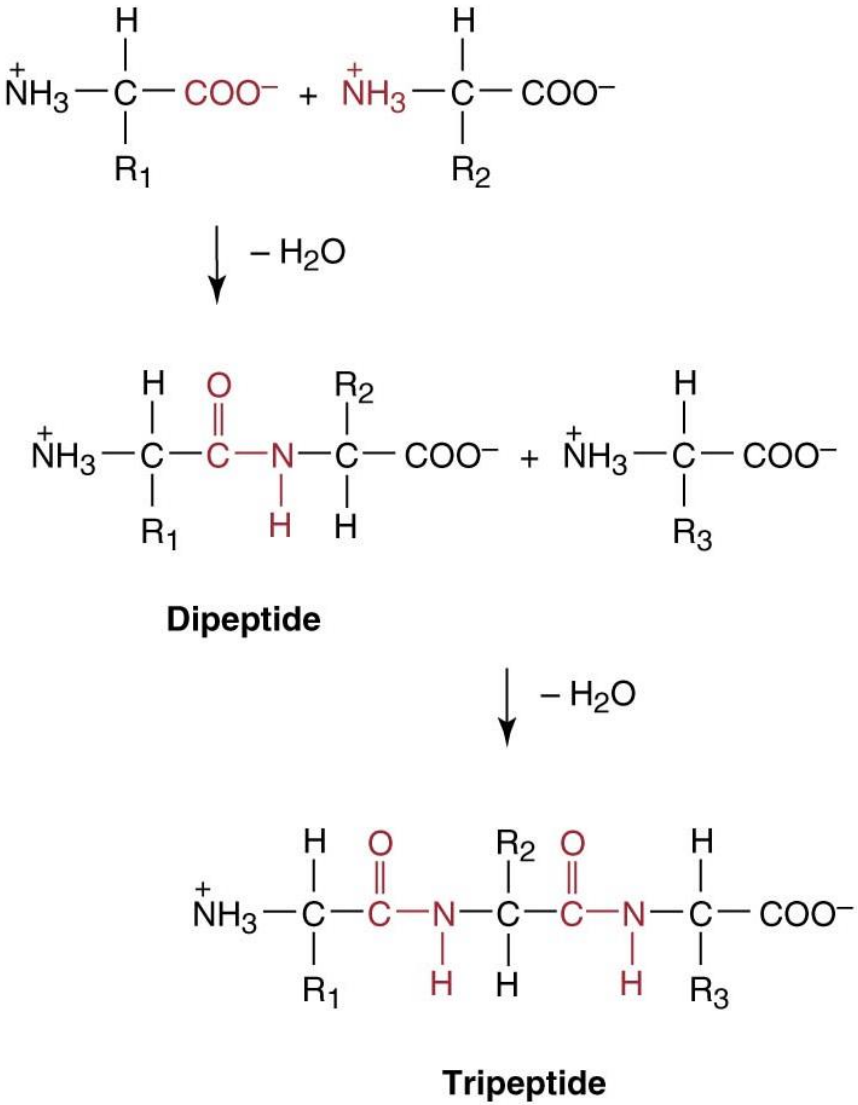
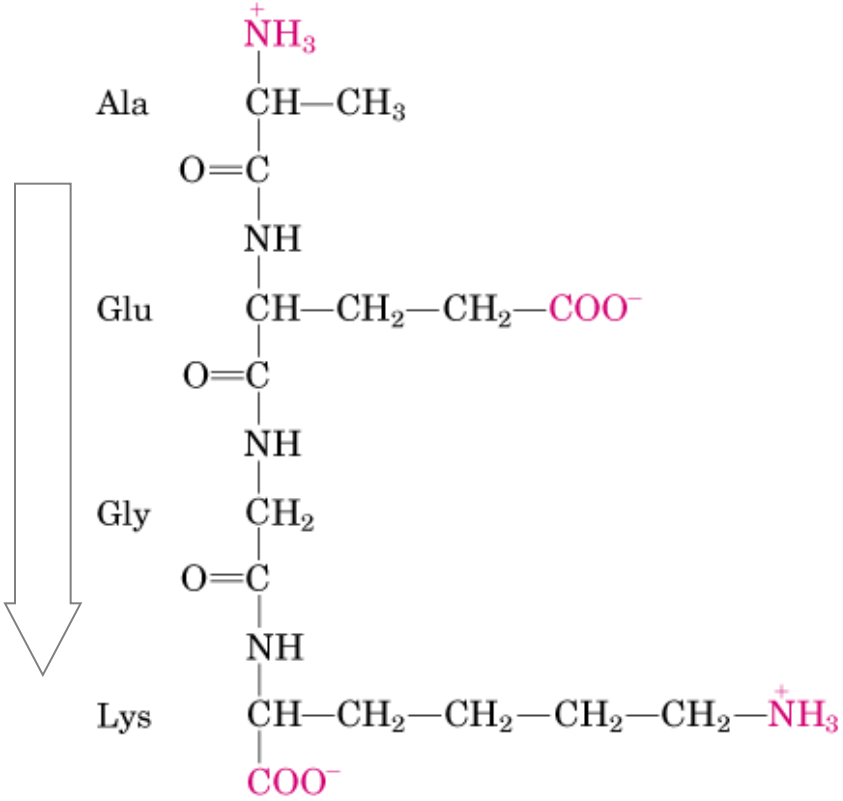
ENLACE PEPTÍDICO.
NIVELES ESTRUCTURALES DE PROTEÍNAS

1. ENLACE PEPTÍDICO:
    1. REACCIÓN
    2. PROPIEDADES.
    3. PÉPTIDOS DE INTERÉS BIOLÓGICO
2. PROTEÍNAS:
    1. CONFORMACIÓN NATIVA
    2. NIVELES ESTRUCTURALES
    3. AGENTES DESNATURALIZANTES

1.1. ENLACE PEPTÍDICO



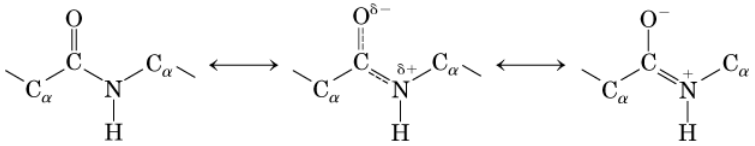


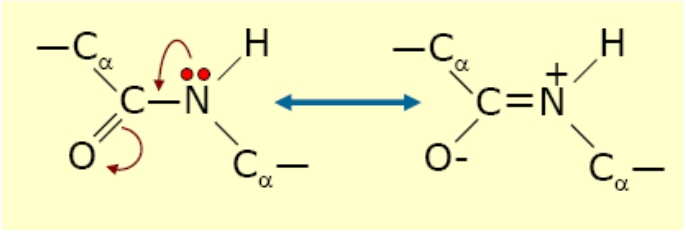
Devlin T. Textbook of Biochemistry with Clinical Correlations. 7ª ed. Wiley & Sons. 2011

Nelson DL. Cox MM. Lehninger. Principles of Biochemistry. 3th ed. Omega. 2000

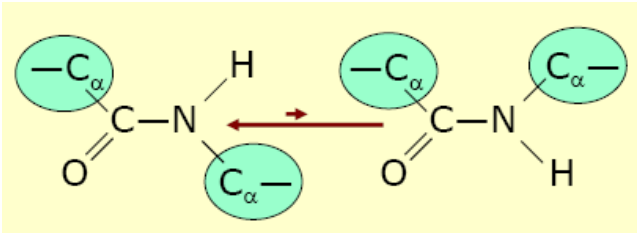
1.2. PROPIEDADES DEL ENLACE PEPTÍDICO

CARÁCTER HÍBRIDO





TRANS



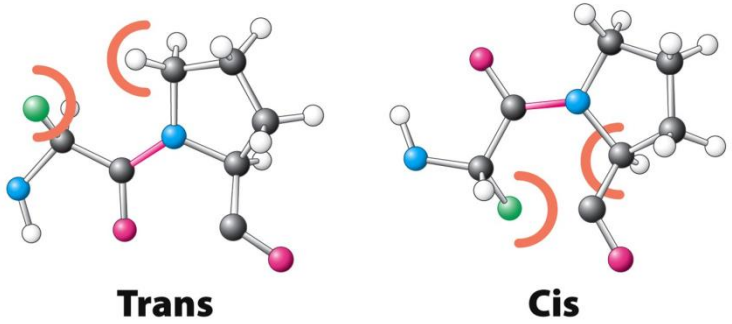


Figure 2.21
Biochemistry, Seventh Edition
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PLANAR/ RÍGIDO

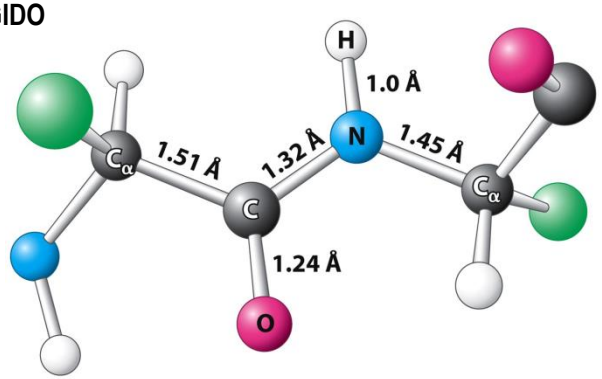

Figure 2.19
Biochemistry, Seventh Edition

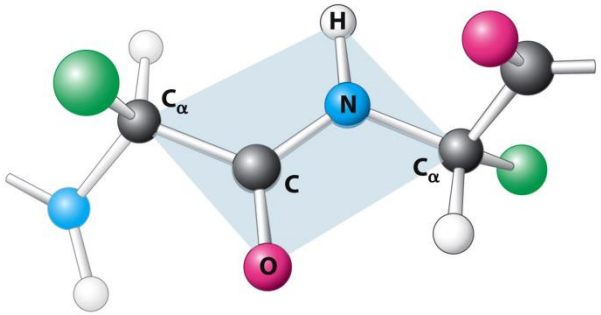

Figure 2.18
Biochemistry, Seventh Edition
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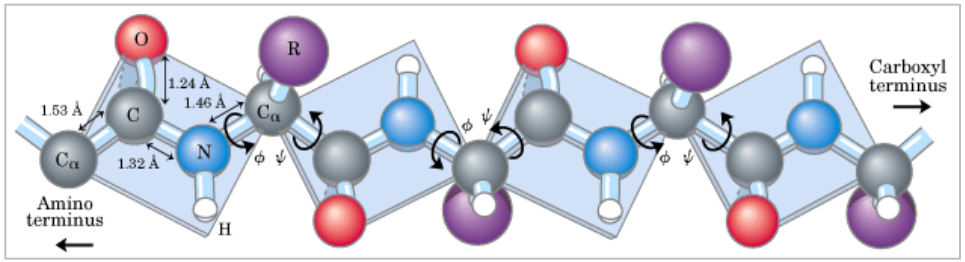
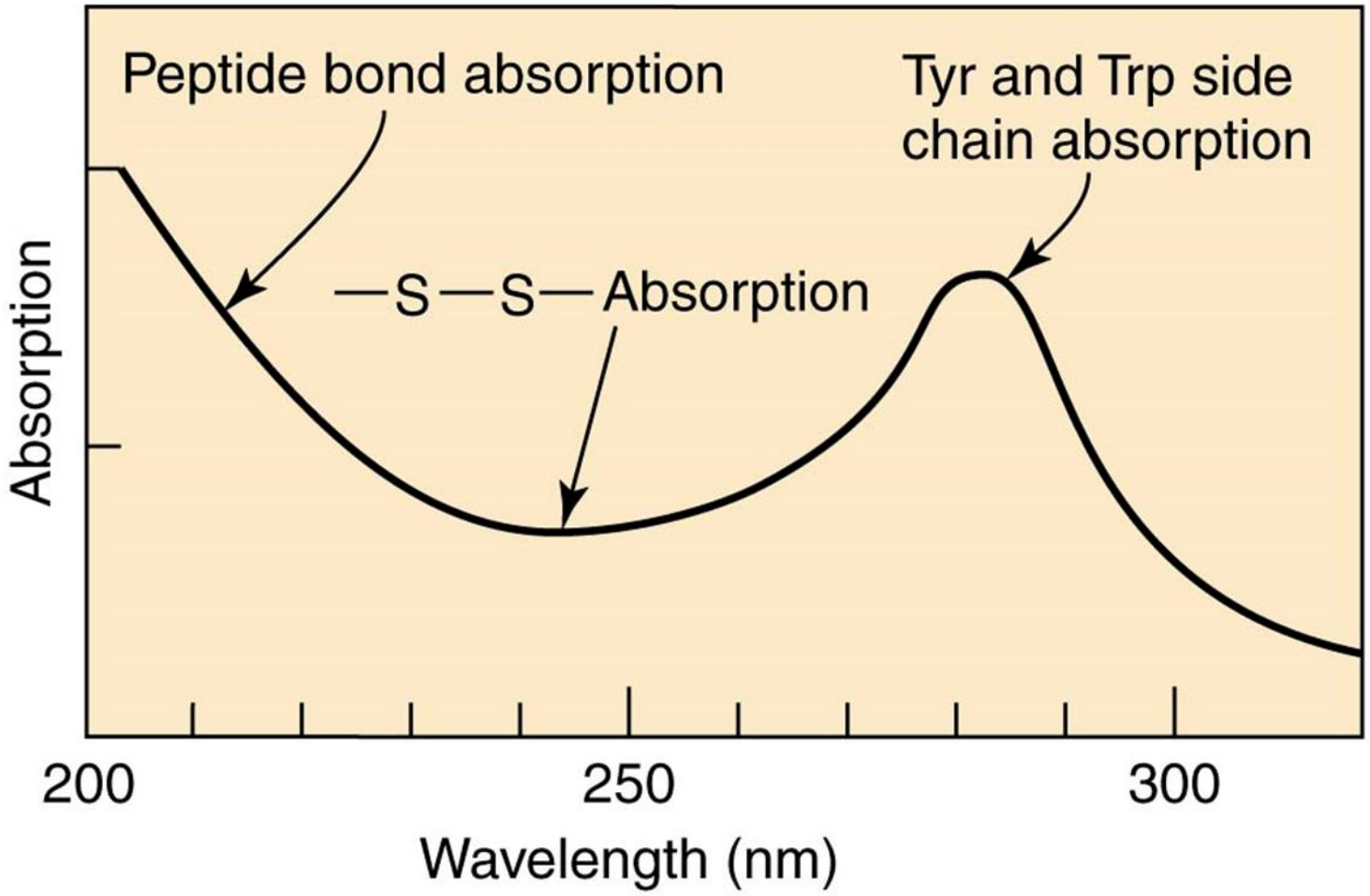


Stryer, Berg, Tymoczko. Biochemistry 7th ed. Freeman & Co (2012)

1.2. PROPIEDADES DEL ENLACE PEPTÍDICO

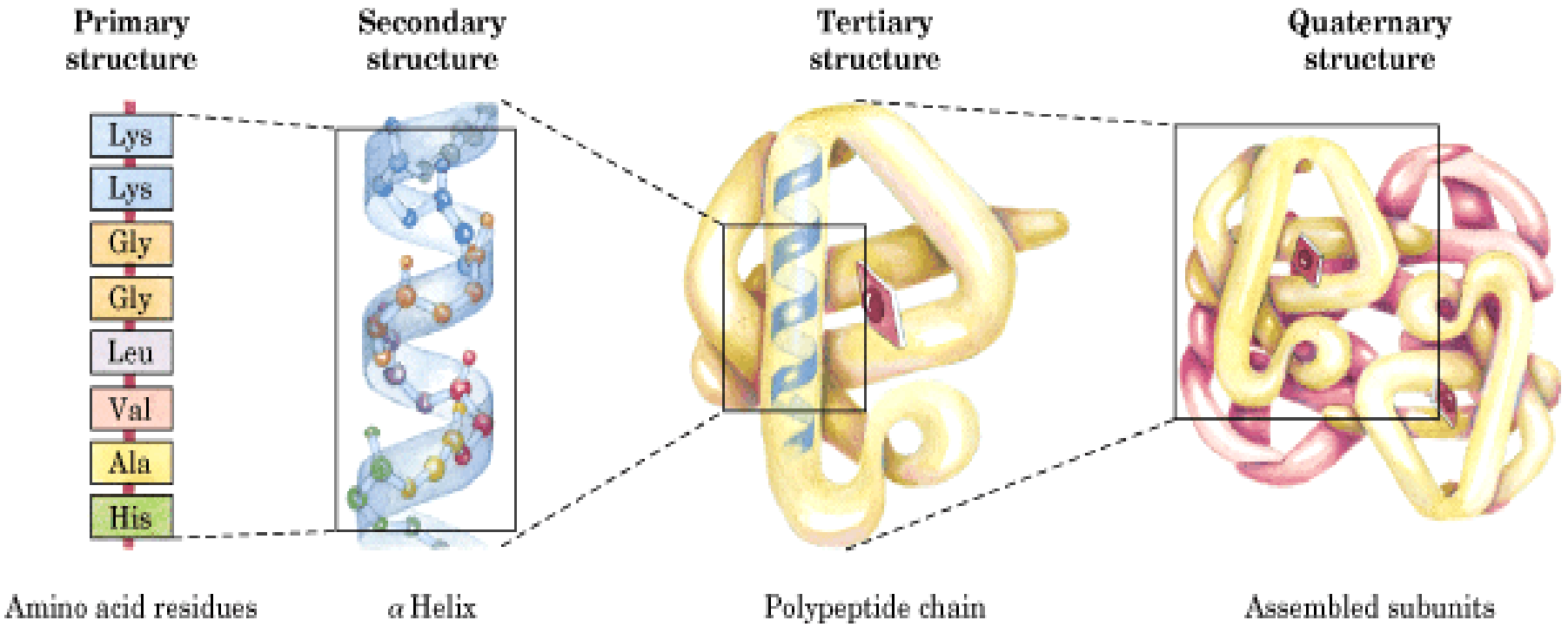


Devlin TM. Textbook of Biochemistry with Clinical Correlations. 7th ed. Wiley (2011)

1.3. PÉPTIDOS

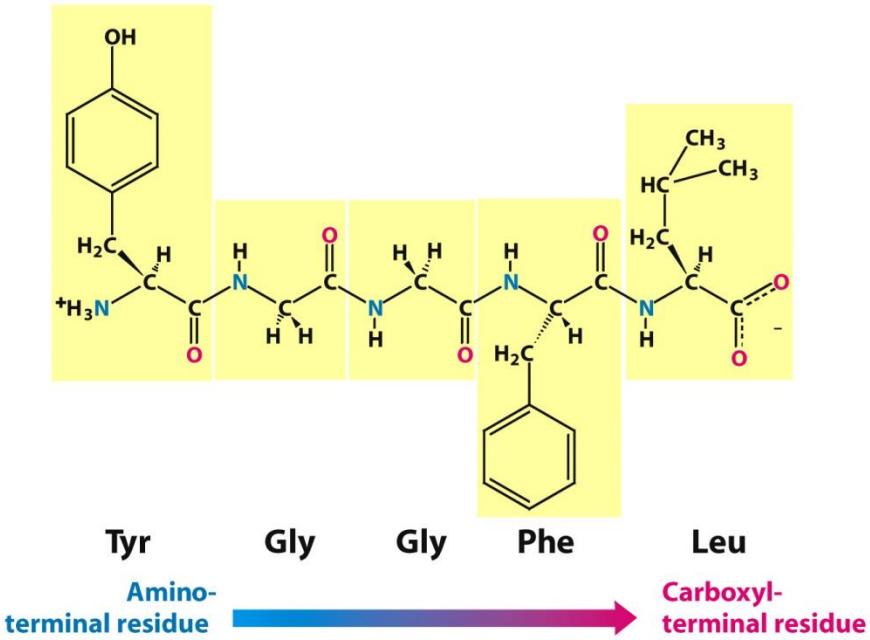
HORMONAL	VASOPRESINA (antidiurética) OXITOCINA (contracción ML) SOMATOSTATINA (inhibidor GH) INSULINA (homeostasis glucídica) GLUCAGÓN (homeostasis glucídica)	9 aa (Cys-Tyr-Phe-Gln-Asn-Cys-Pro-Arg-Gly) 9 aa (Cys-Tyr-Ile-Gln-Asn-Cys-Pro-Leu-Gly) 34 aa 51 aa 29 aa
NEUROTRANSMISORES	ENCEFALINAS ENDORFINAS	5 aa: Tyr-Gly-Gly-Phe-Met 5 aa: Tyr-Gly-Gly-Phe-Leu
ANTIBIÓTICA	VALINOMICINA GRADIMICINAS	
VASOACTIVA	ANGIOTENSINA II (hipertensor) BRADIQUIDINA (hipotensor)	8 aa: Asp-Arg-Val-Tyr-Ile-His-Pro-Phe-X 9 aa: Arg-Pro-Pro-Gly-Phe-Ser-Pro-Phe-Arg
ANTIOXIDANTE	GLUTATION	γ-Glu-Cys-Gly

2. NIVELES ESTRUCTURALES DE LAS PROTEÍNAS

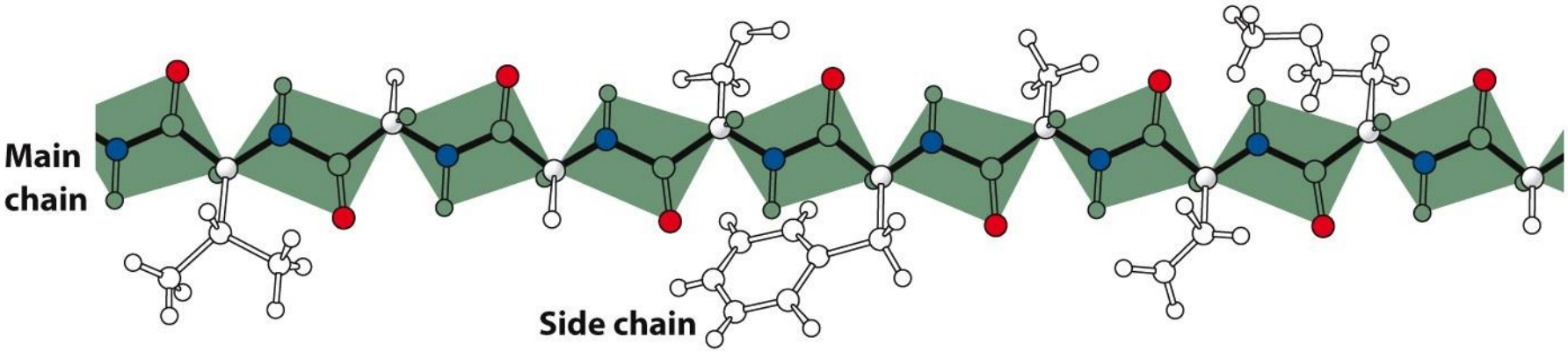


Nelson DL. Cox MM. Lehninger. Principles of Biochemistry. 3th ed. Omega. 2000

2.1. ESTRUCTURA PRIMARIA

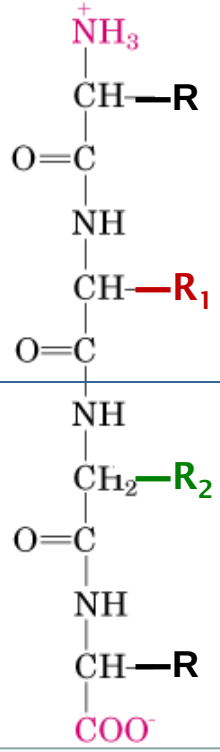


Stryer, Berg, Tymoczko. Biochemistry 7th ed. Freeman & Co (2012)



Voet D, Voet JG. Biochemistry 4th ed. Wiley 2011)

2.1. FRAGMENTACIÓN DE LA ESTRUCTURA PRIMARIA



ENDOPEPTIDASAS C

TRIPSINA: R_1 = Lys, Arg

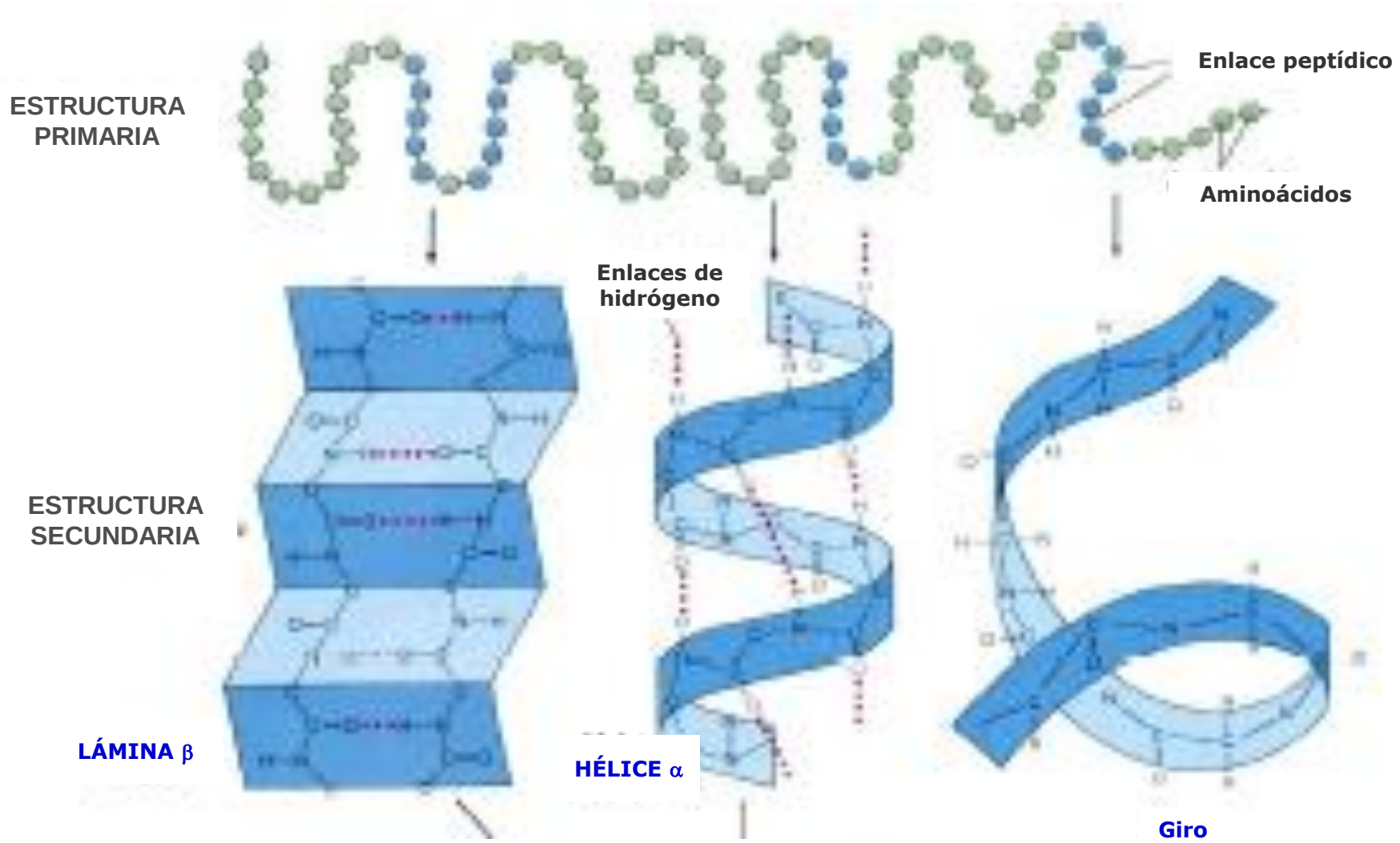
QUIMOTRIPSINA: R_1 = Phe, Tyr, Trp

ENDOPEPTIDASAS N

TERMOLISINA: R_2 = apolares ramificados

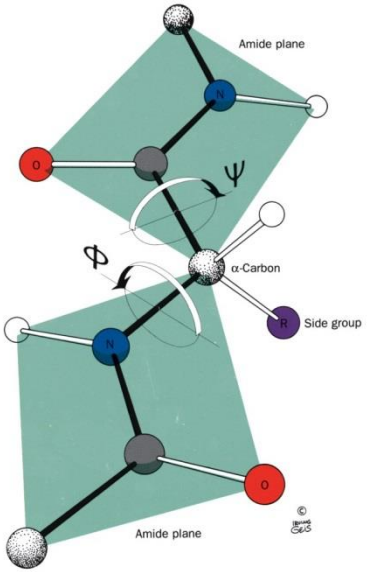
PEPSINA: R_2 = Phe, Tyr, Trp

2.2. ESTRUCTURA SECUNDARIA



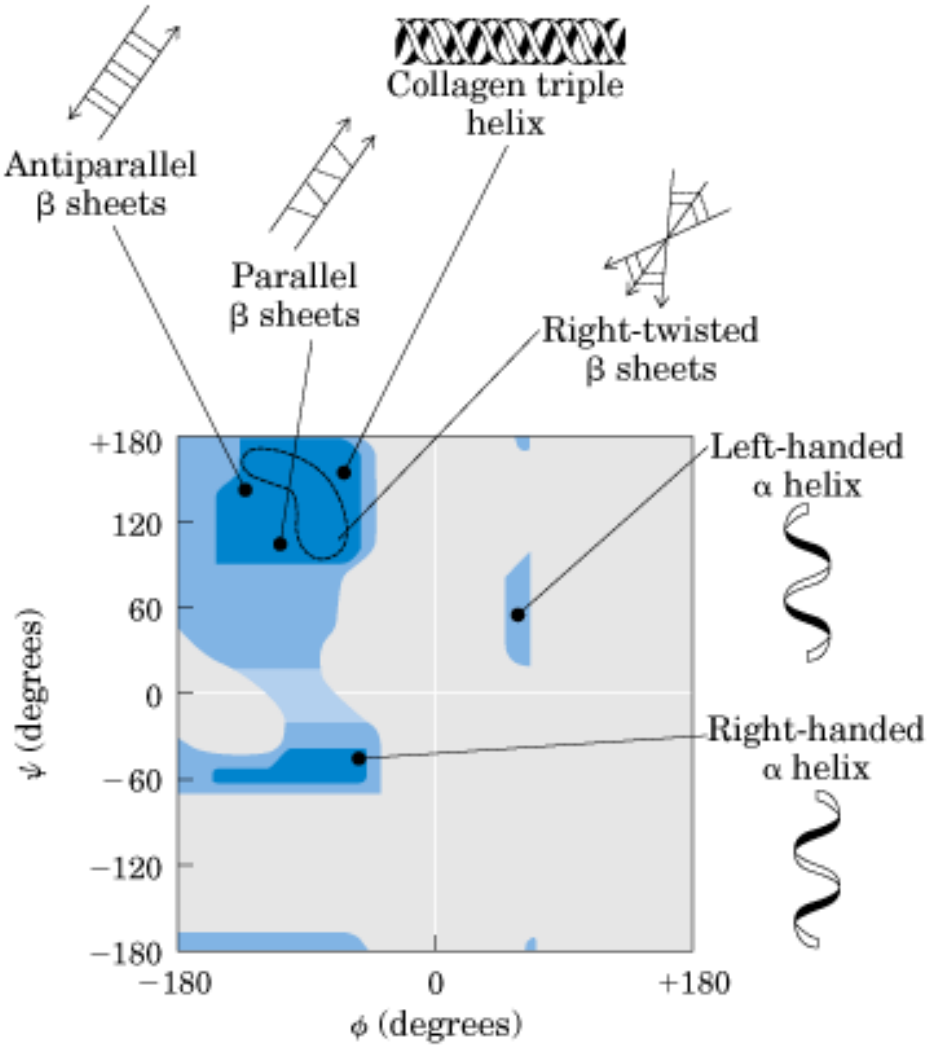
(Concepts in Biochemistry. 3th ed. Wiley & Sons. 2006)

2.2. ESTRUCTURA SECUNDARIA



Secondary Structure	ϕ (deg)	ψ (deg)
Right-handed α helix (α)	−57	−47
Parallel β pleated sheet (↑↑)	−119	113
Antiparallel β pleated sheet (↑↓)	−139	135
Right-handed 3_{10} helix (3)	−49	−26
Right-handed π helix (π)	−57	−70
2.2_7 ribbon (2)	−78	59
Left-handed polyglycine II and polyproline II helices (II)	−79	150
Collagen (C)	−51	153
Left-handed α helix (α_L)	57	47

[After Flory, P.J., *Statistical Mechanics of Chain Molecules, p.* 253, Interscience (1969); *and* IUPAC-IUB Commission on Biochemical Nomenclature, *Biochemistry* **9**, 3475 (1970).]

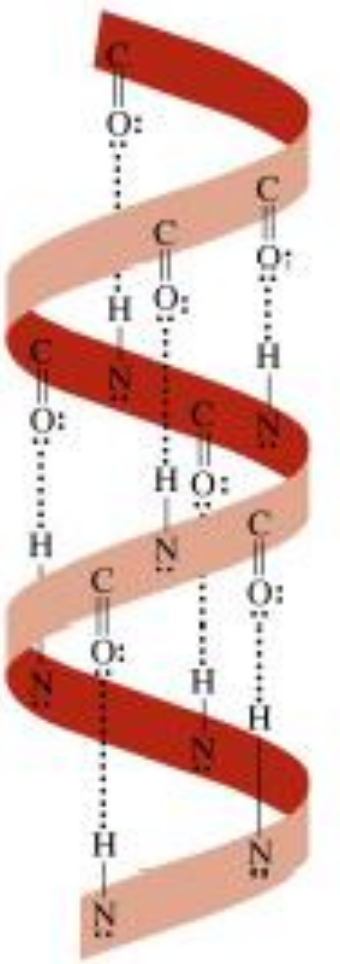


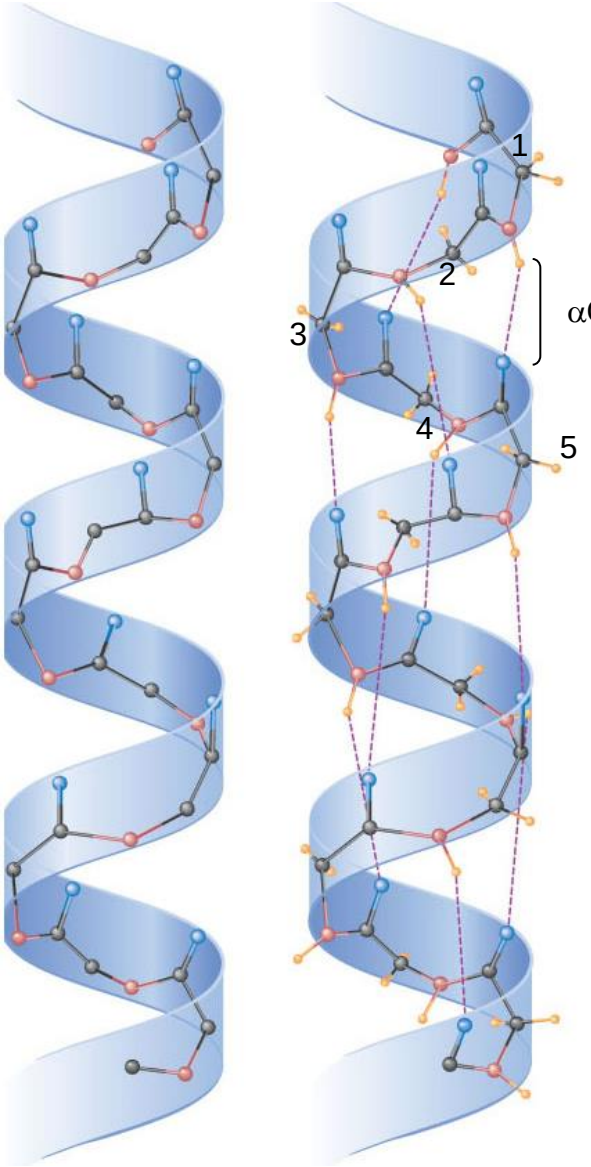
REPRESENTACIÓN DE RAMACHANDRAN

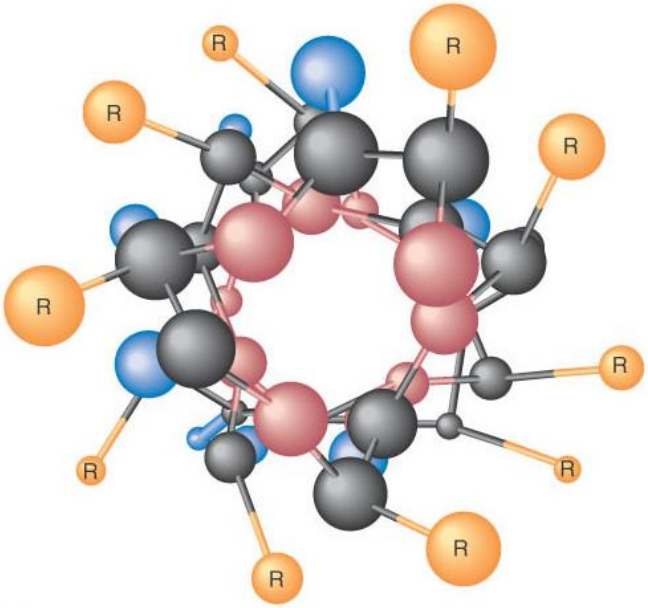
Voet D, Voet JG. Biochemistry 4th ed. Wiley 2011)

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

2.2. ESTRUCTURA SECUNDARIA α-HÉLICE







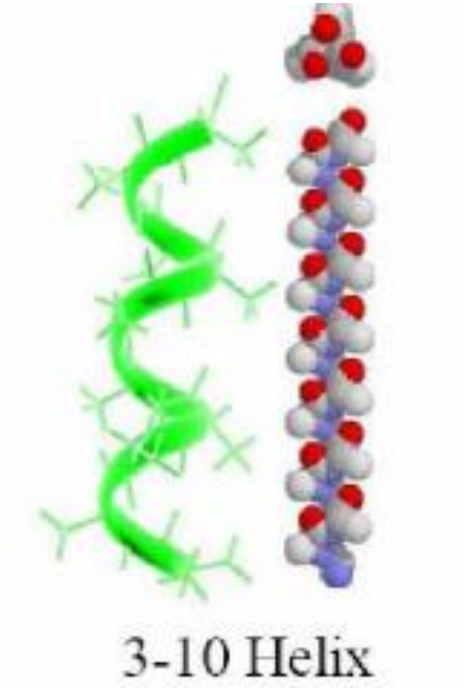
Nelson DL. Cox MM. Lehninger. Principles of Biochemistry. 3th ed. Worth Publishers. 2000

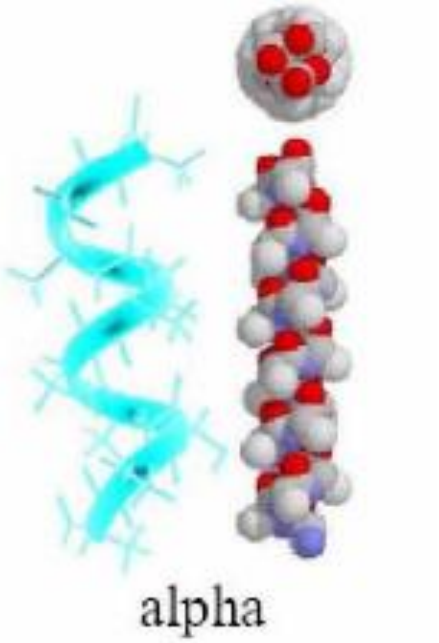
McKee. Biochemistry.. 3th ed. McGraw-Hill. 2003

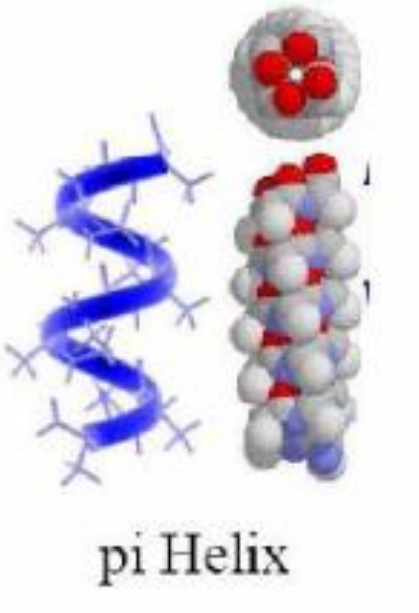
McKee. Biochemistry.. 3th ed. McGraw-Hill. 2003

2.2. ESTRUCTURAS SECUNDARIAS HELICOIDALES

NOMBRE	PHI	PSI	ENLACES DE HIDRÓGENO	GIRO
HÉLICE 3-10	-49	-26	i+3	Dextrógira
HÉLICE ALFA	-57	-47	i+4	Dextrógira
HÉLICE π	-57	-80	i+5	Dextrógira (poco frecuente)
HÉLICE TIPO II	-79	150		Levógira: poli-Gly, poli-Pro

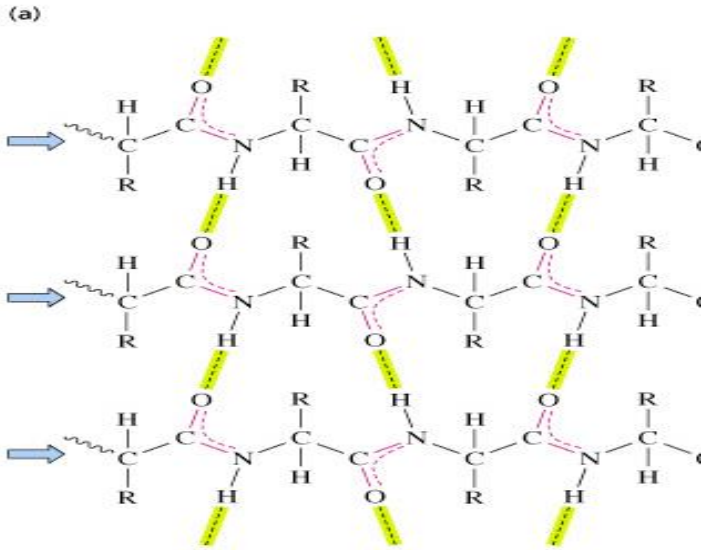


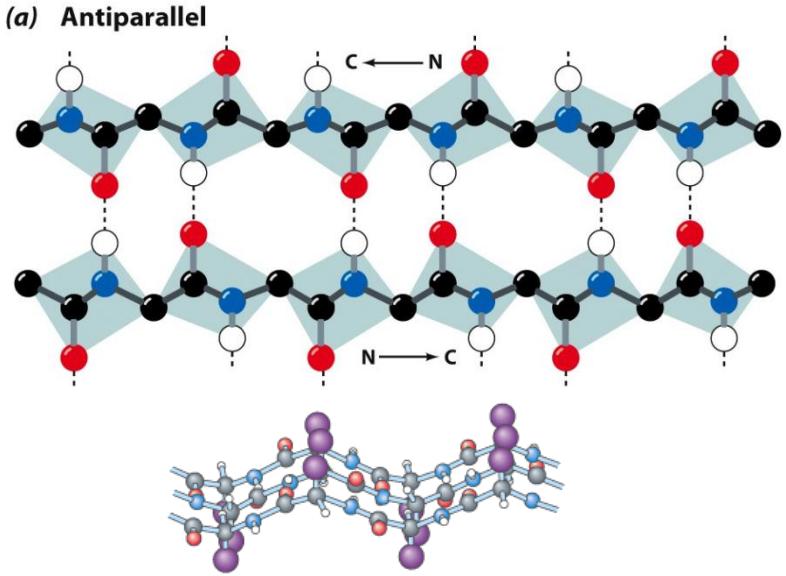




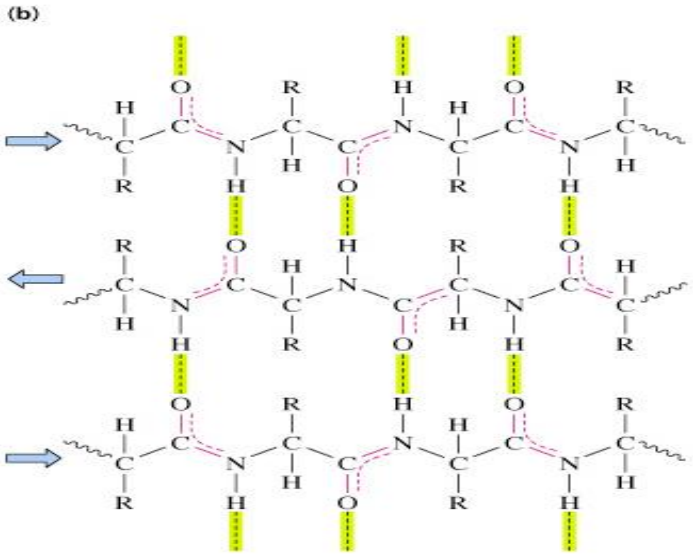
2.2. ESTRUCTURA SECUNDARIA LÁMINA BETA

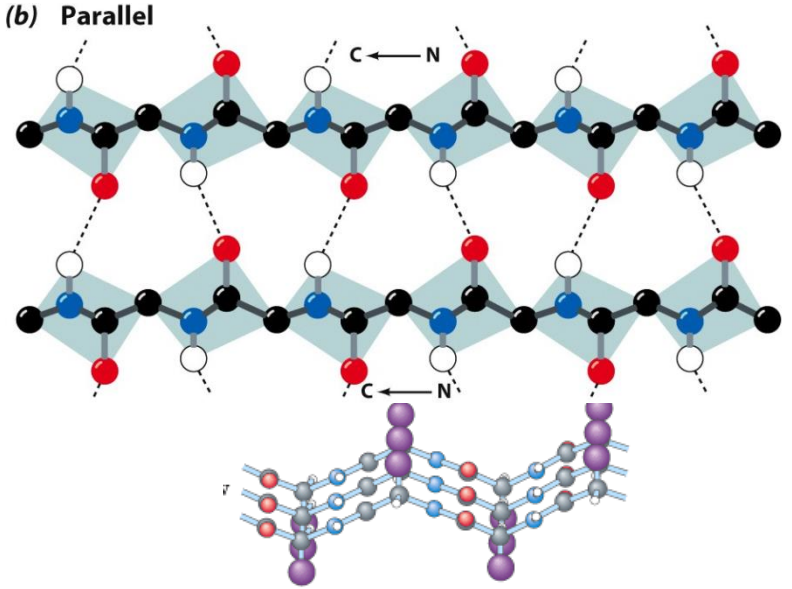
LÁMINAS β PARALELAS



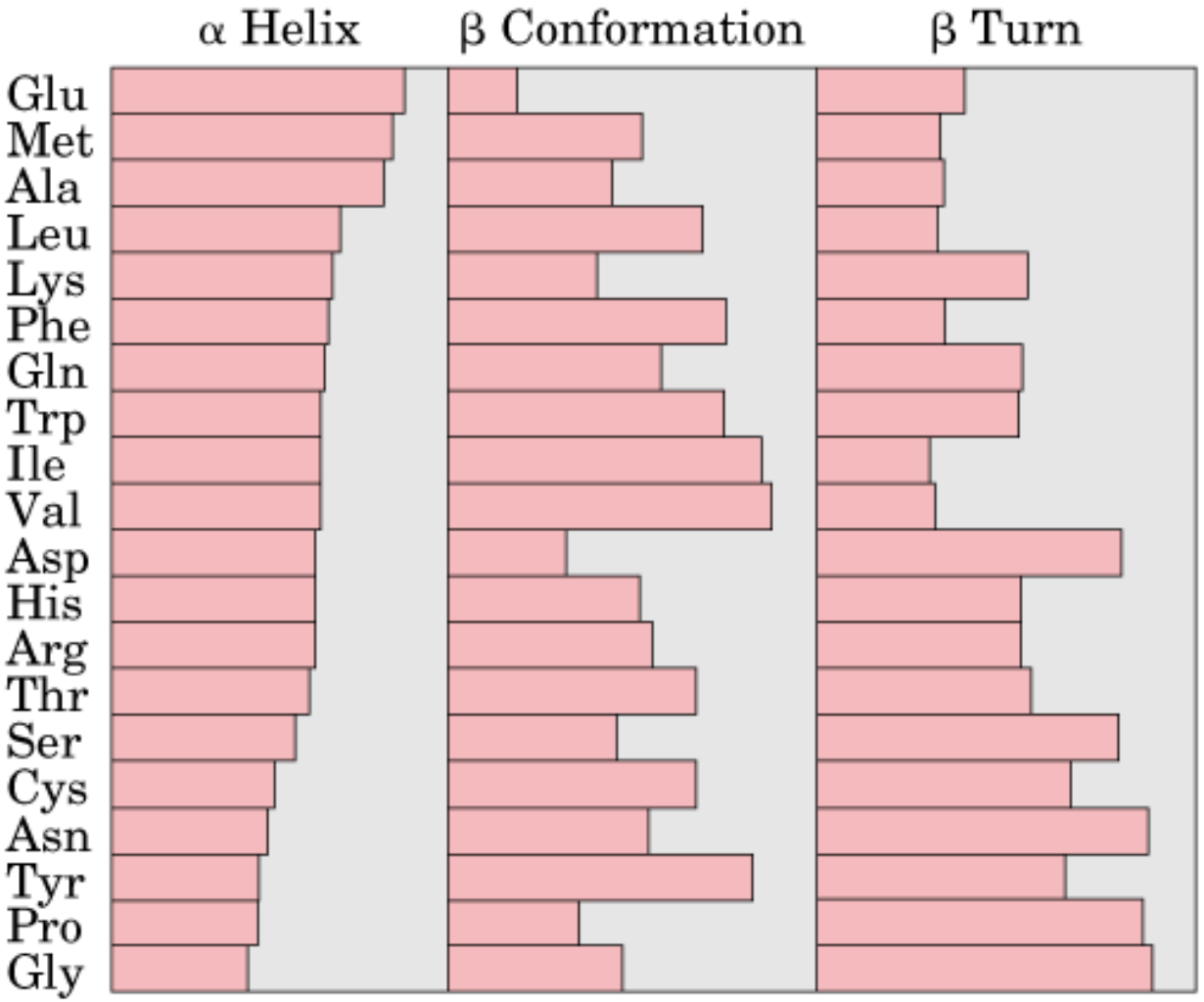


LÁMINAS β ANTIPARALELAS



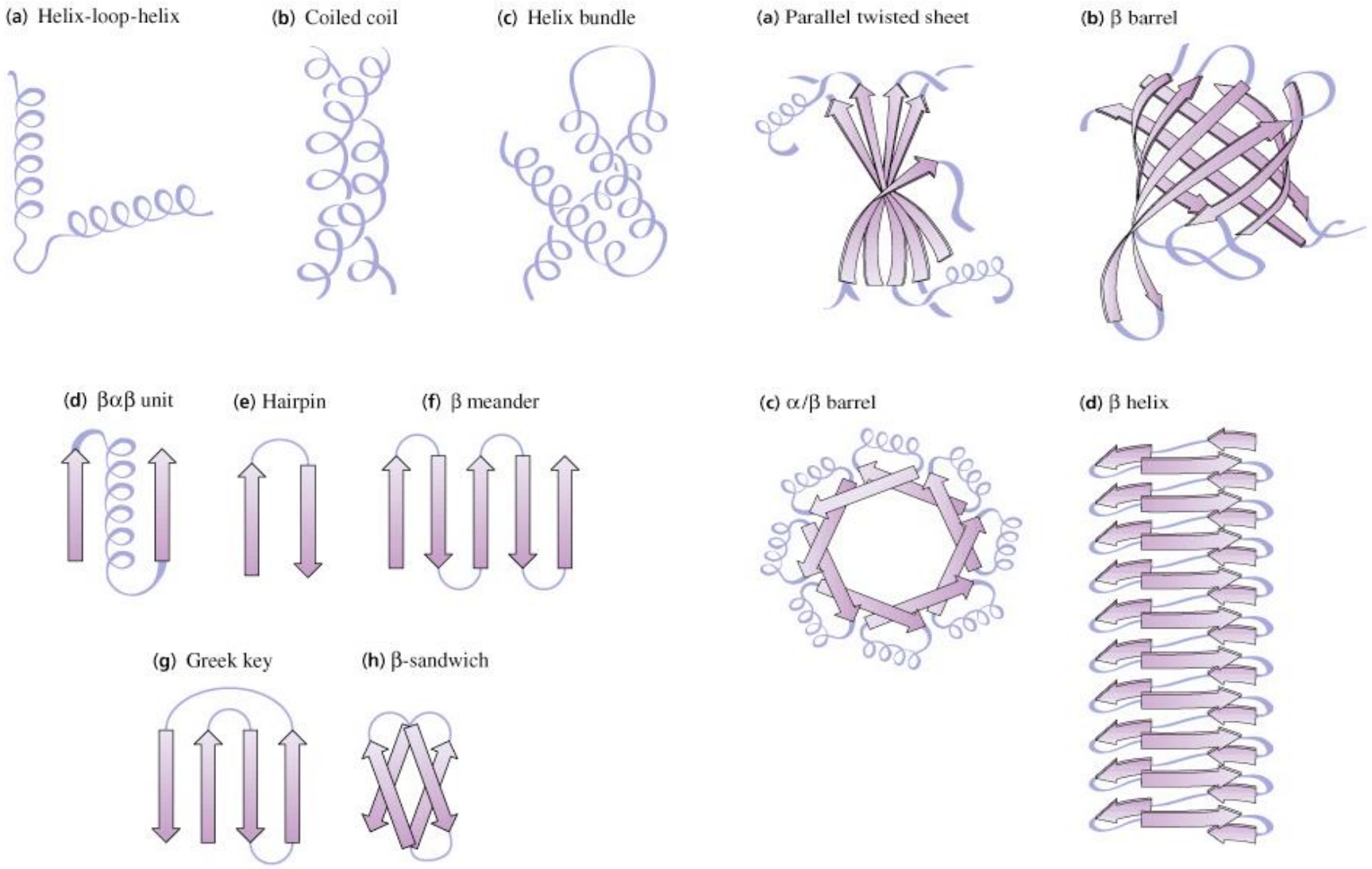


2.2. ESTRUCTURA SECUNDARIA: FRECUENCIA DE AMINOÁCIDOS



Nelson DL. Cox MM. Lehninger. Principles of Biochemistry. 3th ed. Omega. 2000

2.2. ESTRUCTURAS SUPERSECUNDARIAS



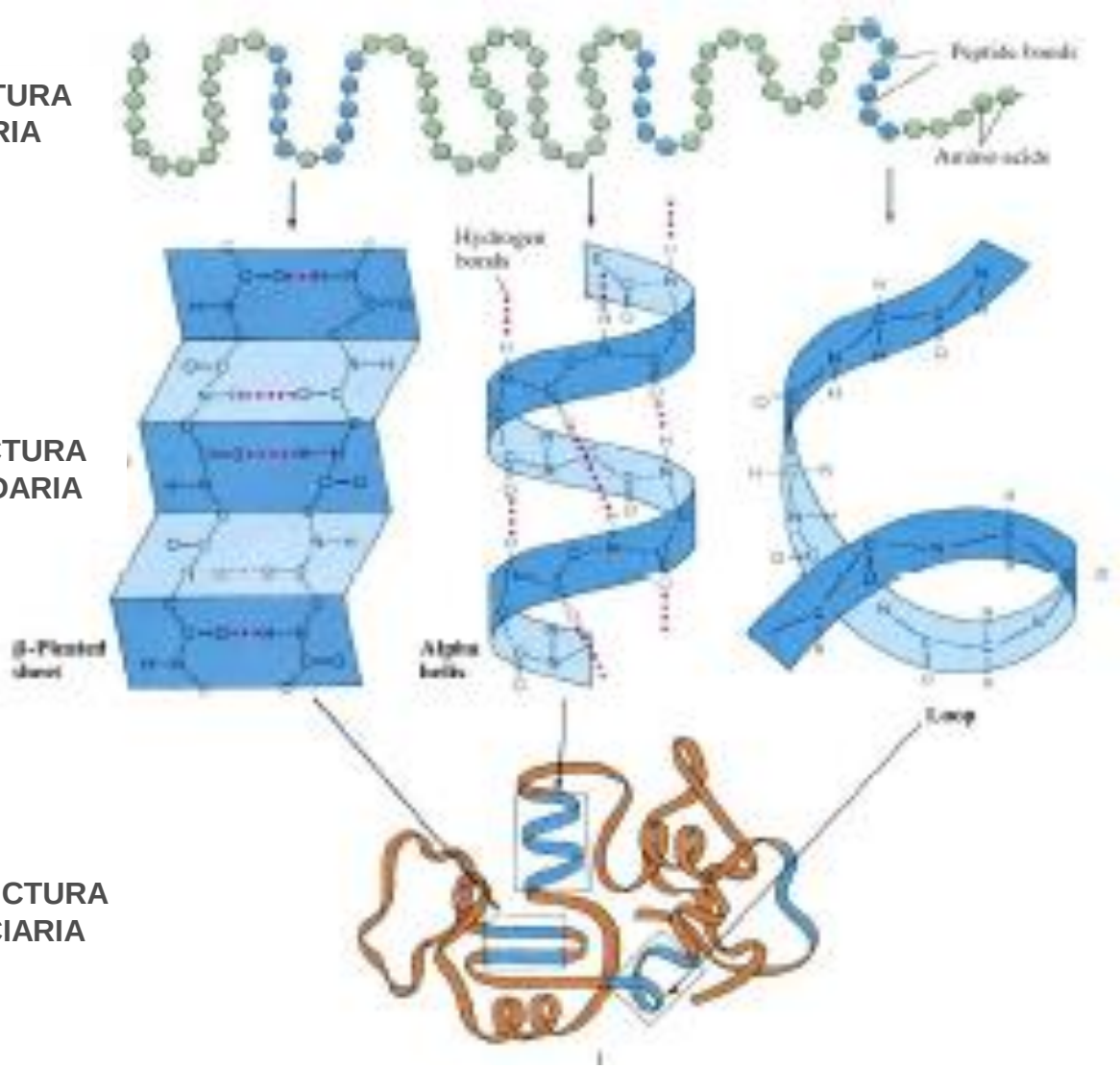
Nelson DL. Cox MM. Lehninger. Principles of Biochemistry. 3th ed. Omega. 2000

2.3. ESTRUCTURA TERCIARIA

ESTRUCTURA PRIMARIA

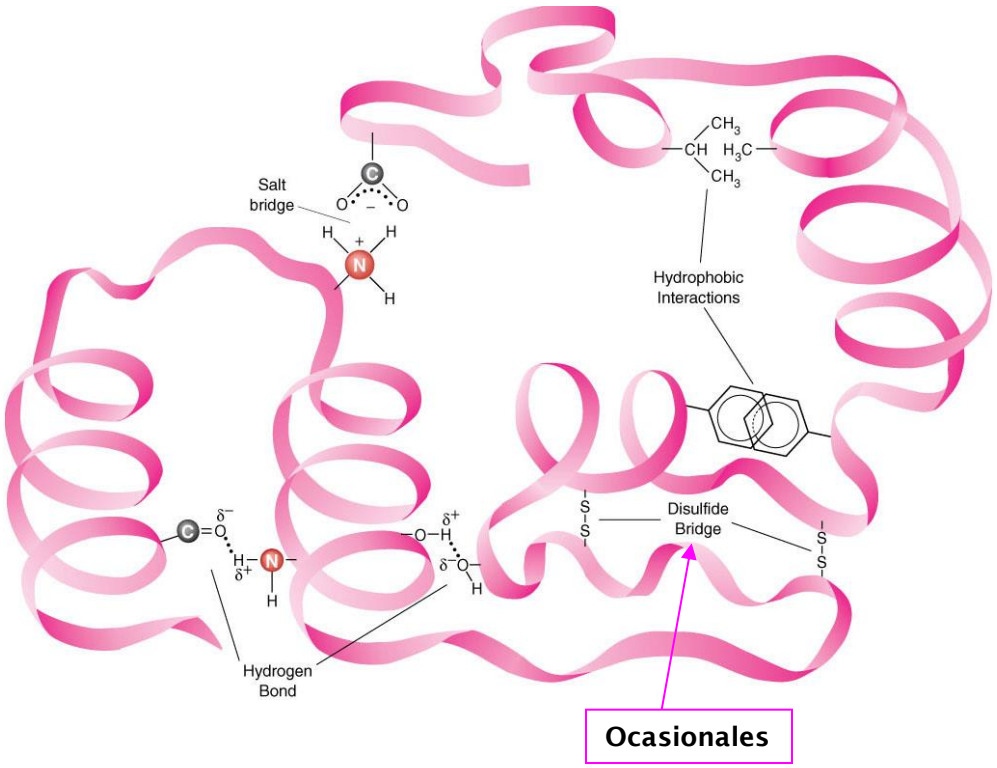
ESTRUCTURA SECUNDARIA

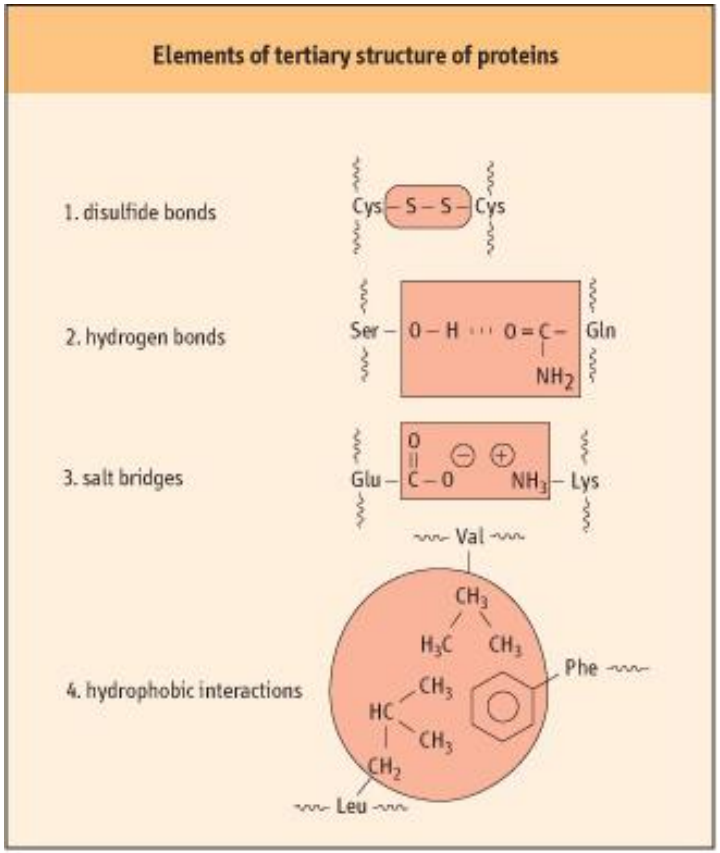
ESTRUCTURA TERCIARIA



(Biochemistry. McKee. 3th ed. McGraw-Hill. 2003)

2.3. ESTRUCTURA TERCIARIA: ESTABILIZACIÓN

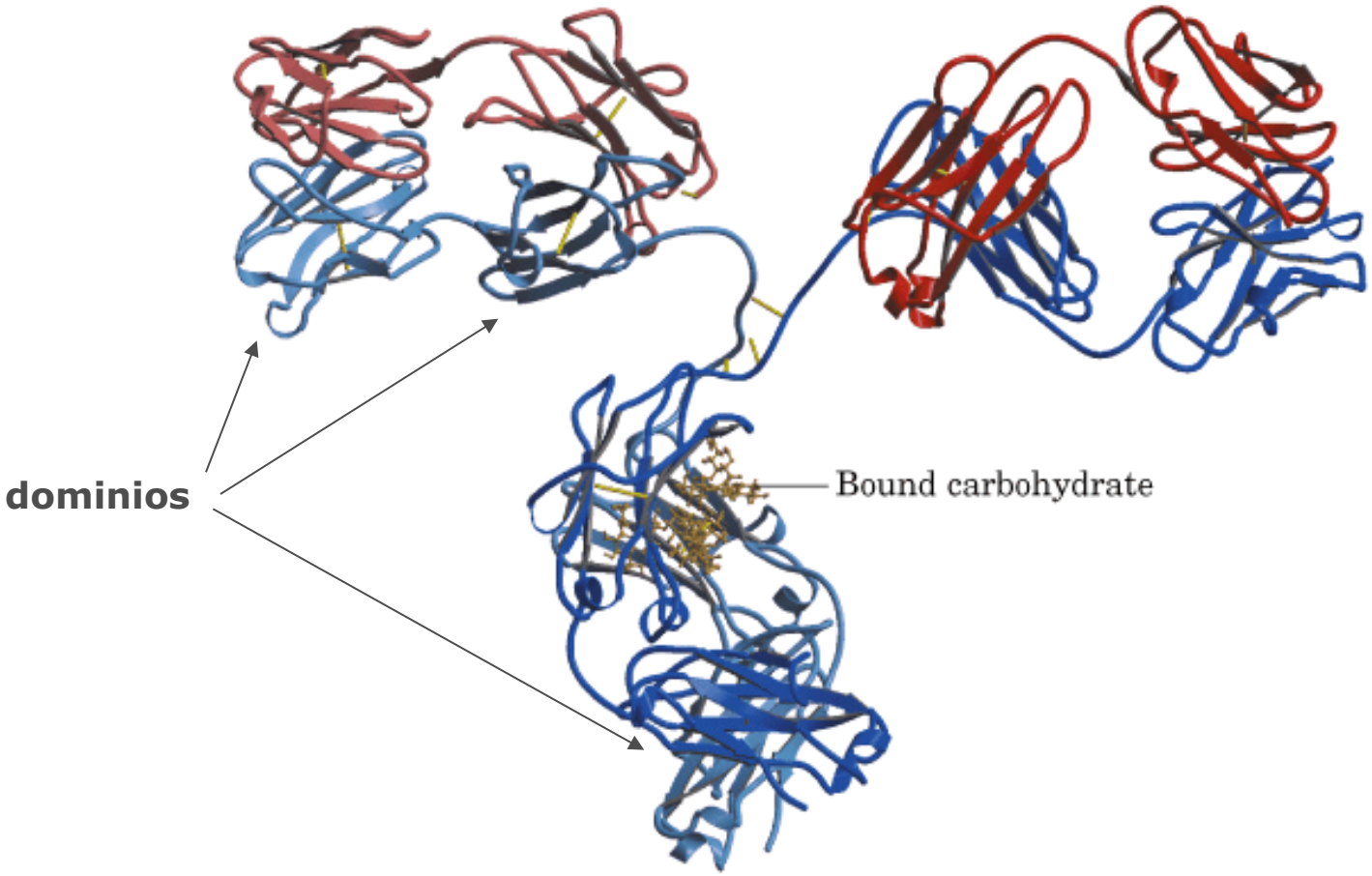




(Biochemistry. McKee. 3th ed. McGraw-Hill. 2003)

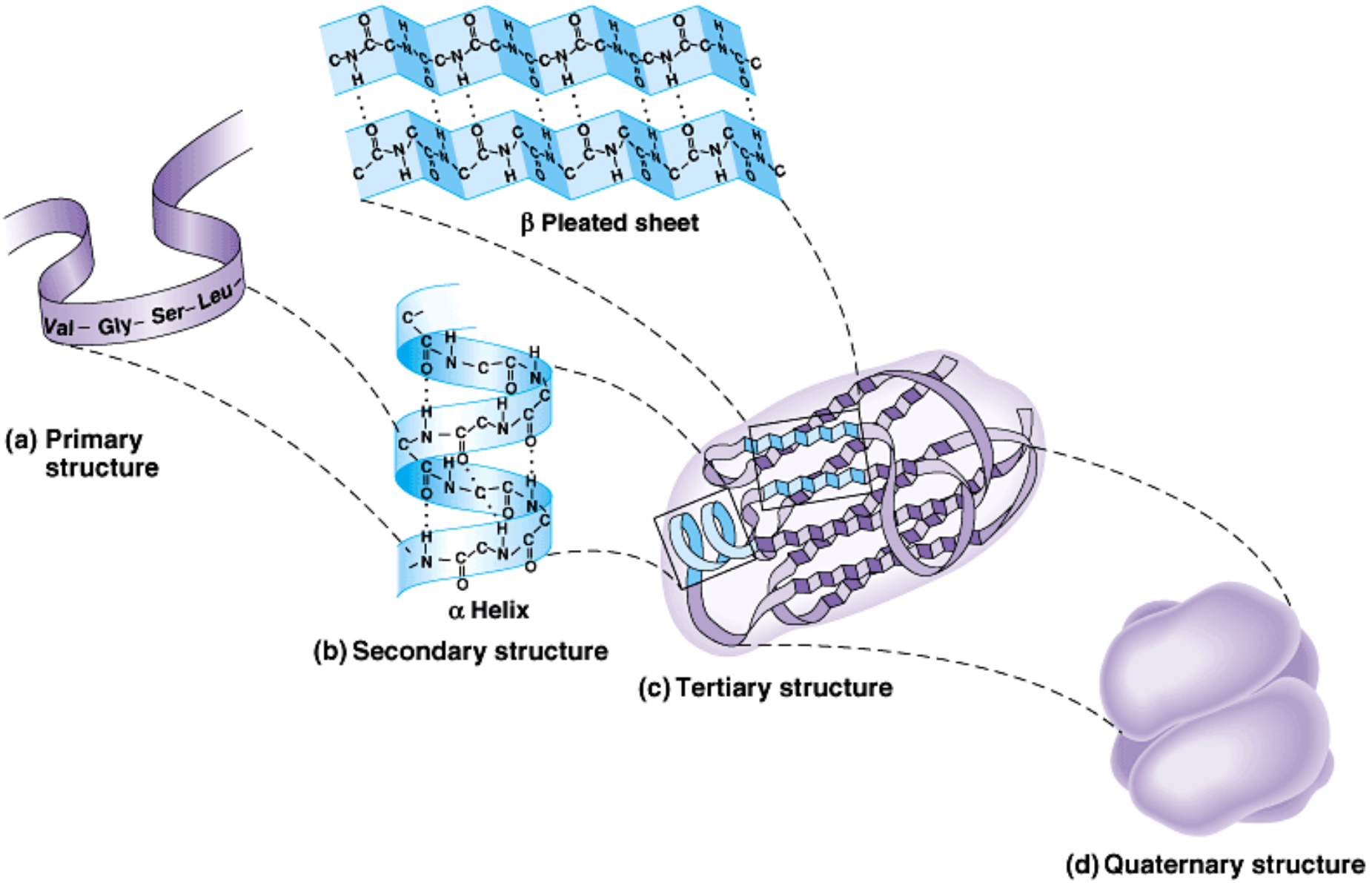
(Medical Biochemistry. Baynes & Dominicza. 2ª ed. Elsevierl. 2009)

2.3. DOMINIOS



Nelson DL. Cox MM. Lehninger. Principles of Biochemistry. 3th ed. Omega. 2000

2.4. ESTRUCTURA CUATERNARIA



2.5. CONFORMACIÓN NATIVA

El plegamiento de algunas proteínas está dirigido por las CHAPERONINAS