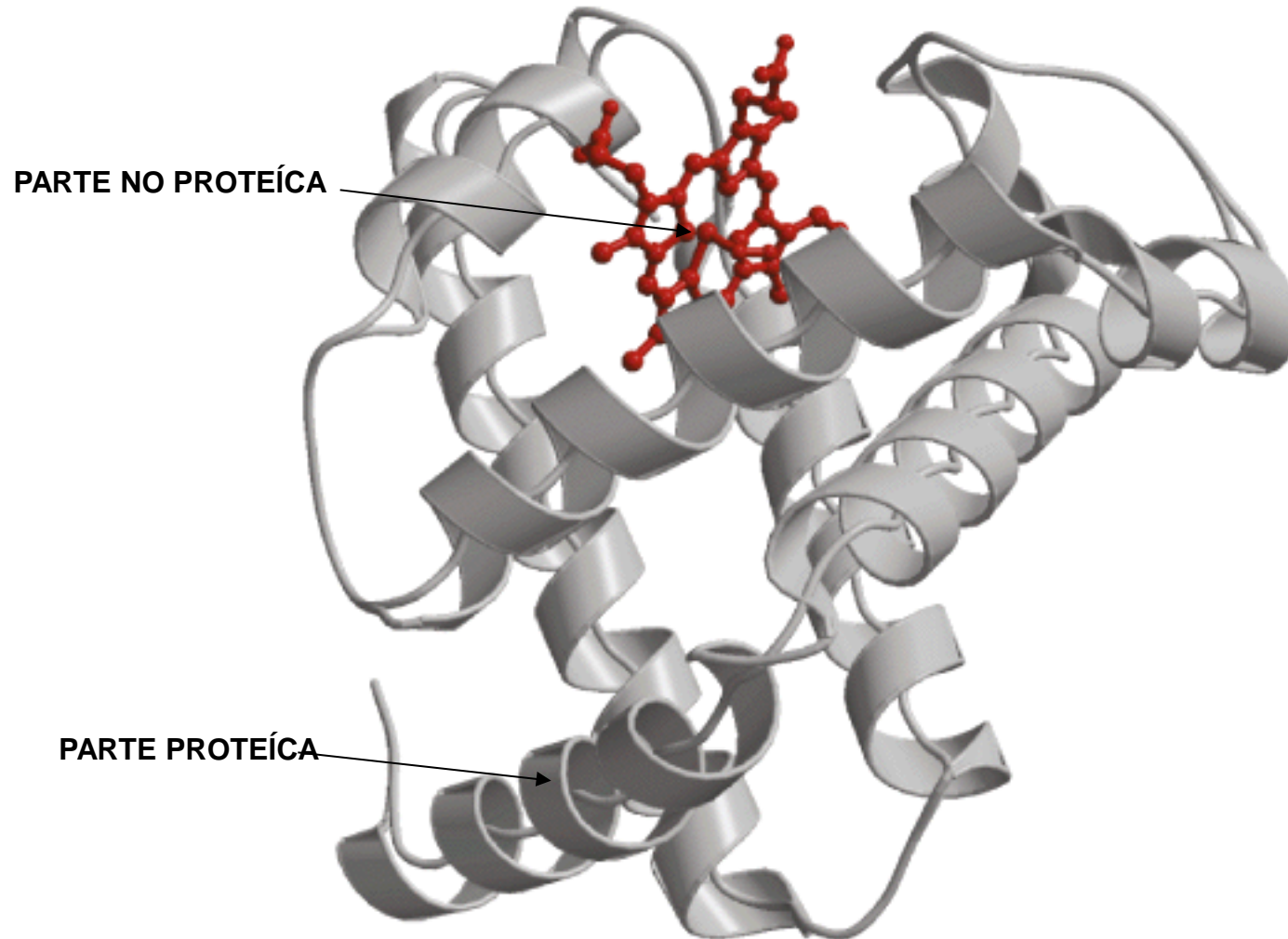


# PROTEÍNAS DE UNIÓN AL OXÍGENO

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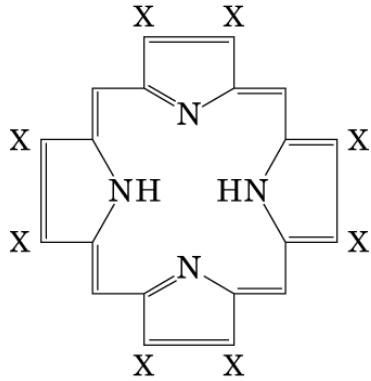
1. CARACTERÍSTICAS GENERALES DE LAS PROTEÍNAS DE UNIÓN A OXÍGENO.
2. MIOGLOBINA:
  1. ESTRUCTURA.
  2. CINÉTICA DE UNIÓN Y CESIÓN DE OXÍGENO.
3. HEMOGLOBINA:
  1. ESTRUCTURA
  2. CINÉTICA DE UNIÓN Y CESIÓN DE OXÍGENO
  3. CICLO RESPIRATORIO

# 1. ESTRUCTURA GENERAL

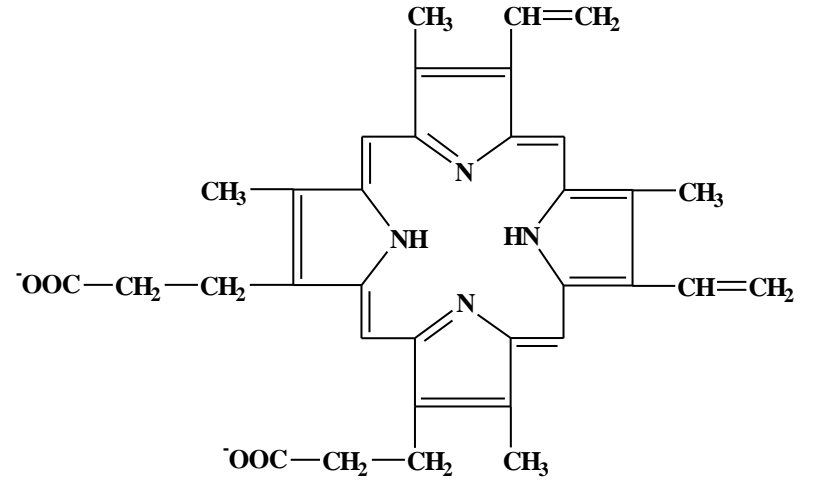


# 1. ESTRUCTURA GENERAL: Grupo prostético

## ANILLO TETRAPIRRÓLICO



## PROTOPORFIRINA IX



(Lehninger. Principles of Biochemistry. 3th ed. Nelson DL. Cox MM. Worth Publishers. 2000)

## GRUPO HEMO

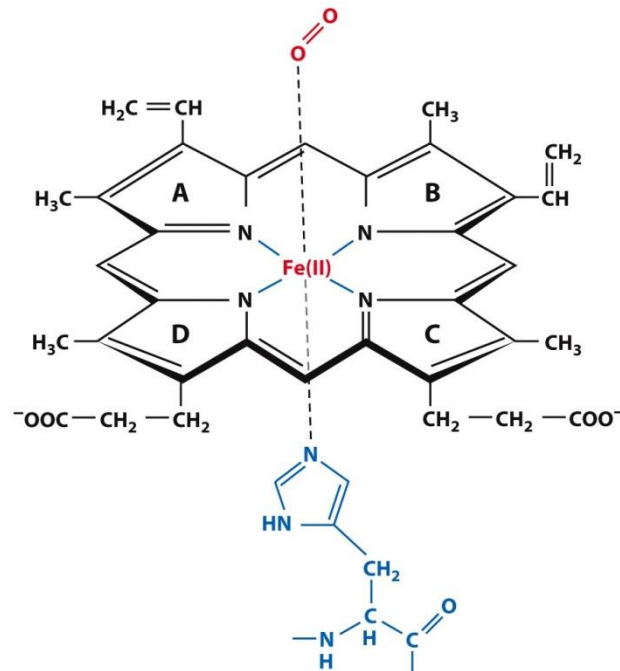


Figure 10-1  
© John Wiley & Sons, Inc. All rights reserved.

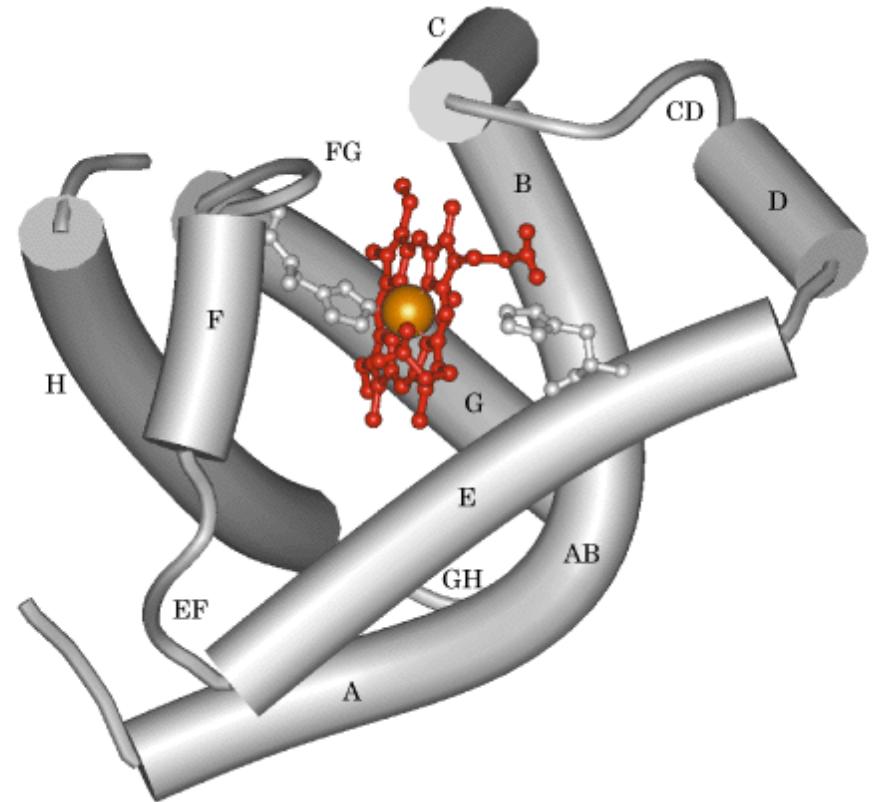
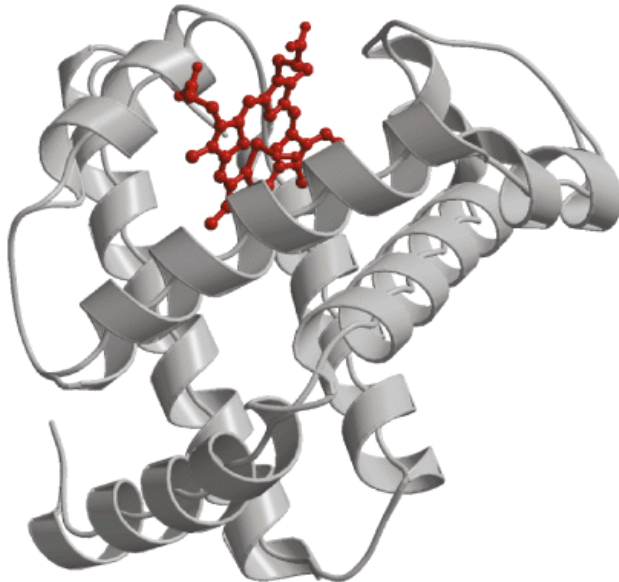
# 1. ESTRUCTURA GENERAL: Apoproteína

## Approximate Amounts of $\alpha$ Helix and $\beta$ Conformation in Some Single-Chain Proteins\*

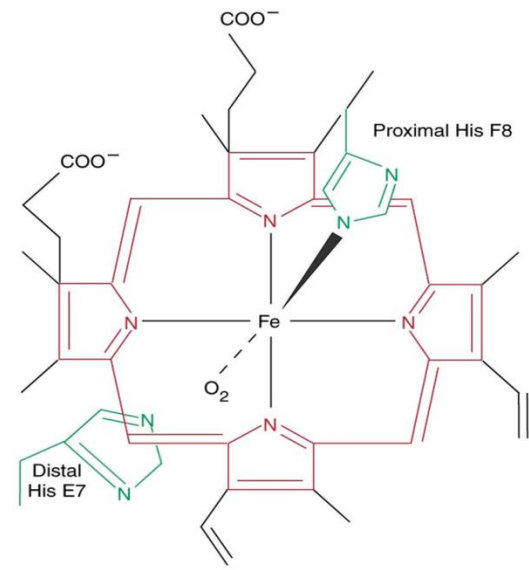
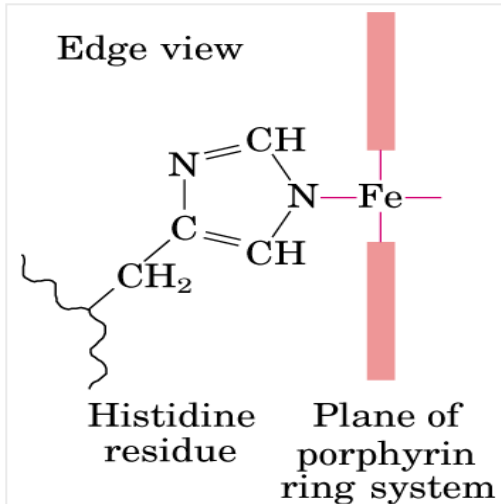
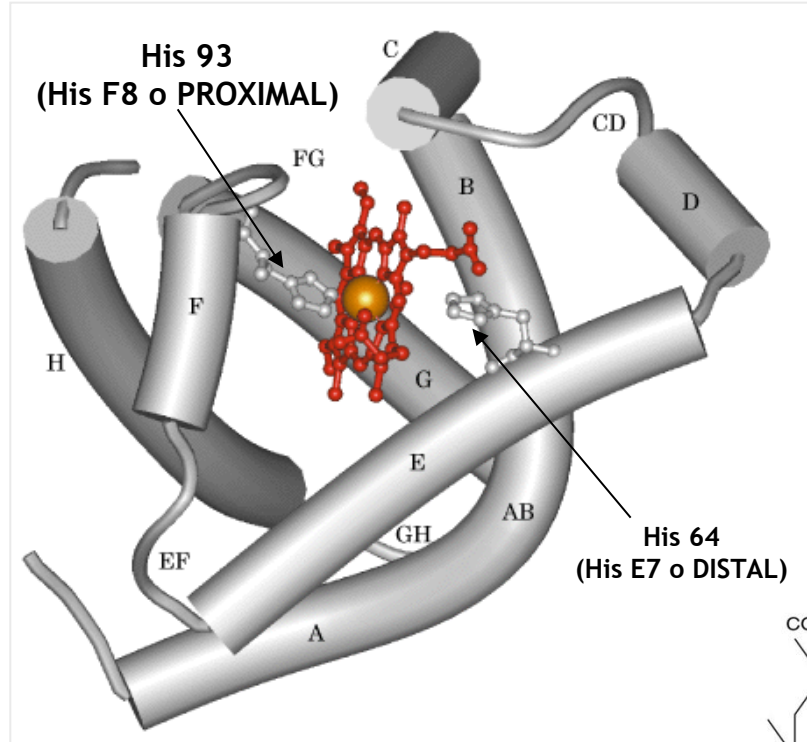
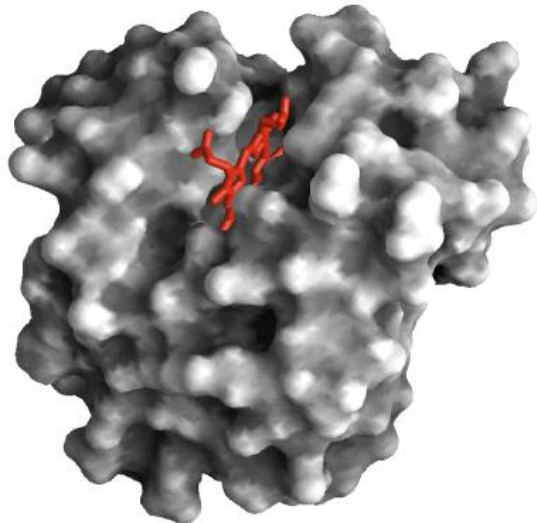
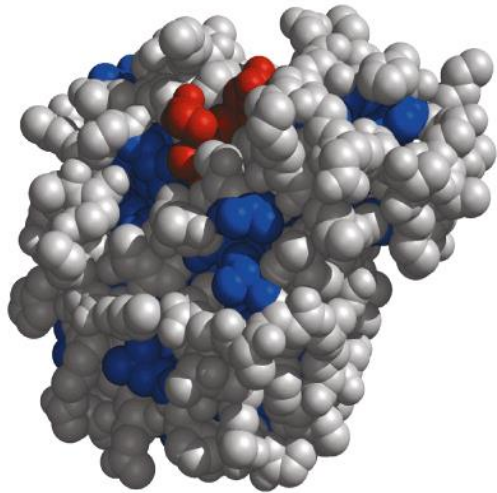
Protein (total residues)	Residues (%)	
	$\alpha$ Helix	$\beta$ Conformation
Chymotrypsin (247)	14	45
Ribonuclease (124)	26	35
Carboxypeptidase (307)	38	17
Cytochrome <i>c</i> (104)	39	0
Lysozyme (129)	40	12
Myoglobin (153)	78	0

Source: Data from Cantor, C.R. & Schimmel, P.R. (1980) *Biophysical Chemistry, Part I: The Conformation of Biological Macromolecules*, p. 100, W.H. Freeman and Company, New York.

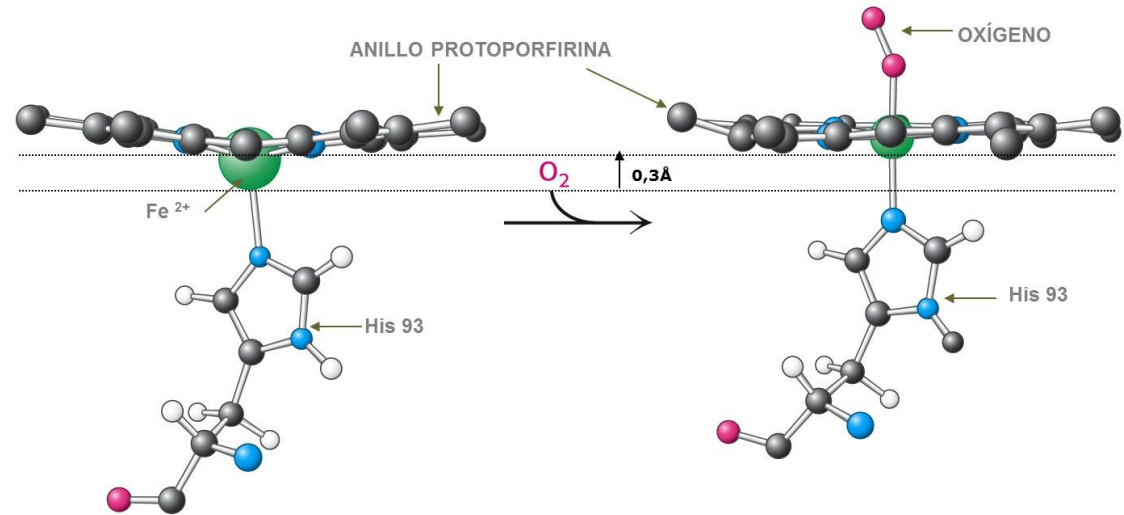
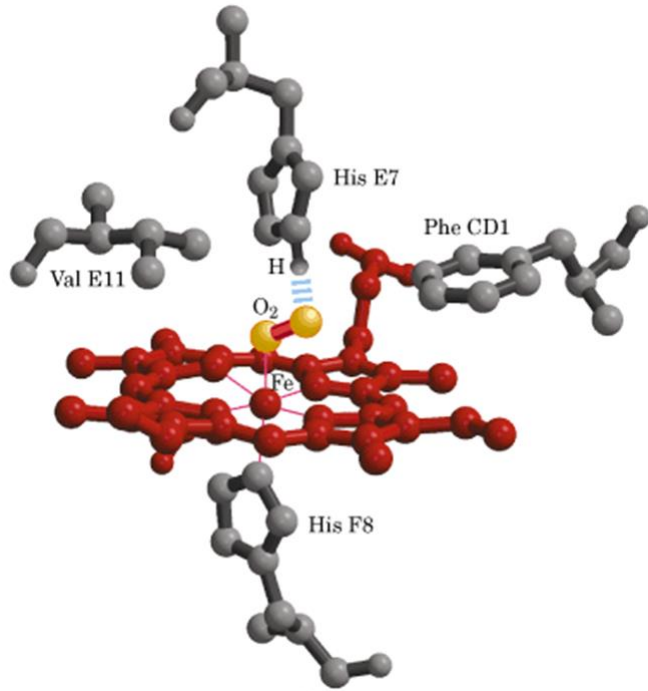
Portions of the polypeptide chains that are not accounted for by  $\alpha$  helix or  $\beta$  conformation consist of bends and irregularly coiled or extended stretches. Segments of  $\alpha$  helix and  $\beta$  conformation sometimes deviate slightly from their normal dimensions and geometry.



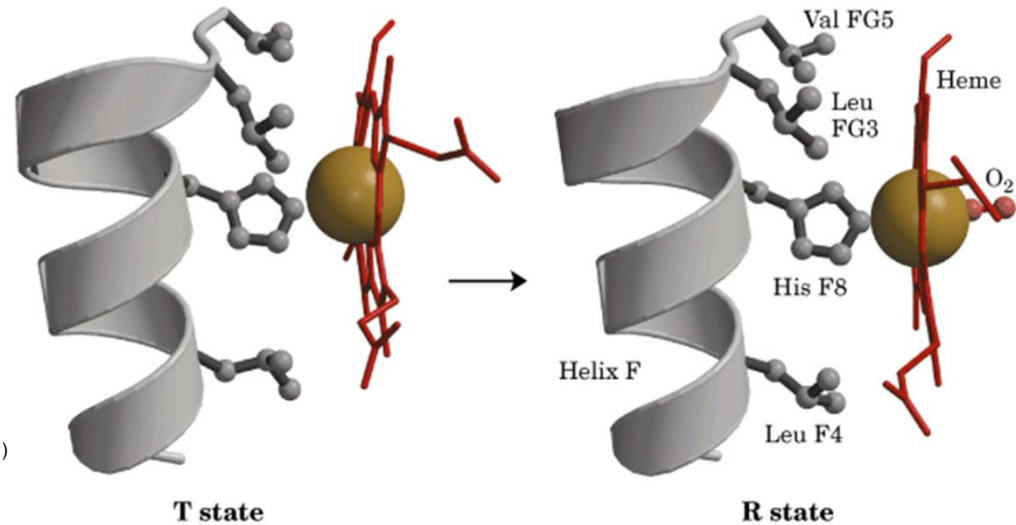
# 1. ESTRUCTURA GENERAL: Interacción apoproteína-Hemo



# 1. ESTRUCTURA GENERAL: Interacción O<sub>2</sub>-globina



Stryer, Berg, Tymoczko. Biochemistry 7<sup>th</sup> ed. Freeman & Co (2012)



Devlin TM. Textbook of Biochemistry with Clinical Correlations. 7<sup>th</sup> ed. Wiley (2011)

Nelson DL, Cox MM. Lehninger. Principles of Biochemistry. 3<sup>th</sup> ed. Omega. (2000)

## 2. MIOGLOBINA

### MIOGLOBINA

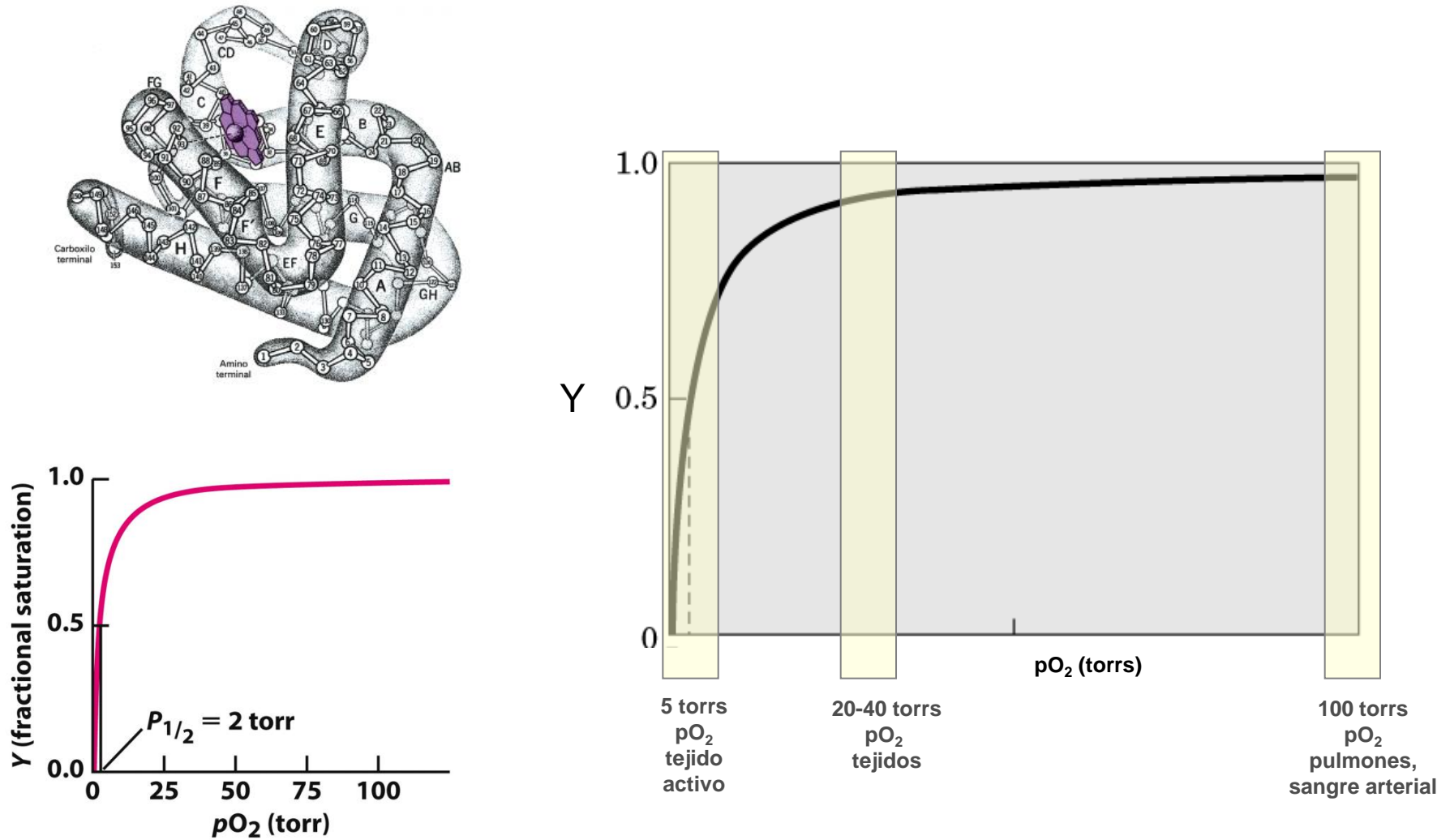


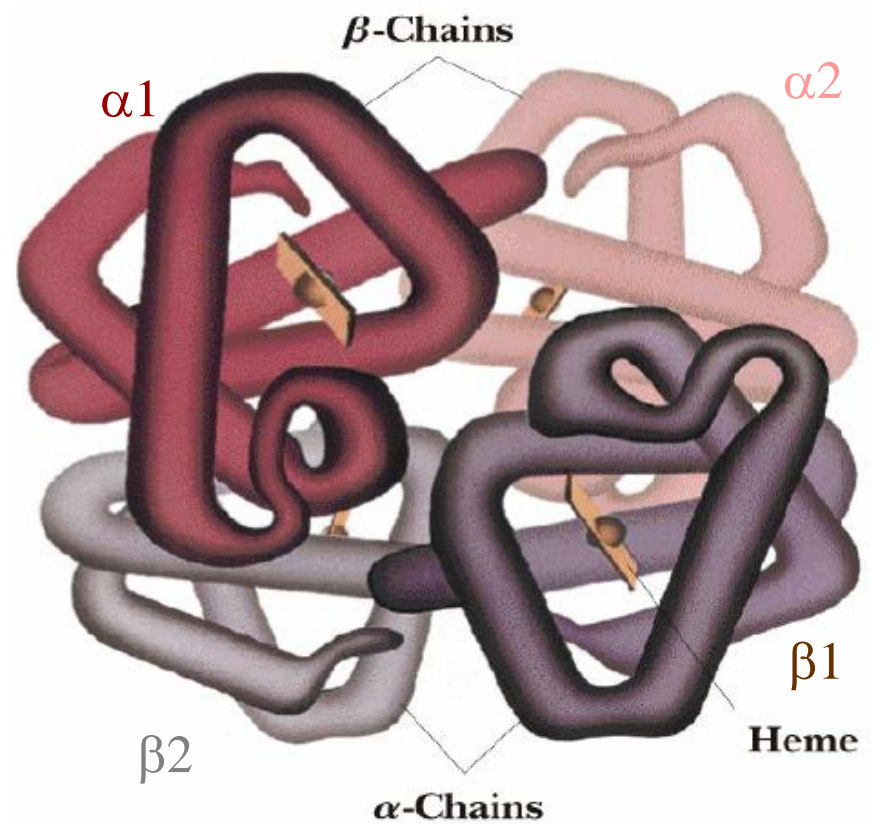
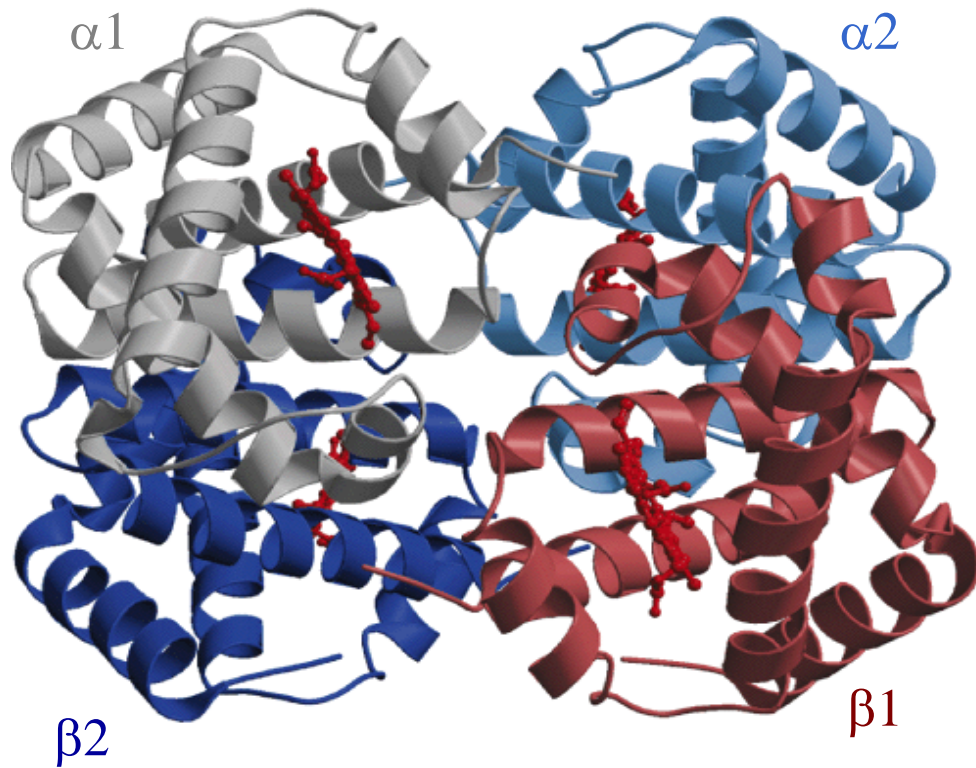
Figure 7.7  
Biochemistry, Seventh Edition  
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### 3. HEMOGLOBINA

PROTEÍNA OLIGOMÉRICA.

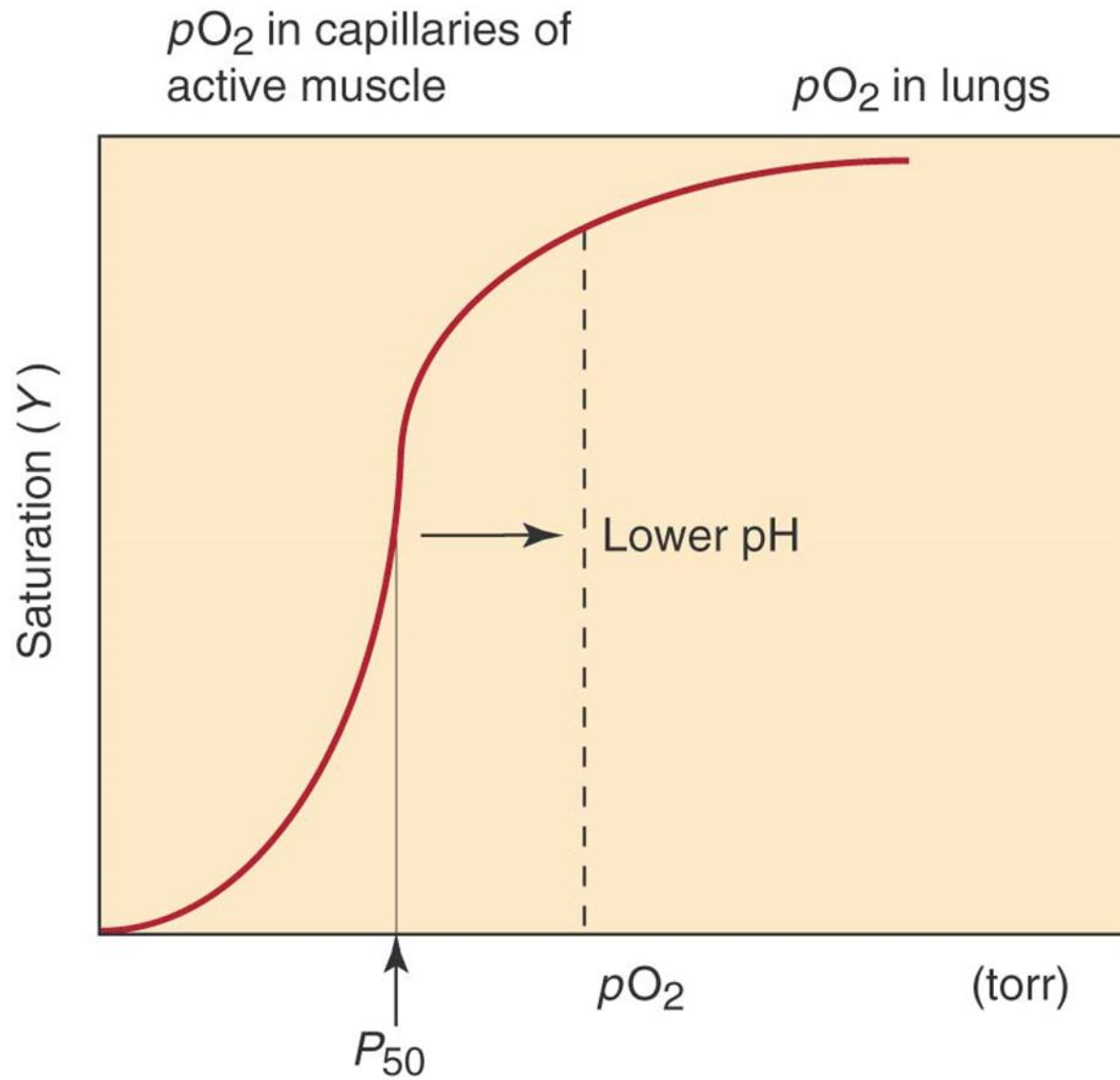
2 CADENAS ALFA (141 aa)

2 CADENAS BETA (146 aa)

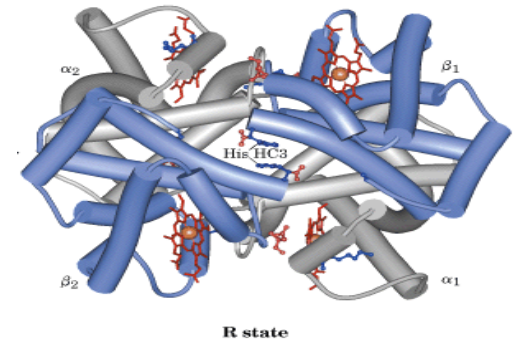
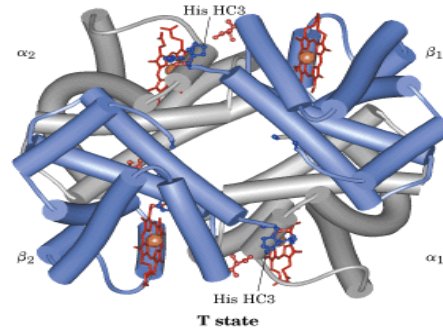
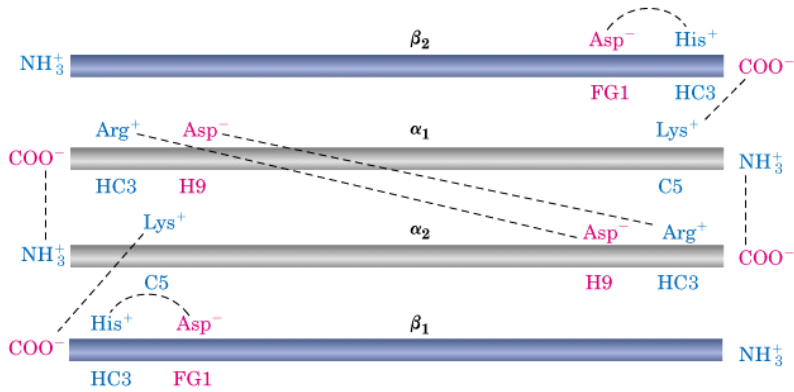




### 3. HEMOGLOBINA A: cinética de unión/cesión de O<sub>2</sub>

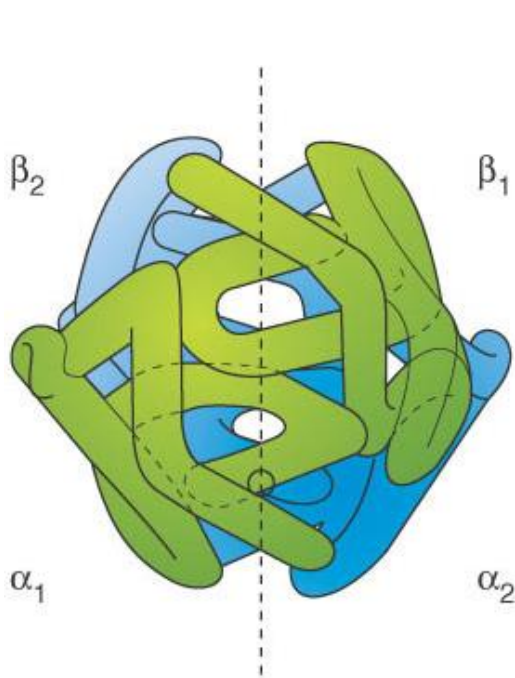


# 3. HEMOGLOBINA A: Interacciones homotrópicas

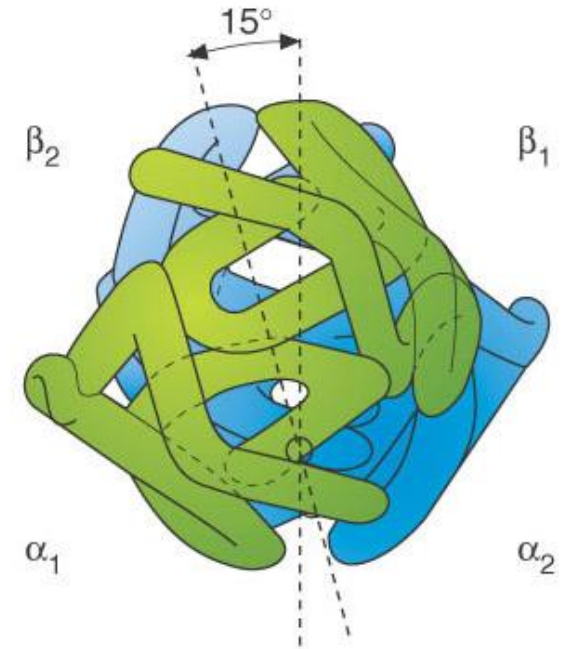
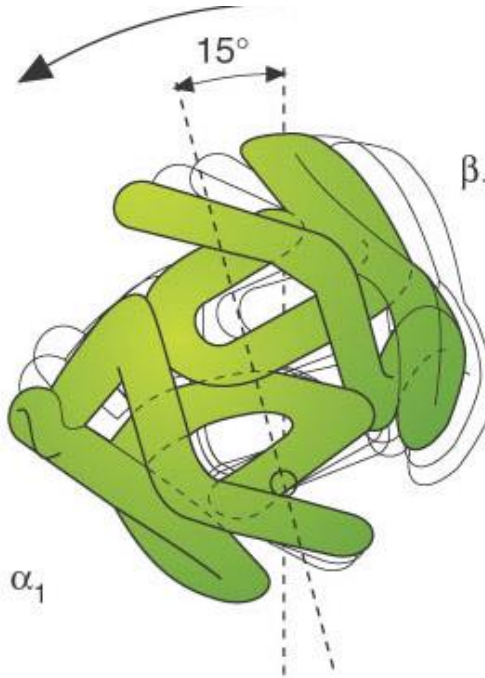


DESOXI-HEMOGLOBINA  
Estado tenso

OXI-HEMOGLOBINA  
Estado relajado

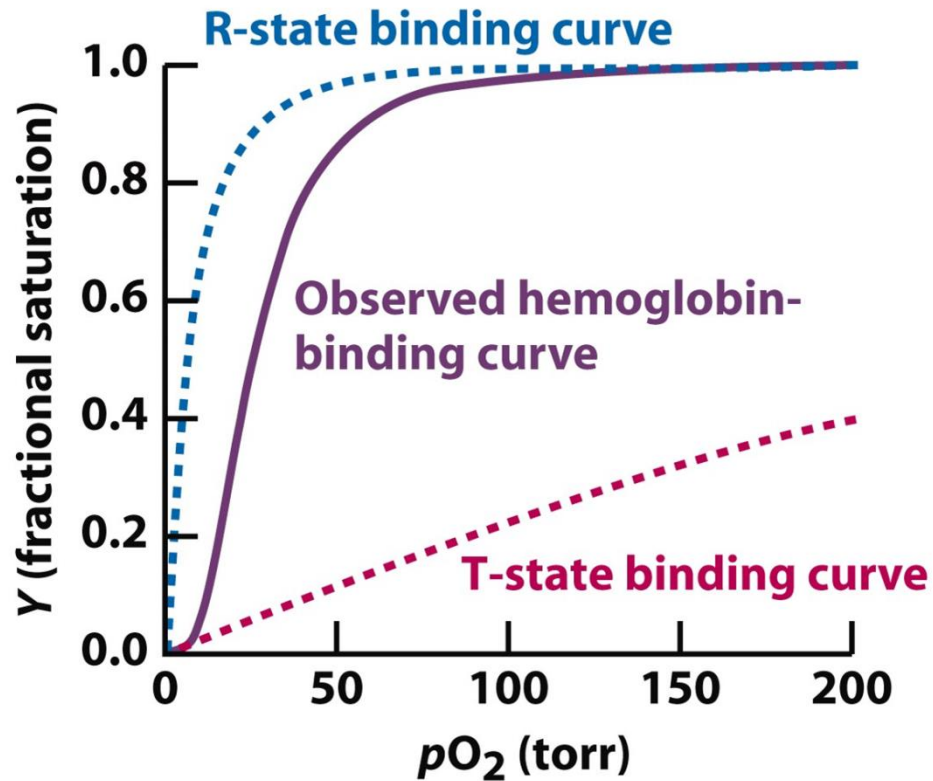
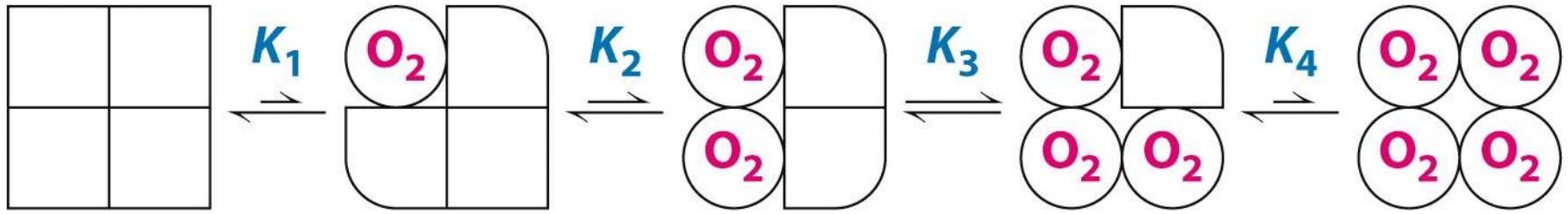


DESOXI-HEMOGLOBINA  
Estado tenso



OXI-HEMOGLOBINA  
Estado relajado

### 3. HEMOGLOBINA A: Interacciones homotrópicas



### 3. HEMOGLOBINA A: Interacciones heterotrópicas

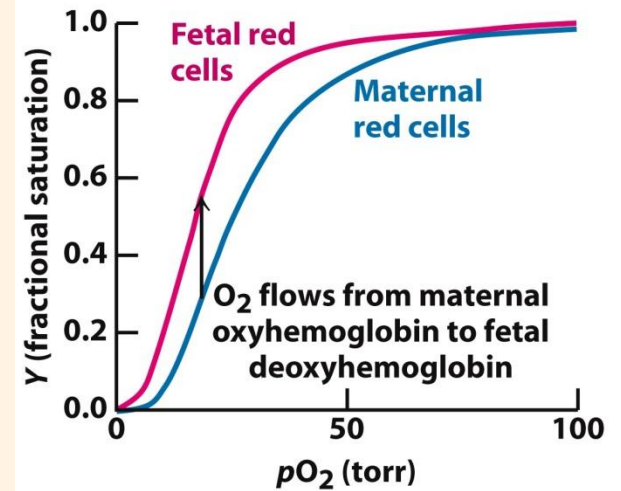
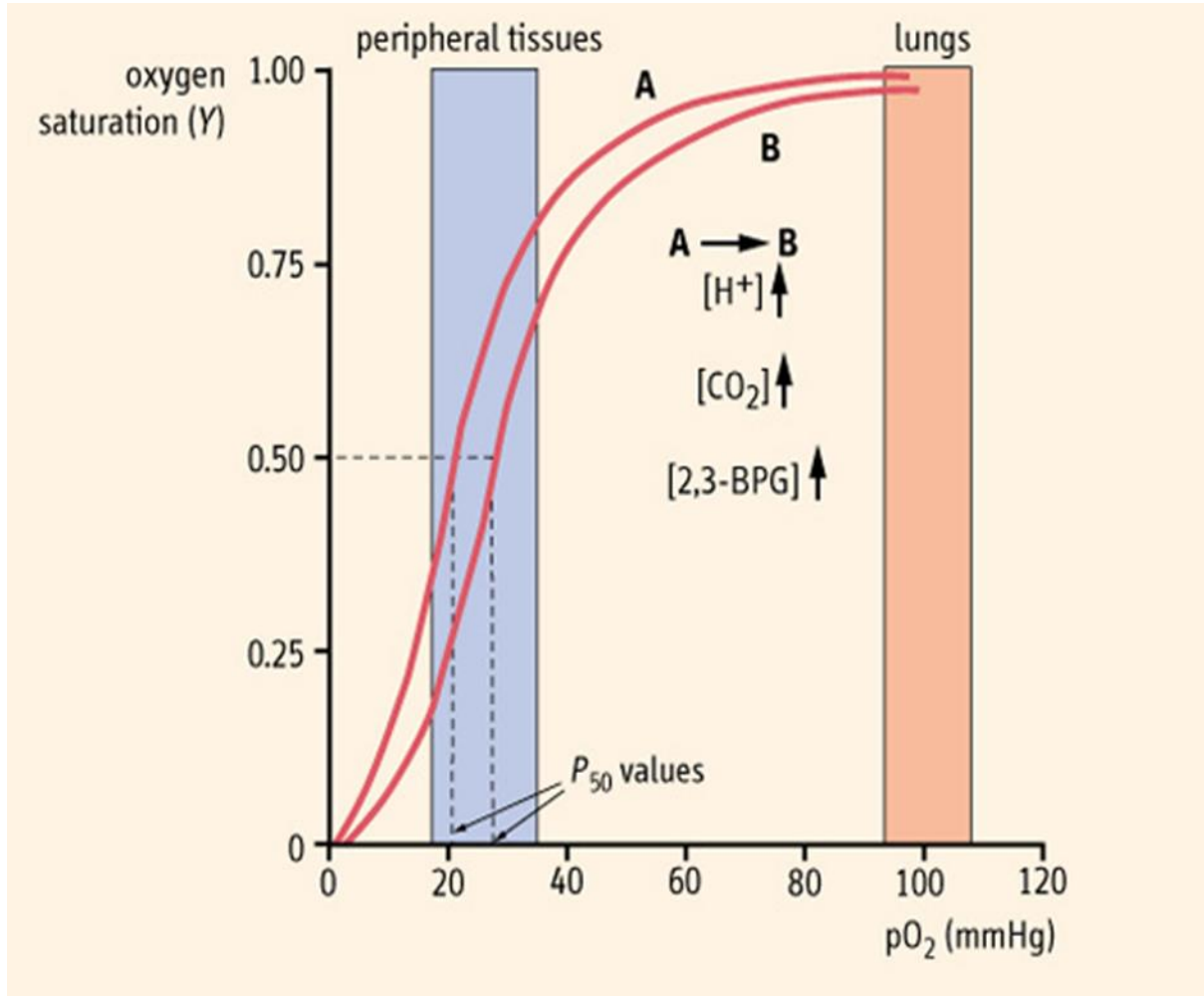
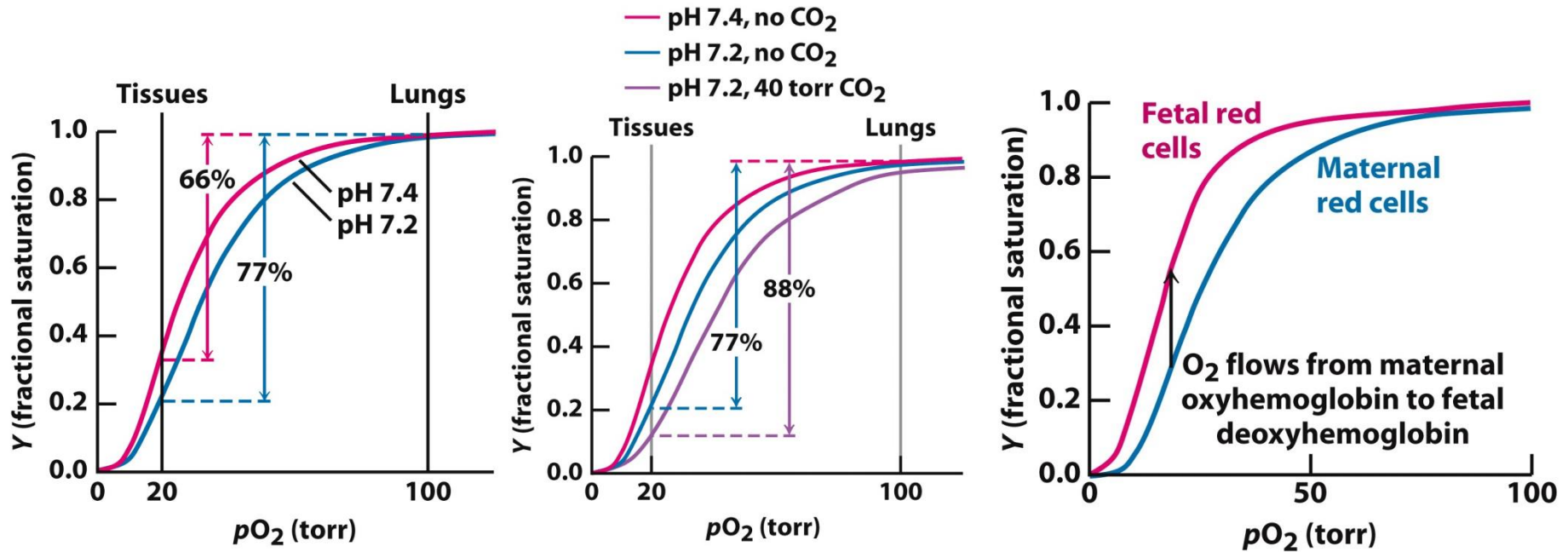


Figure 7.18  
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### 3. HEMOGLOBINA A: Interacciones heterotrópicas



### 3. INTERCAMBIO CELULAR DE O<sub>2</sub>

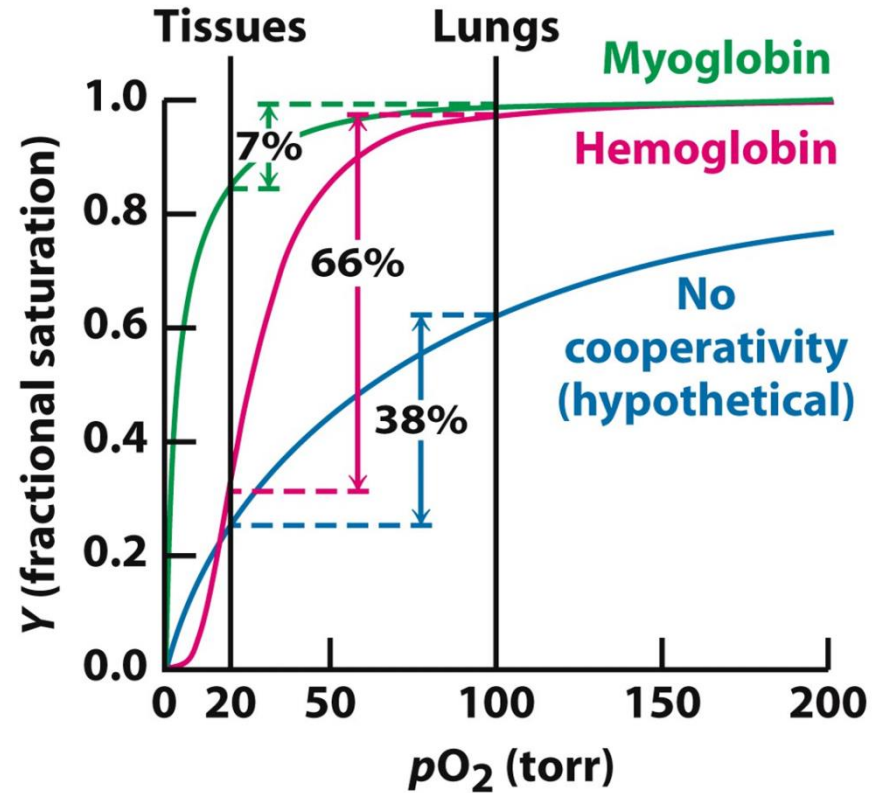
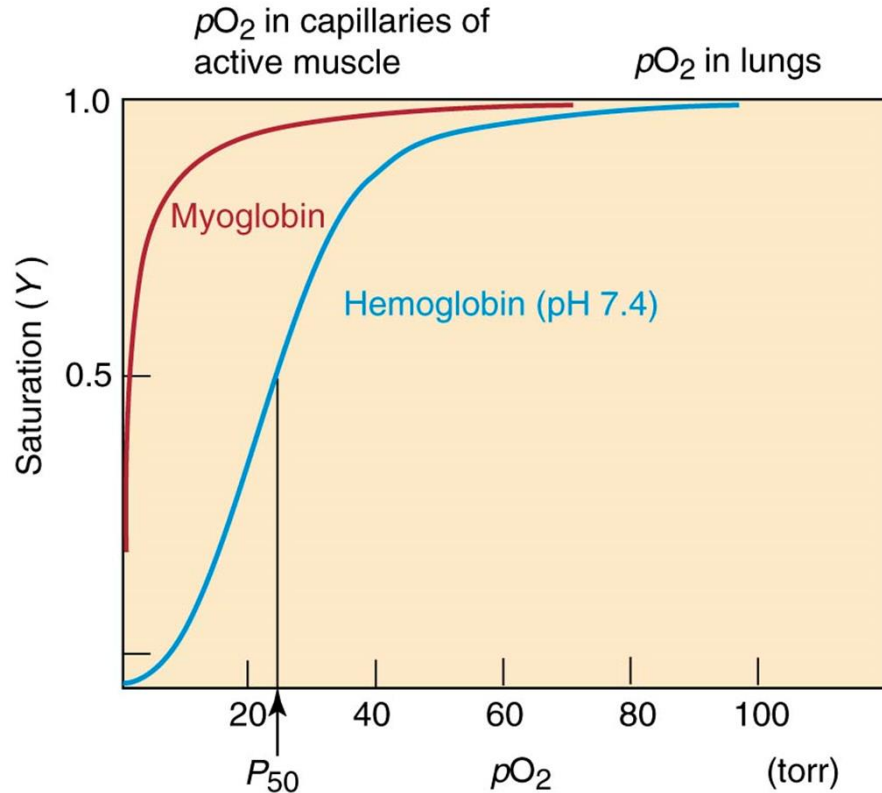


Figure 7.9  
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# 4. CICLO RESPIRATORIO

