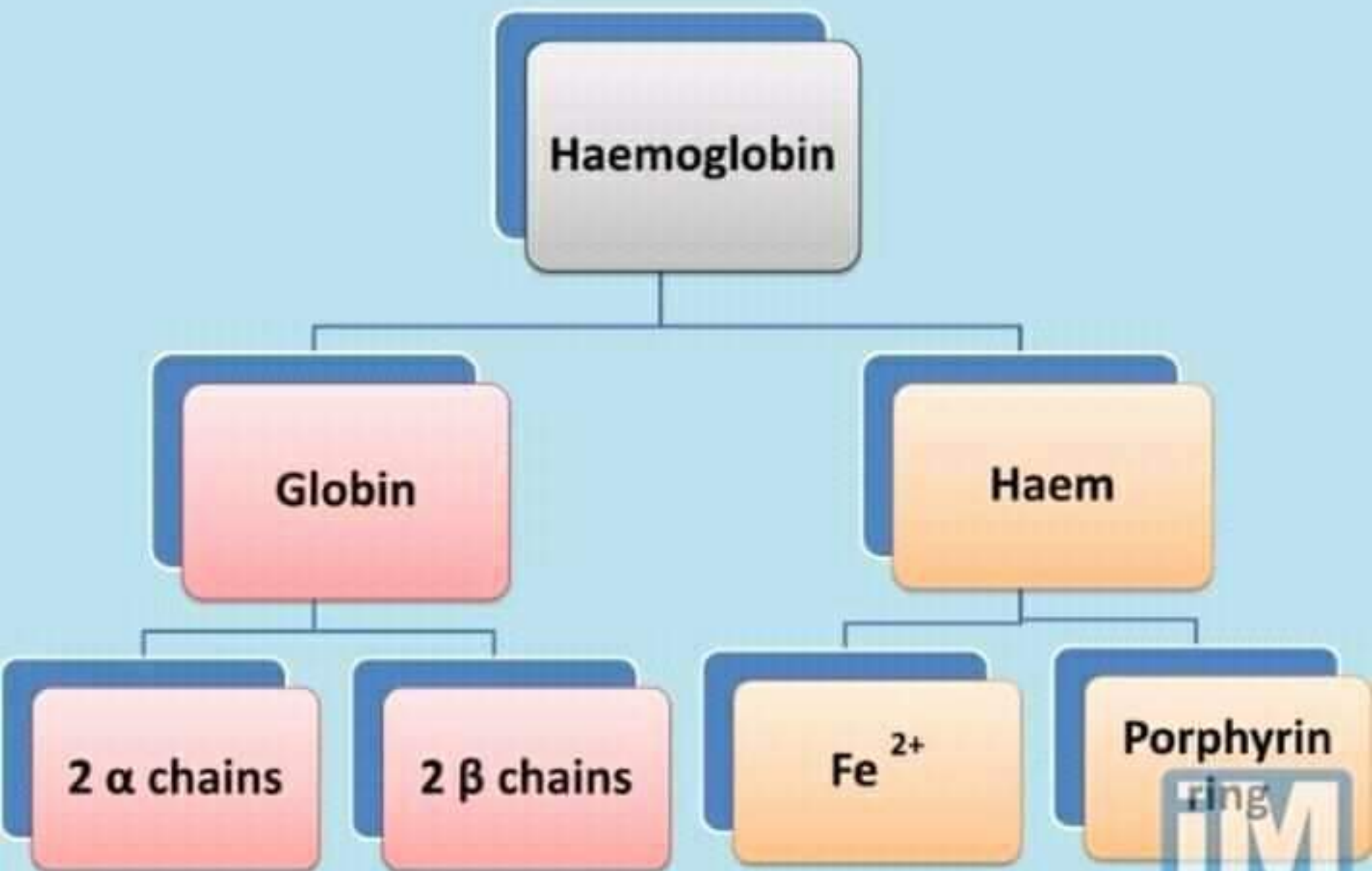




# Globin chain switch



(b)

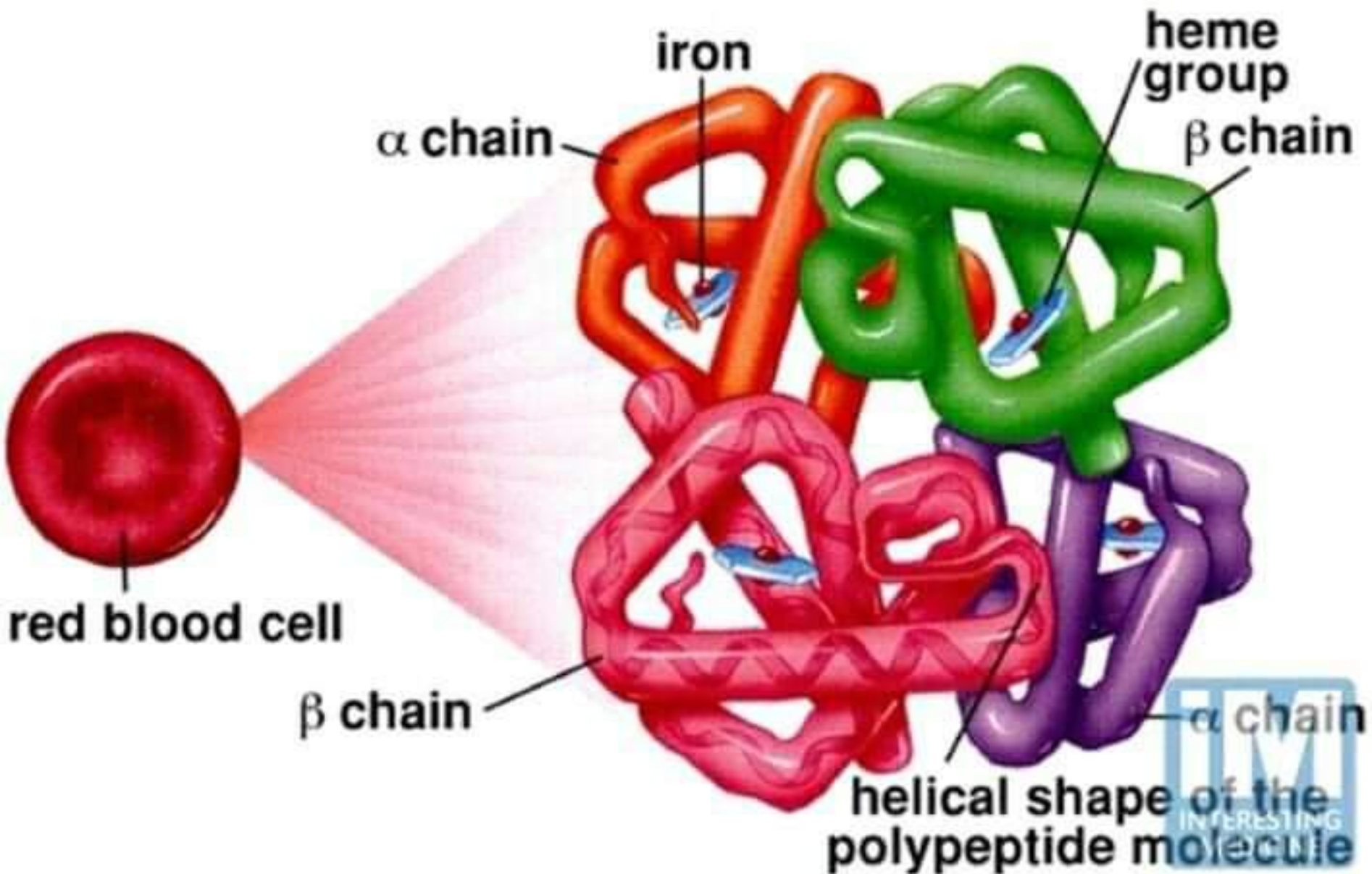


Each  $\alpha$  and  $\beta$  chain contains a molecule of Haem.





# Hemoglobin Molecule



# Oxy & deoxyhaemoglobin

