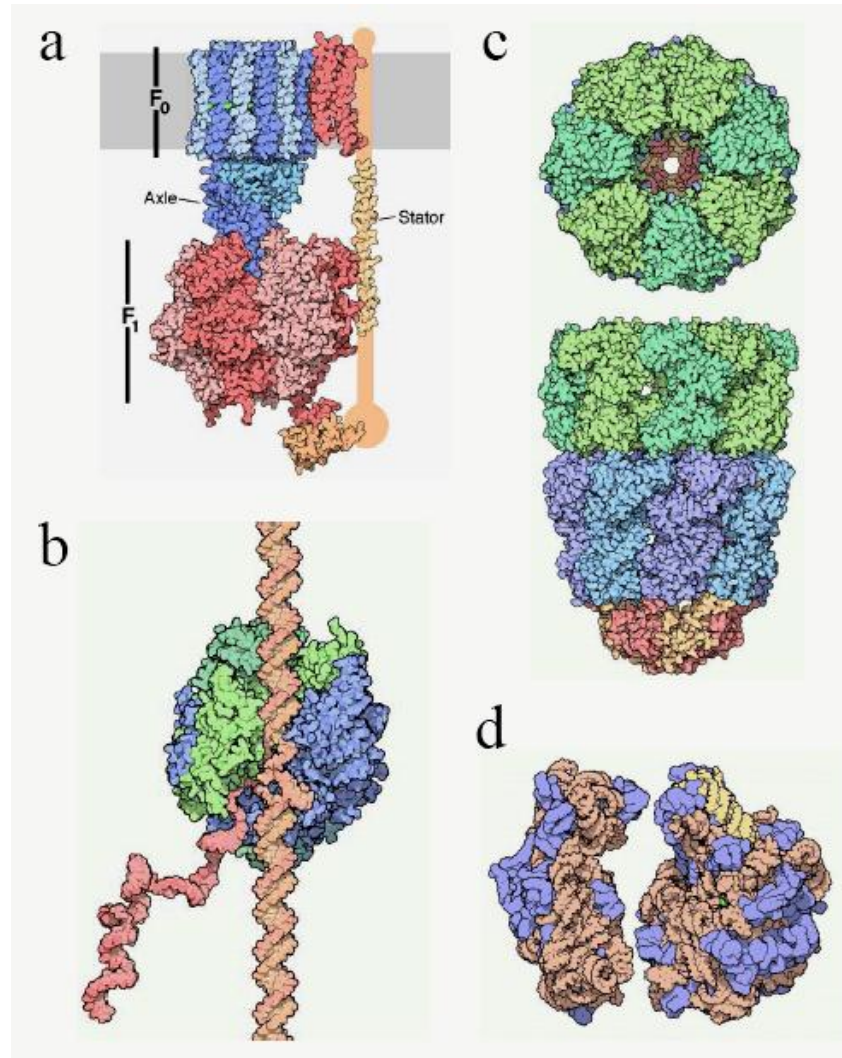
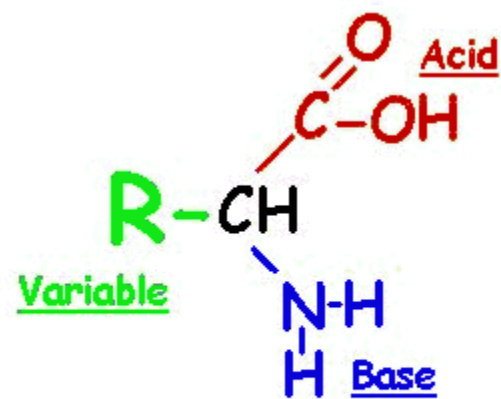
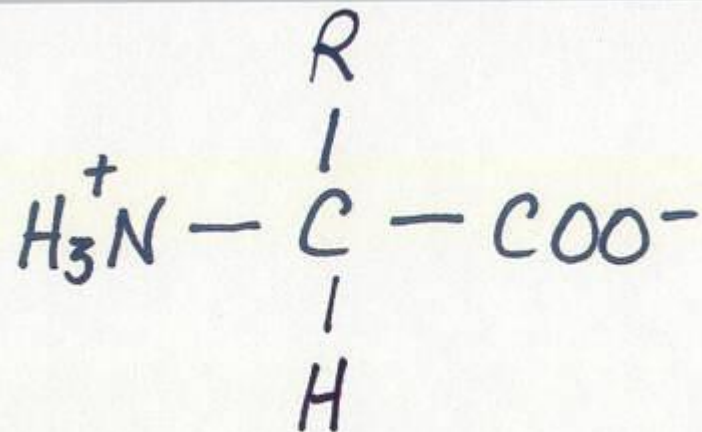


ΠΡΩΤΕΪΝΕΣ





A theoretical amino acid



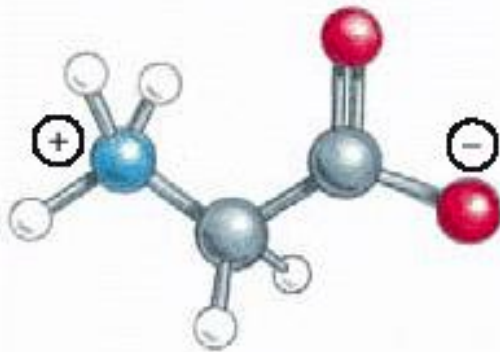
AMINO ACID		SIDE CHAIN	
Aspartic acid	Asp	D	negative
Glutamic acid	Glu	E	negative
Arginine	Arg	R	positive
Lysine	Lys	K	positive
Histidine	His	H	positive
Asparagine	Asn	N	uncharged polar
Glutamine	Gln	Q	uncharged polar
Serine	Ser	S	uncharged polar
Threonine	Thr	T	uncharged polar
Tyrosine	Tyr	Y	uncharged polar

POLAR AMINO ACIDS

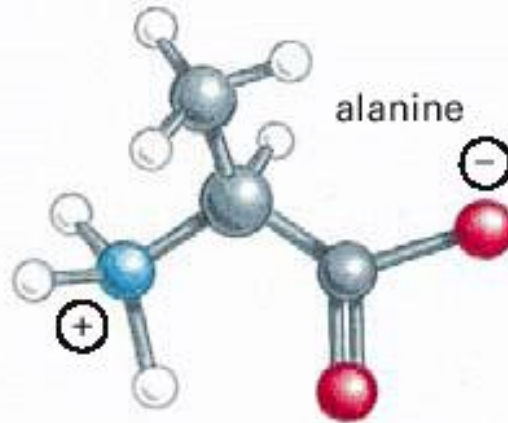
AMINO ACID		SIDE CHAIN	
Alanine	Ala	A	nonpolar
Glycine	Gly	G	nonpolar
Valine	Val	V	nonpolar
Leucine	Leu	L	nonpolar
Isoleucine	Ile	I	nonpolar
Proline	Pro	P	nonpolar
Phenylalanine	Phe	F	nonpolar
Methionine	Met	M	nonpolar
Tryptophan	Trp	W	nonpolar
Cysteine	Cys	C	nonpolar

NONPOLAR AMINO ACIDS

glycine



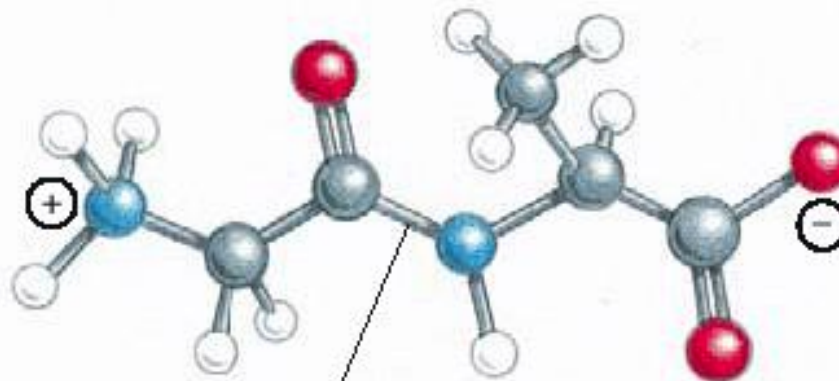
alanine



PEPTIDE BOND
FORMATION WITH
REMOVAL OF WATER



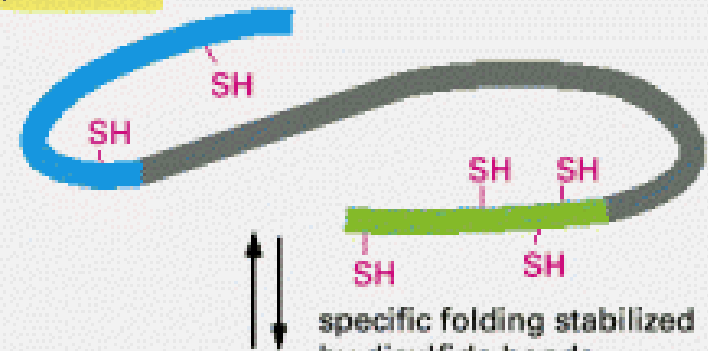
water



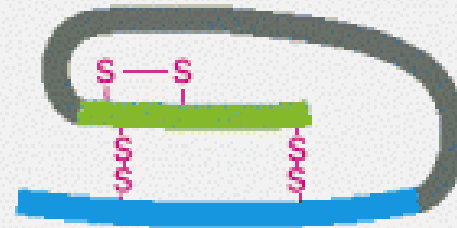
peptide bond in glycylalanine

ΓΕΦΥΡΕΣ ΘΕΙΟΥ

proinsulin

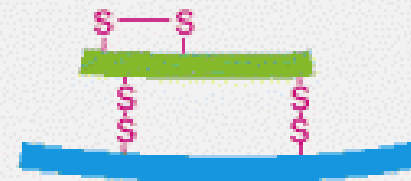


specific folding stabilized
by disulfide bonds



connecting peptide
removed, leaving
complete two-chain
insulin molecule

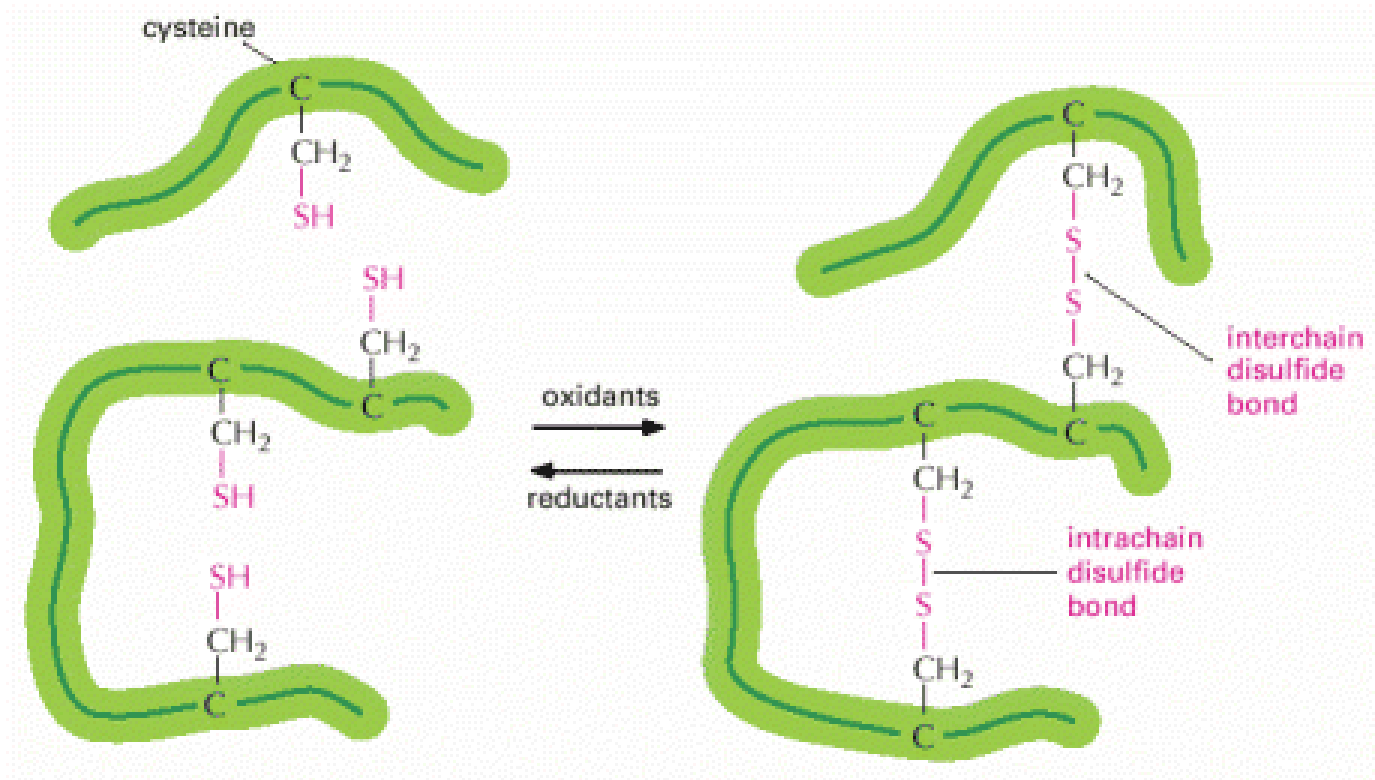
insulin



reduction irreversibly
separates the two chains

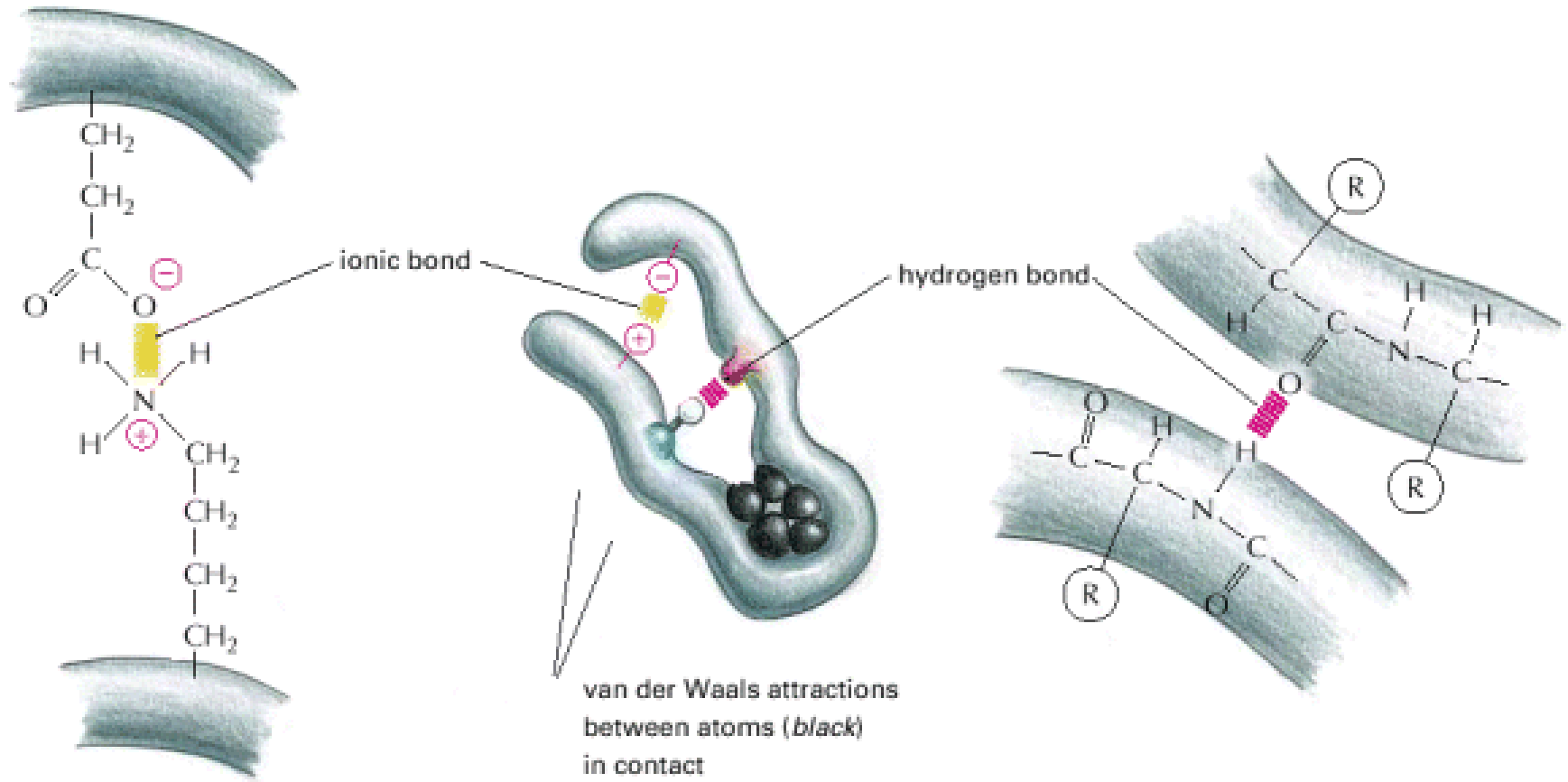


ΓΕΦΥΡΕΣ ΘΕΙΟΥ



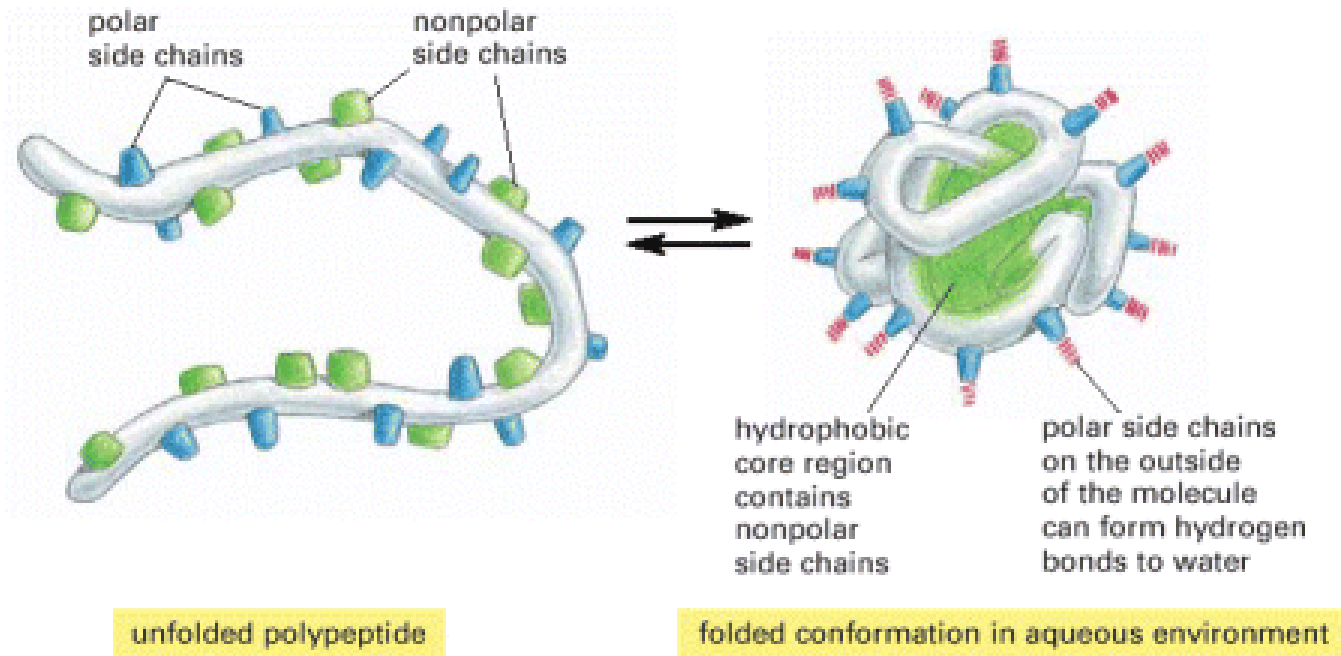
ΑΣΘΕΝΕΙΣ ΔΥΝΑΜΕΙΣ

Ιοντικοί δεσμοί, Δεσμοί Υδρογόνου,
van der Waals

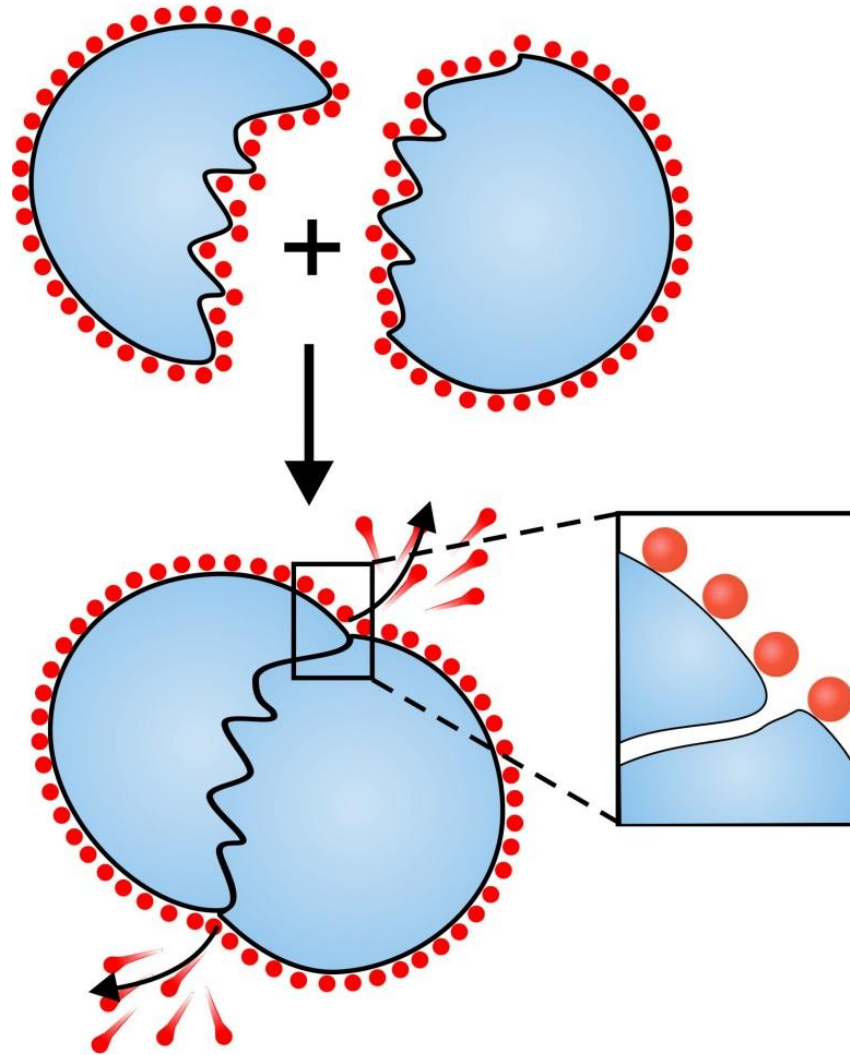


ΑΣΘΕΝΕΙΣ ΔΥΝΑΜΕΙΣ

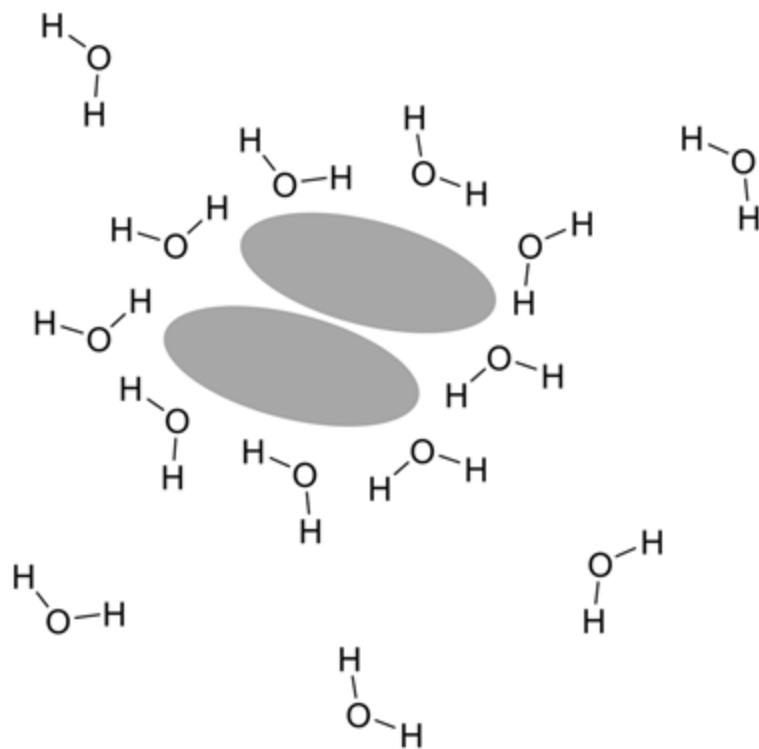
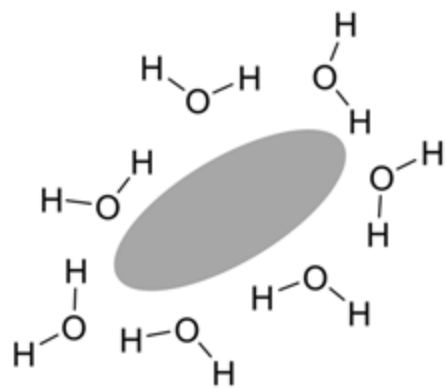
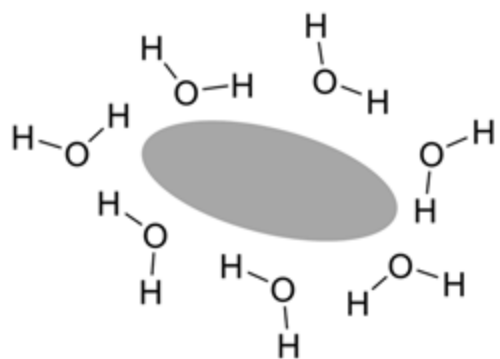
Υδρόφοβοι Δεσμοί



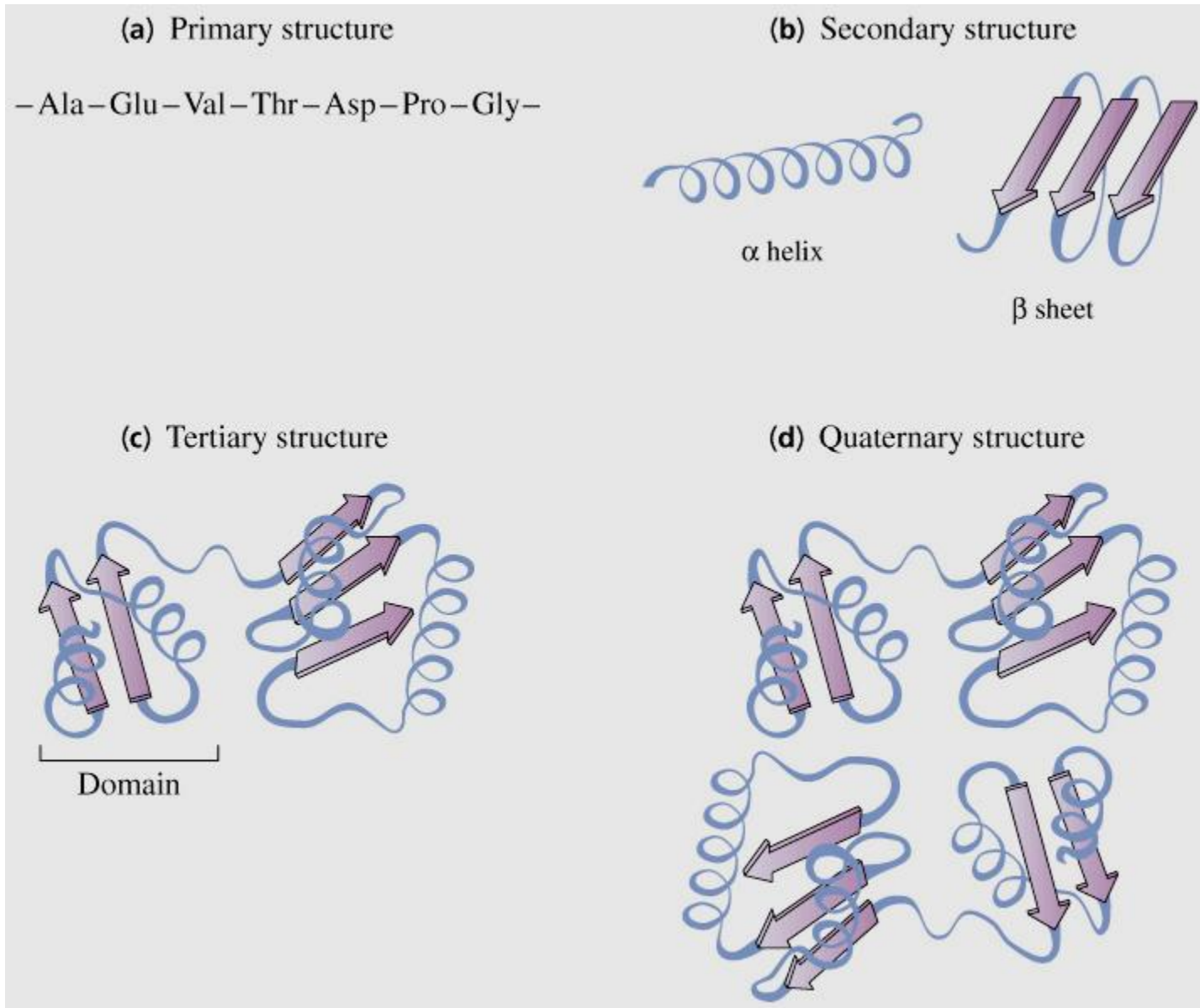
Hydrophobic effect

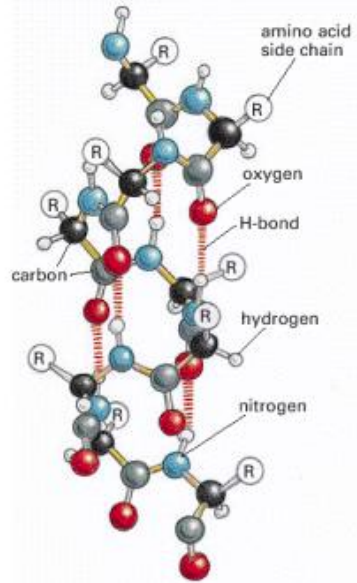


Two hydrophobic surfaces come together to exclude water

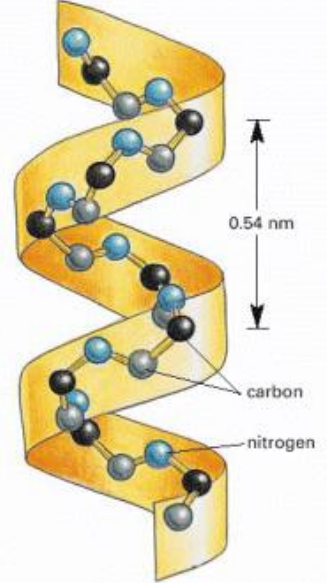


ΕΠΙΠΕΔΑ ΟΡΓΑΝΩΣΗΣ ΠΡΩΤΕΪΝΩΝ

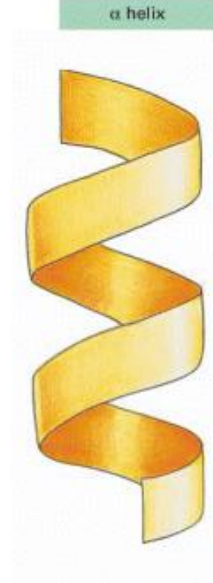




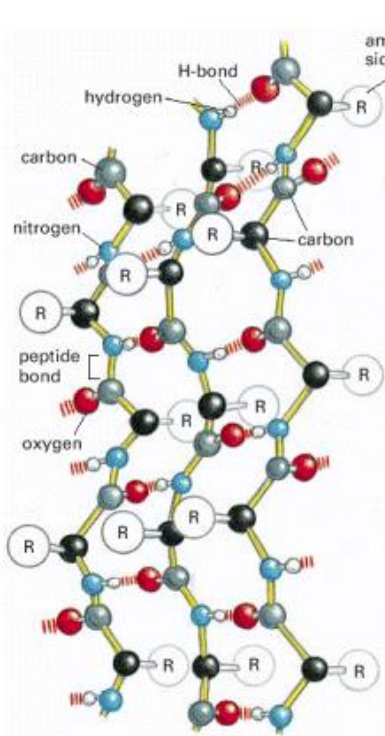
(A)



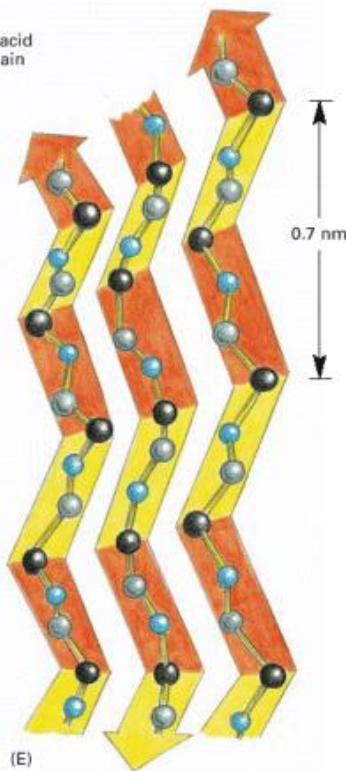
(B)



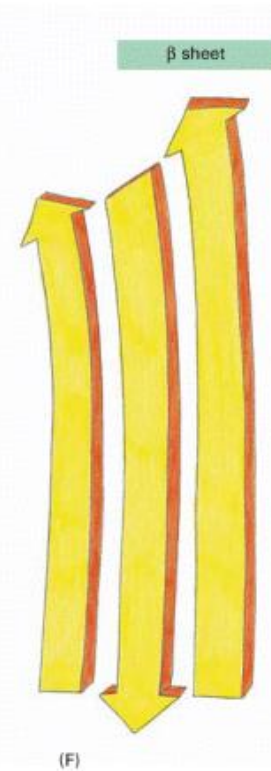
(C)



(D)



(E)



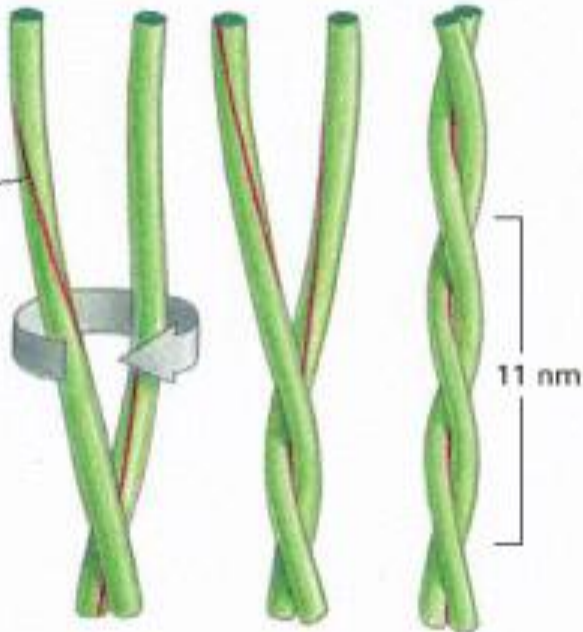
(F)

ΕΣΠΕΙΡΑΜΕΝΟ ΣΠΕΙΡΑΜΑ

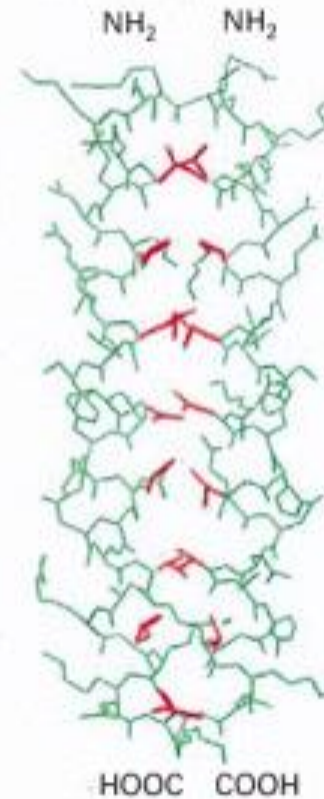


(A)

stripe of
hydrophobic
"a" and "d"
amino acids

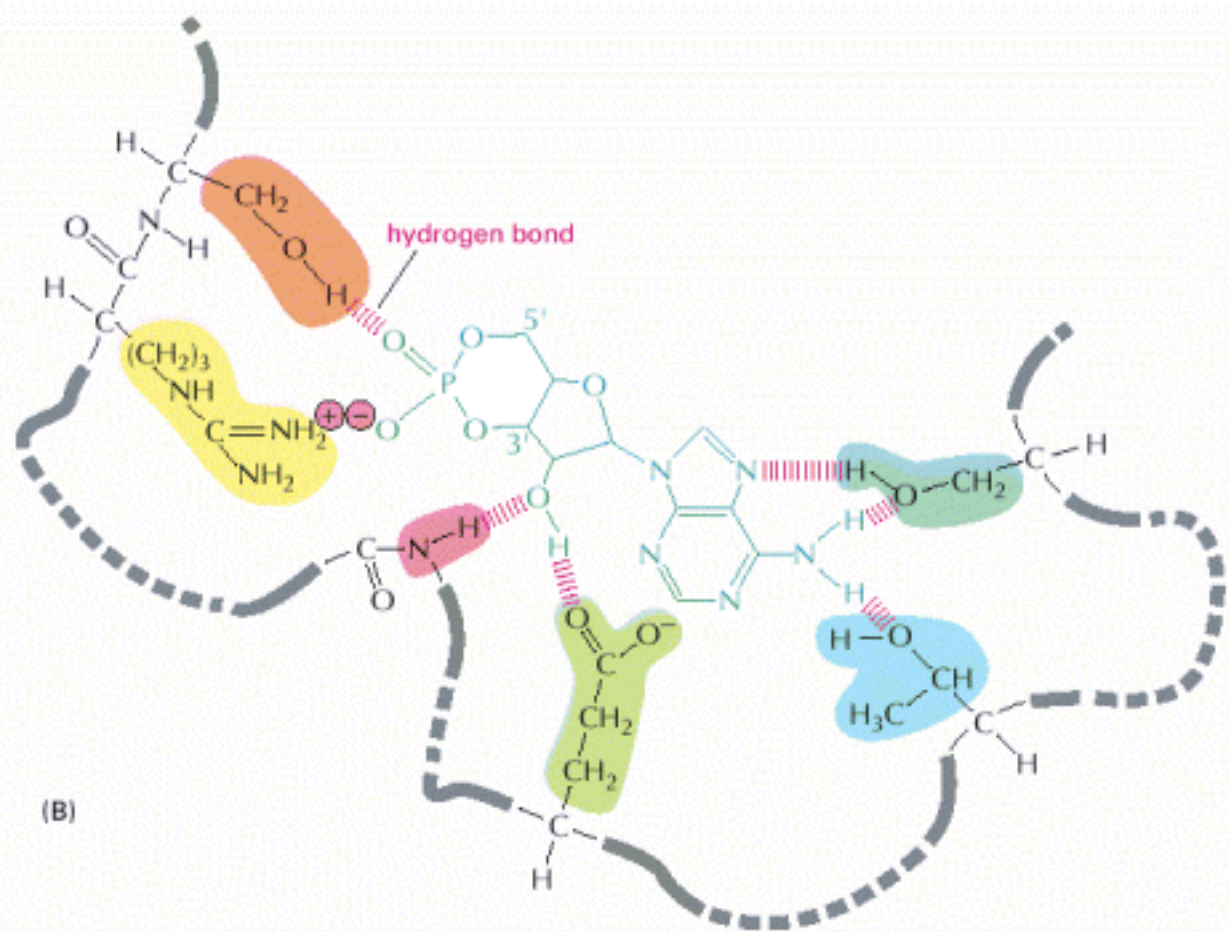
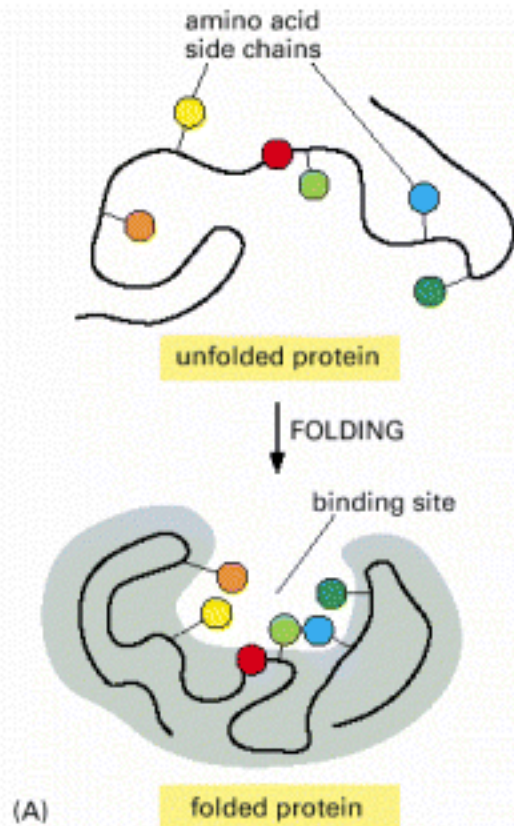


(B)



(C)

Ενεργό Κέντρο-Προσδέτες



**Ποιοι ομοιοπολικοί δεσμοί συμμετέχουν στη δομή των πρωτεϊνών;
Ποιοι μη-ομοιοπολικοί δεσμοί συμμετέχουν στη δομή των πρωτεϊνών;
Μεταξύ ποιων ομάδων αναπτύσσονται;
Ποιες είναι οι κυριότερες δευτεροταγείς δομές πρωτεϊνών;**