

BIOMOLECOLE

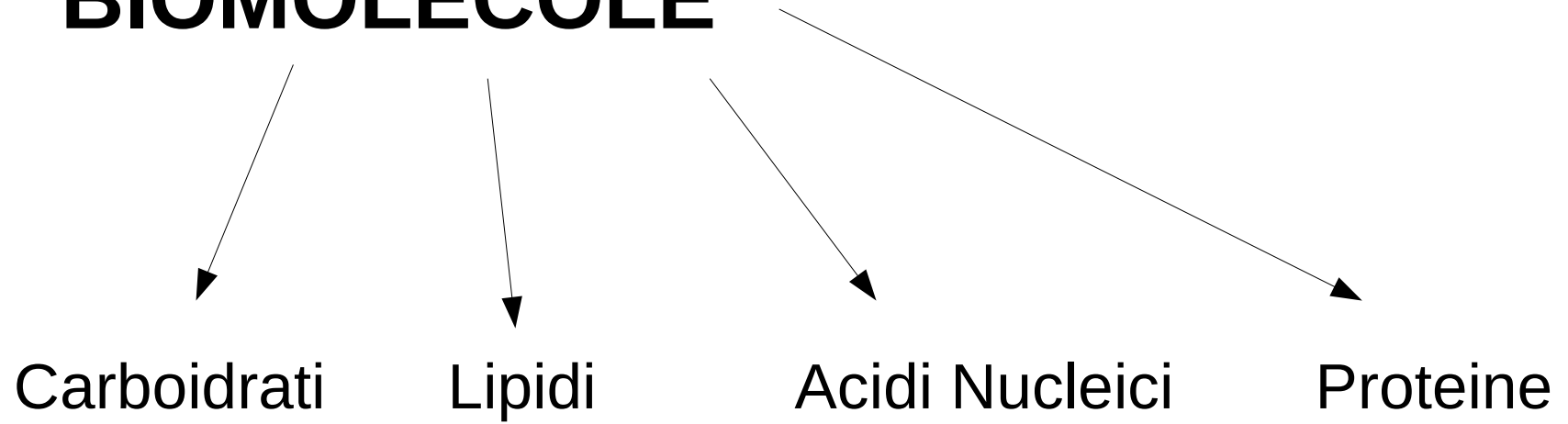
LE BASI DELLA BIOCHIMICA

Capitolo 1

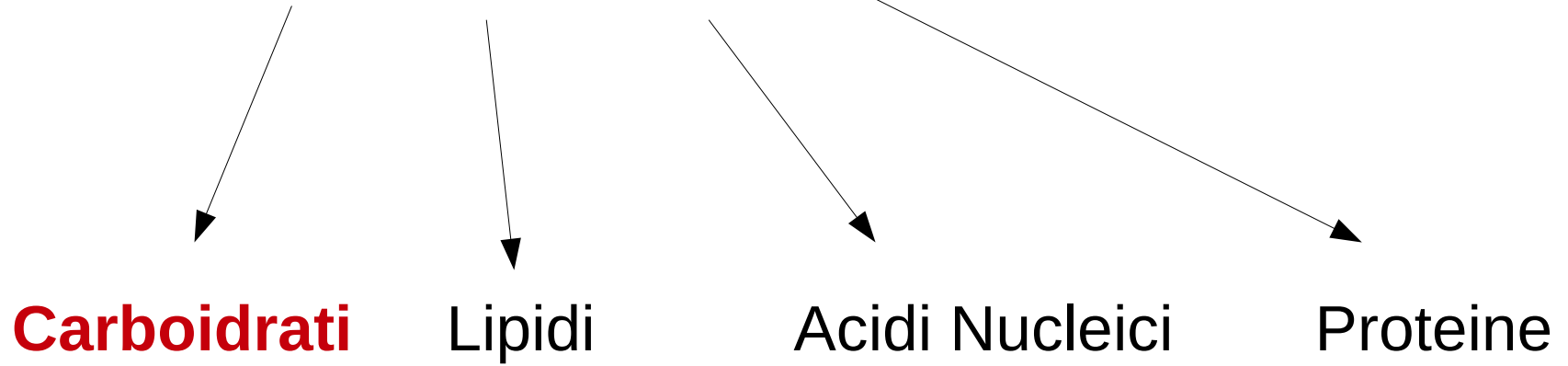
Dal Carbonio agli OGM PLUS



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- monosaccaridi



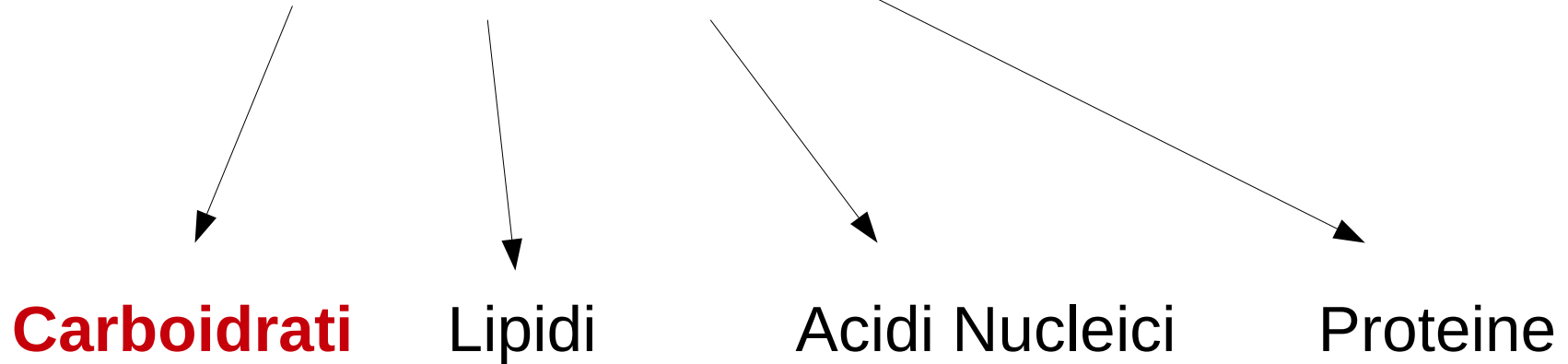
- disaccaridi



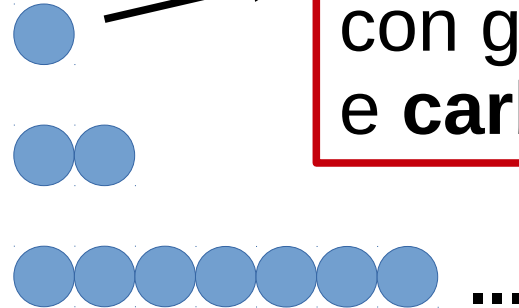
- polisaccaridi



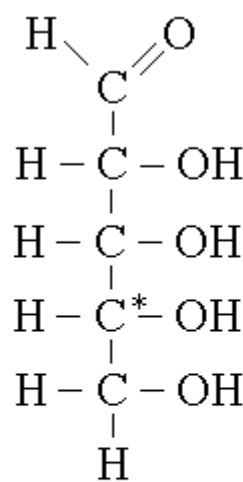
BIOMOLECOLE



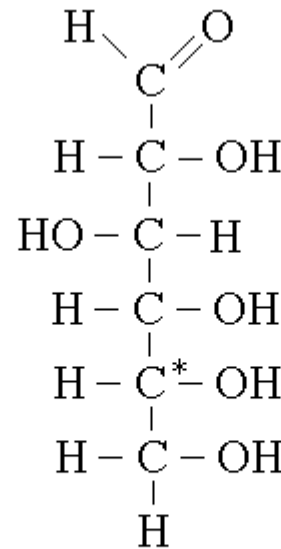
- monosaccaridi
- disaccaridi
- polisaccaridi



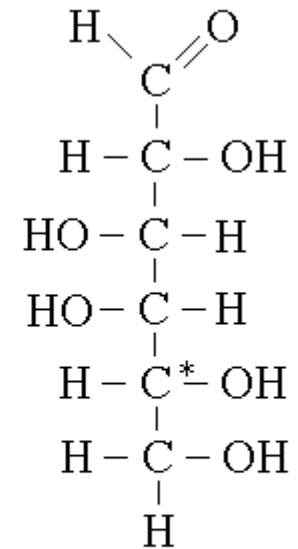
Piccola catena di atomi di carbonio con gruppi **alcolico** e **carbonilico**



ribosio



glucosio



galattosio

Carboidrati



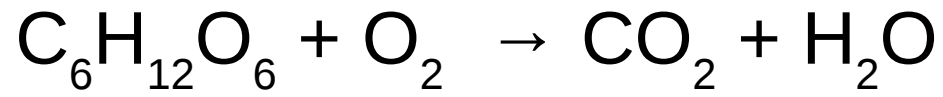
- monosaccaridi
- disaccaridi
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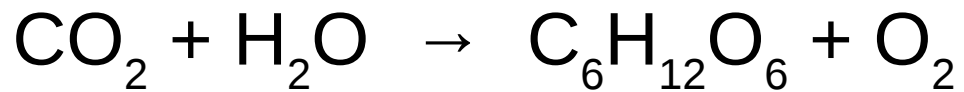
Piccola catena di atomi di carbonio con gruppi **alcolico** e **carbonilico**

Carboidrati

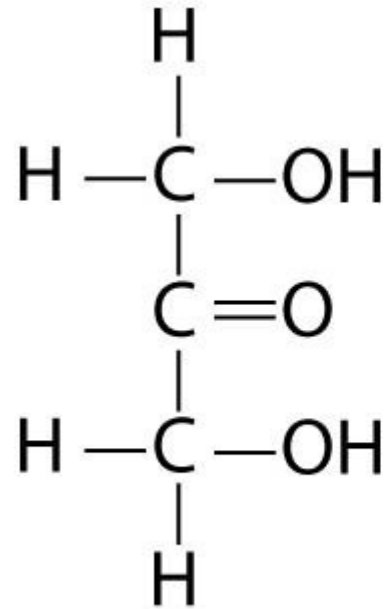




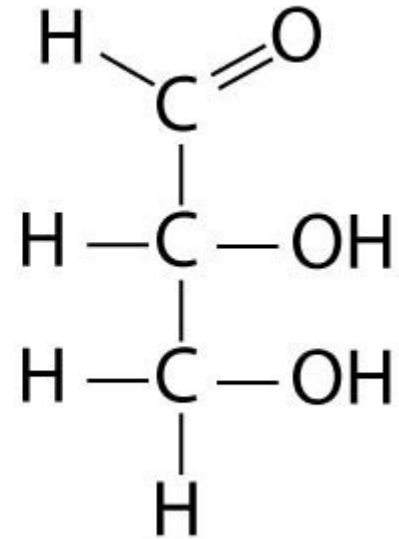
Carboidrati



CLASSIFICAZIONE DEI CARBOIDRATI

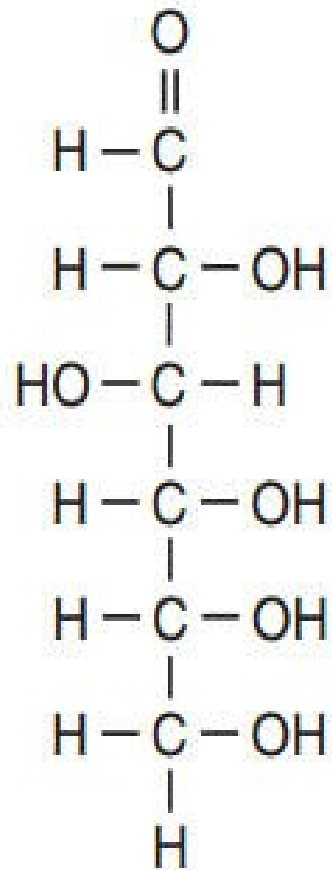


CHETOSO

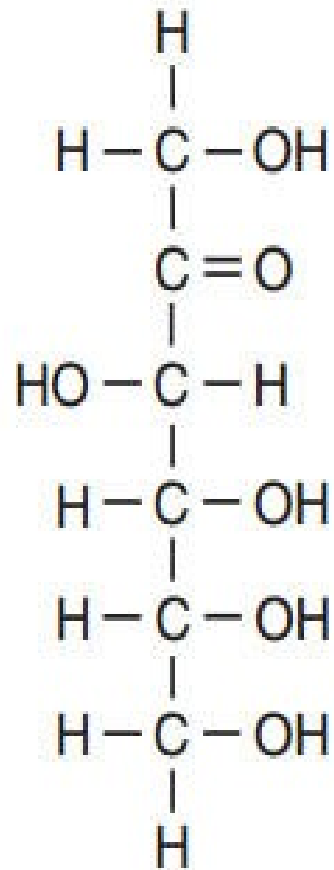


ALDOSO

CLASSIFICAZIONE DEI CARBOIDRATI

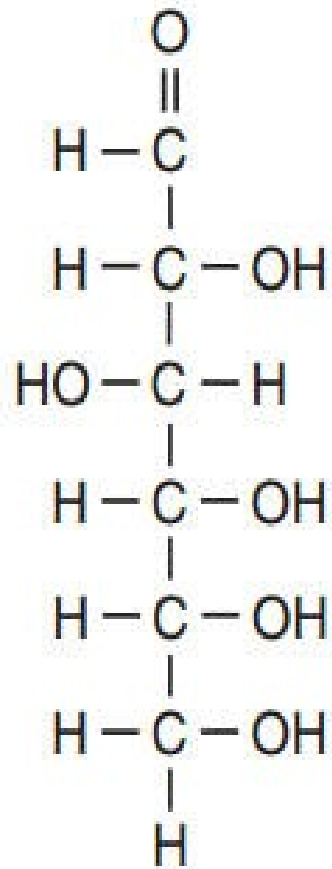


Glucose

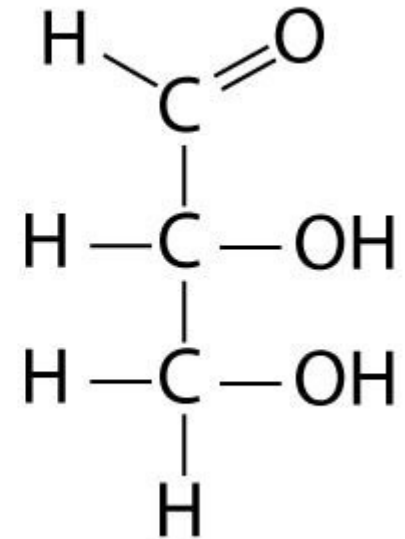
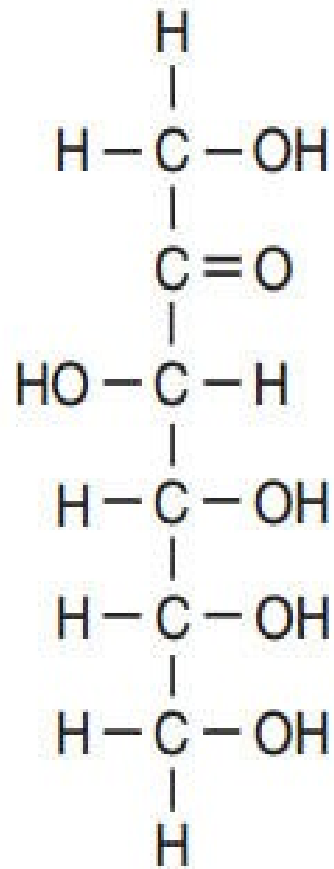


Fructose

CLASSIFICAZIONE DEI CARBOIDRATI



ESOSI

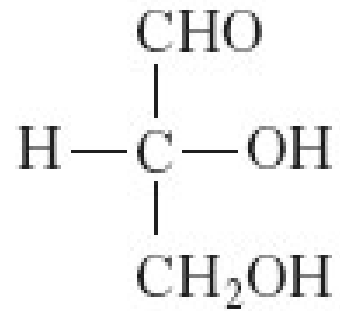


TRIOSO

CLASSIFICAZIONE DEI CARBOIDRATI

L O D?

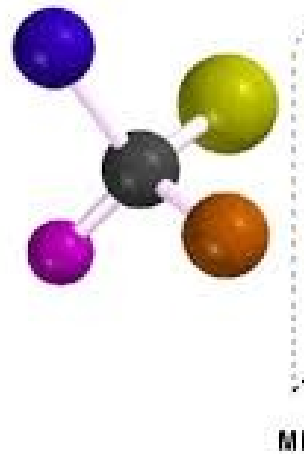
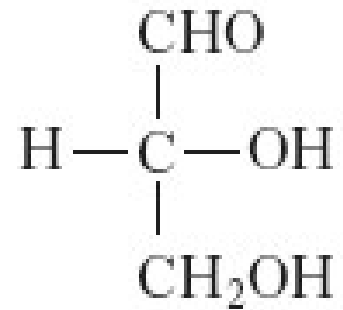
Gliceraldeide



CLASSIFICAZIONE DEI CARBOIDRATI

L O D?

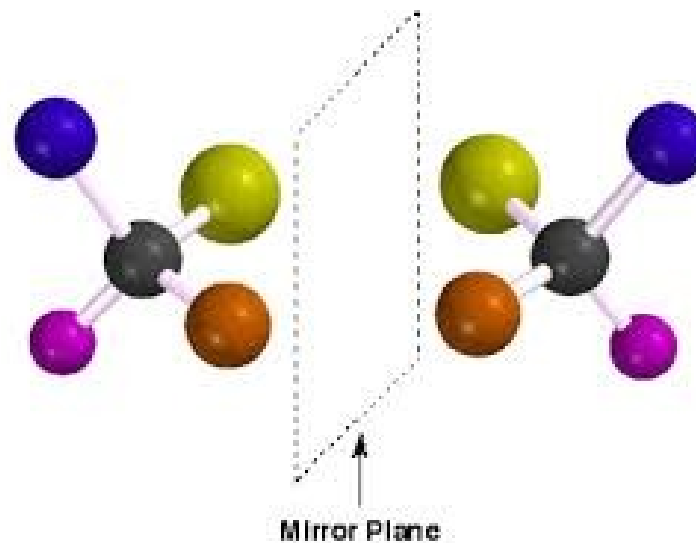
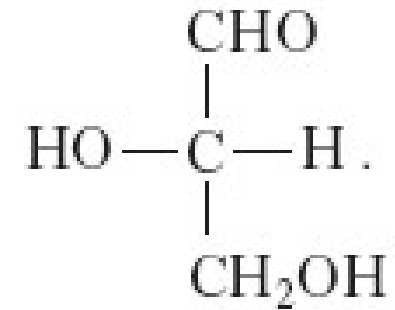
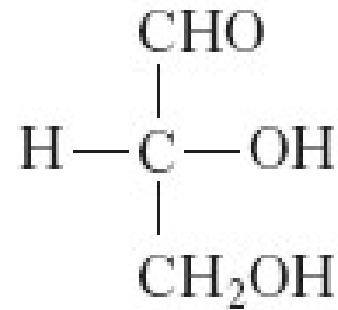
Gliceraldeide



CLASSIFICAZIONE DEI CARBOIDRATI

L o D?

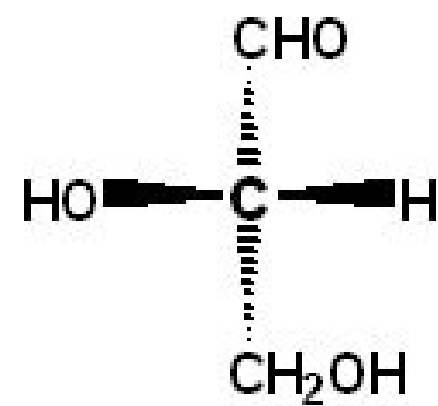
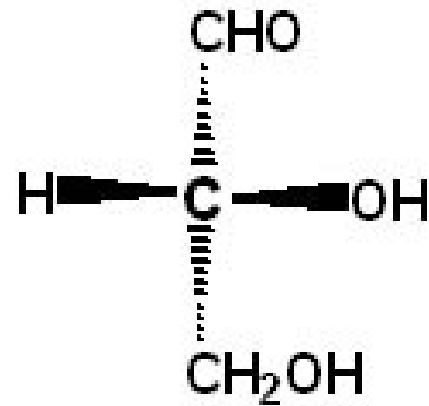
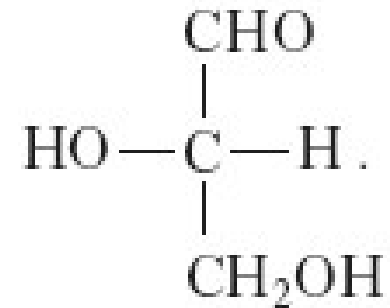
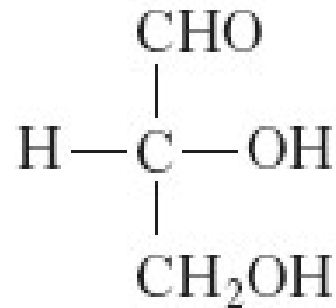
Gliceraldeide



CLASSIFICAZIONE DEI CARBOIDRATI

L O D?

Gliceraldeide



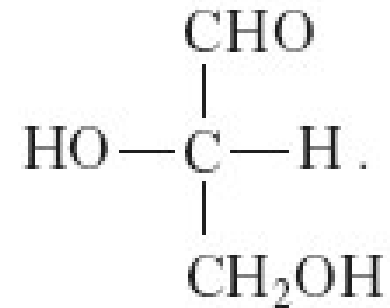
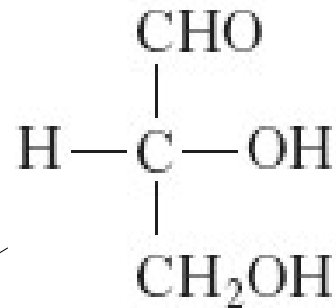
D-Glyceraldehyde

L-Glyceraldehyde

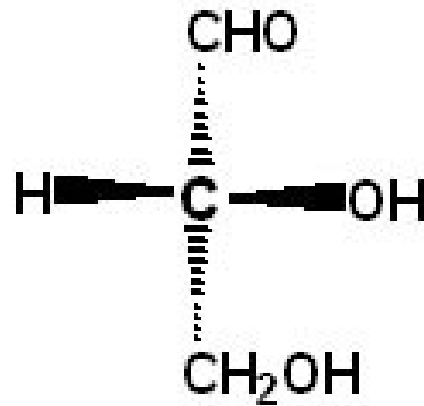
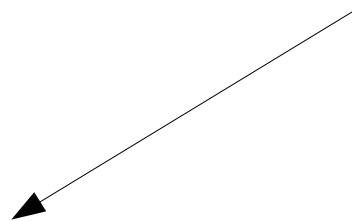
CLASSIFICAZIONE DEI CARBOIDRATI

L O D?

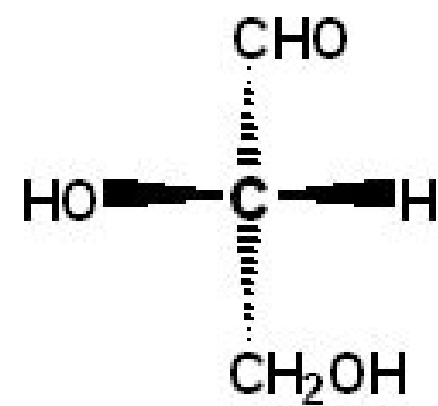
Gliceraldeide



Proiezioni
di Fisher



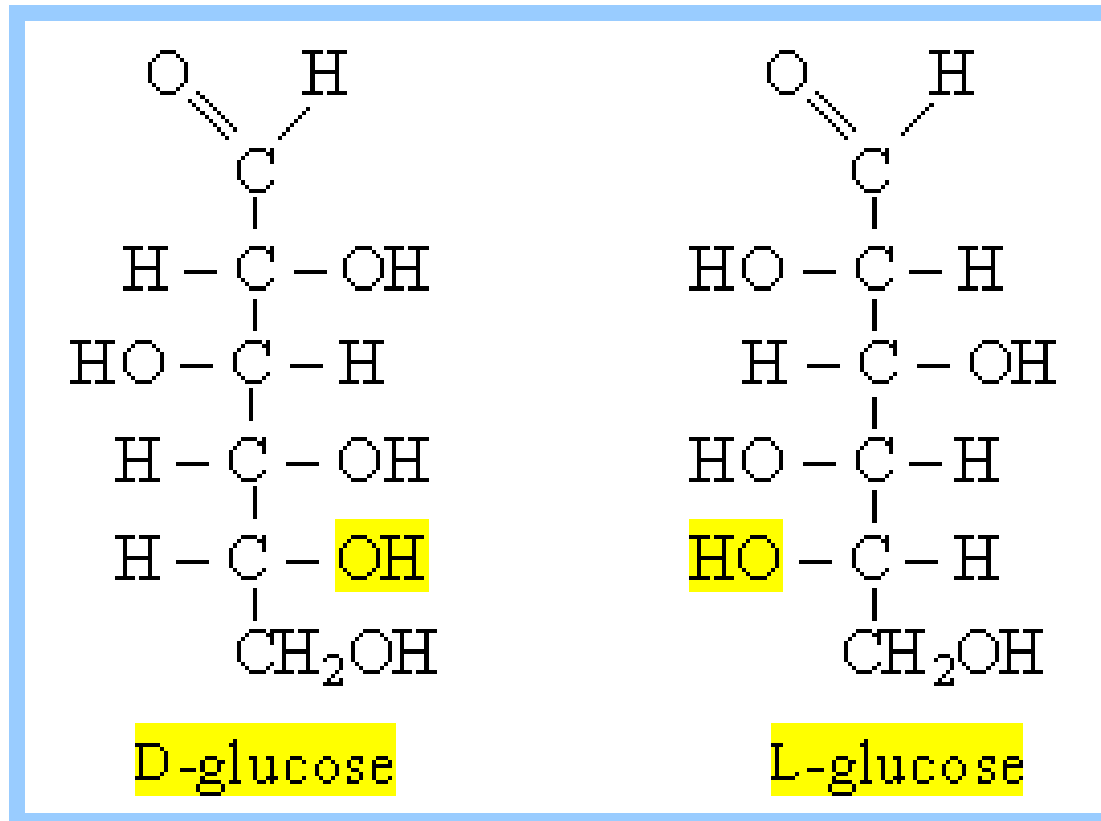
D-Glyceraldehyde



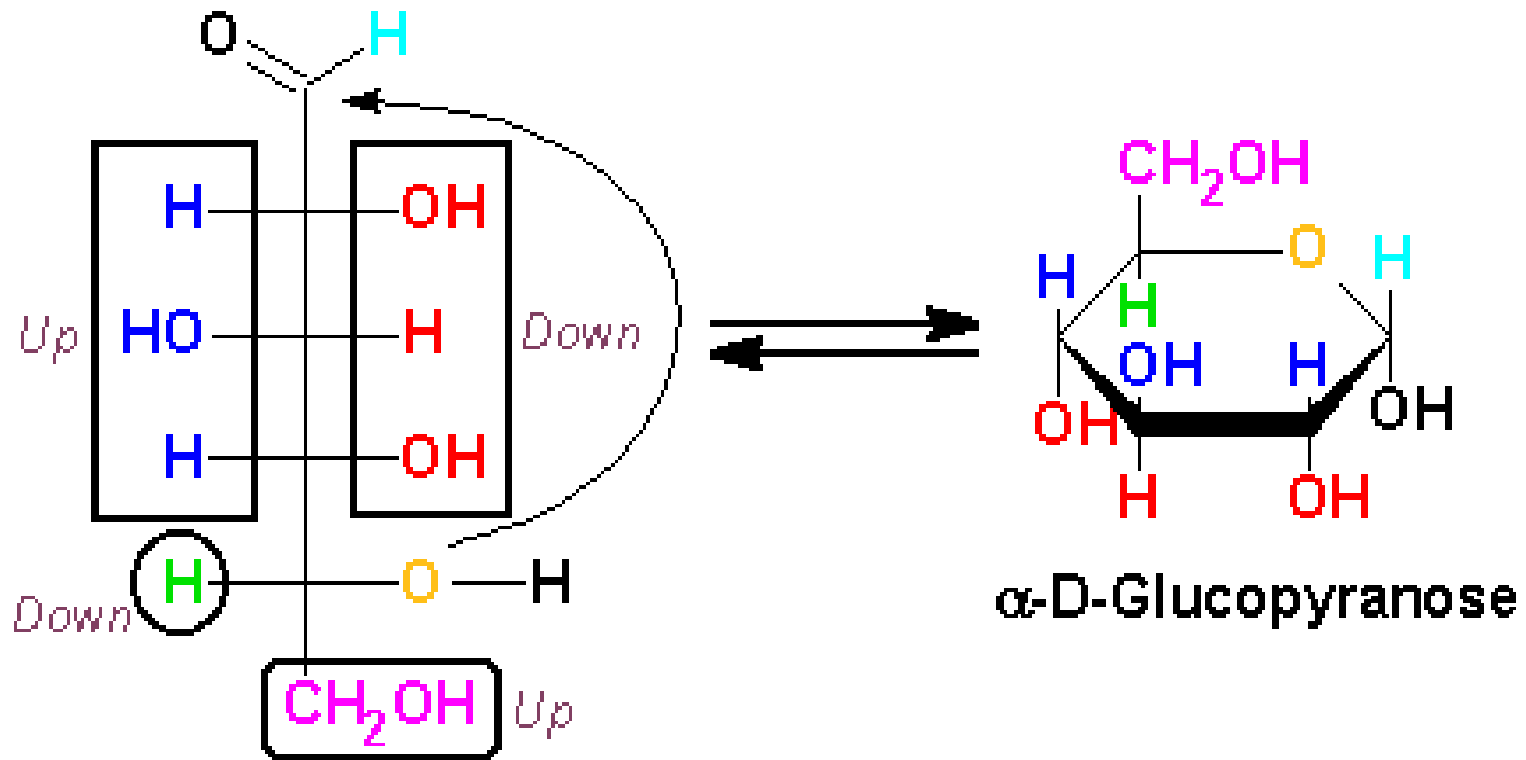
L-Glyceraldehyde

CLASSIFICAZIONE DEI CARBOIDRATI

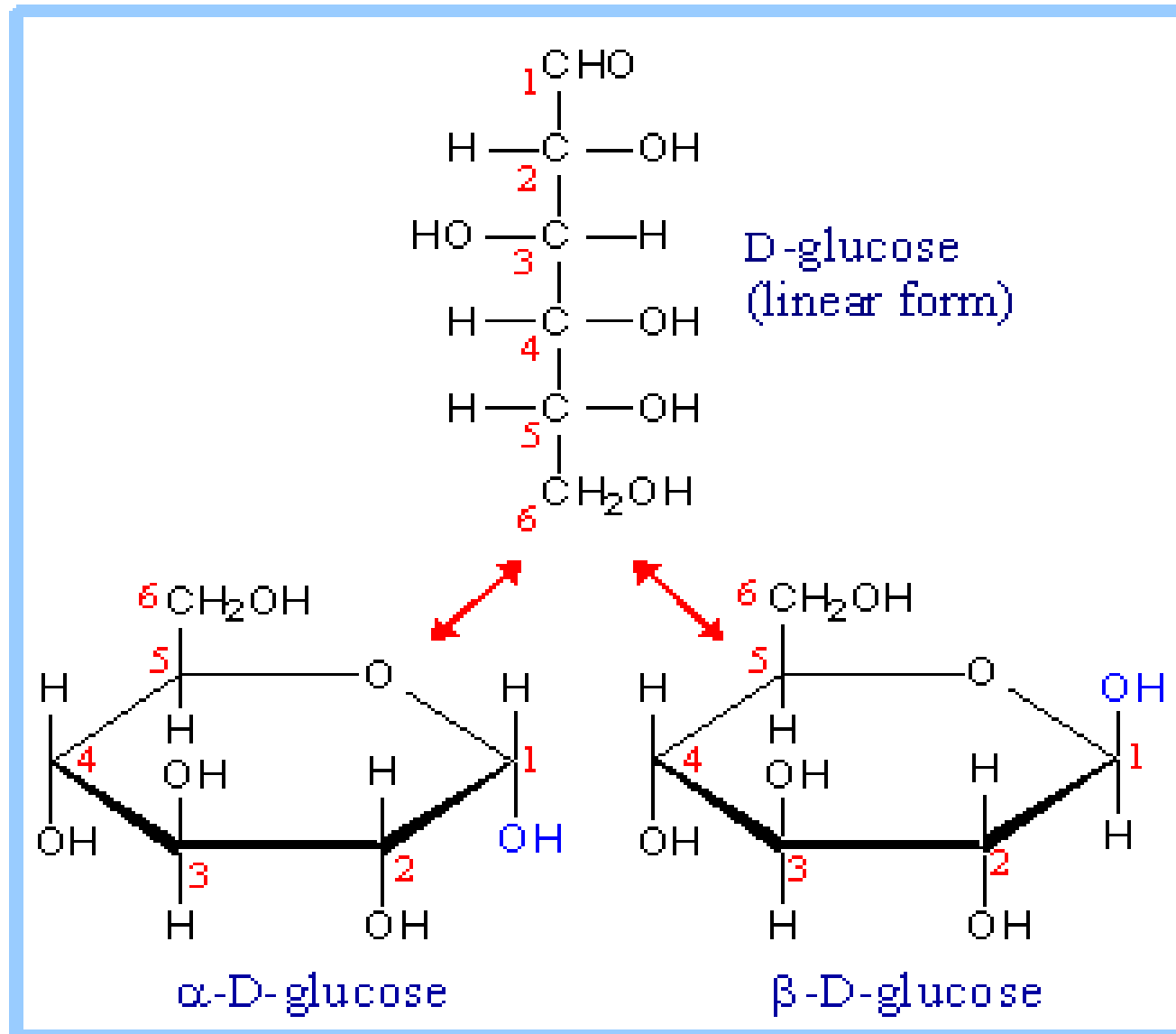
L O D?



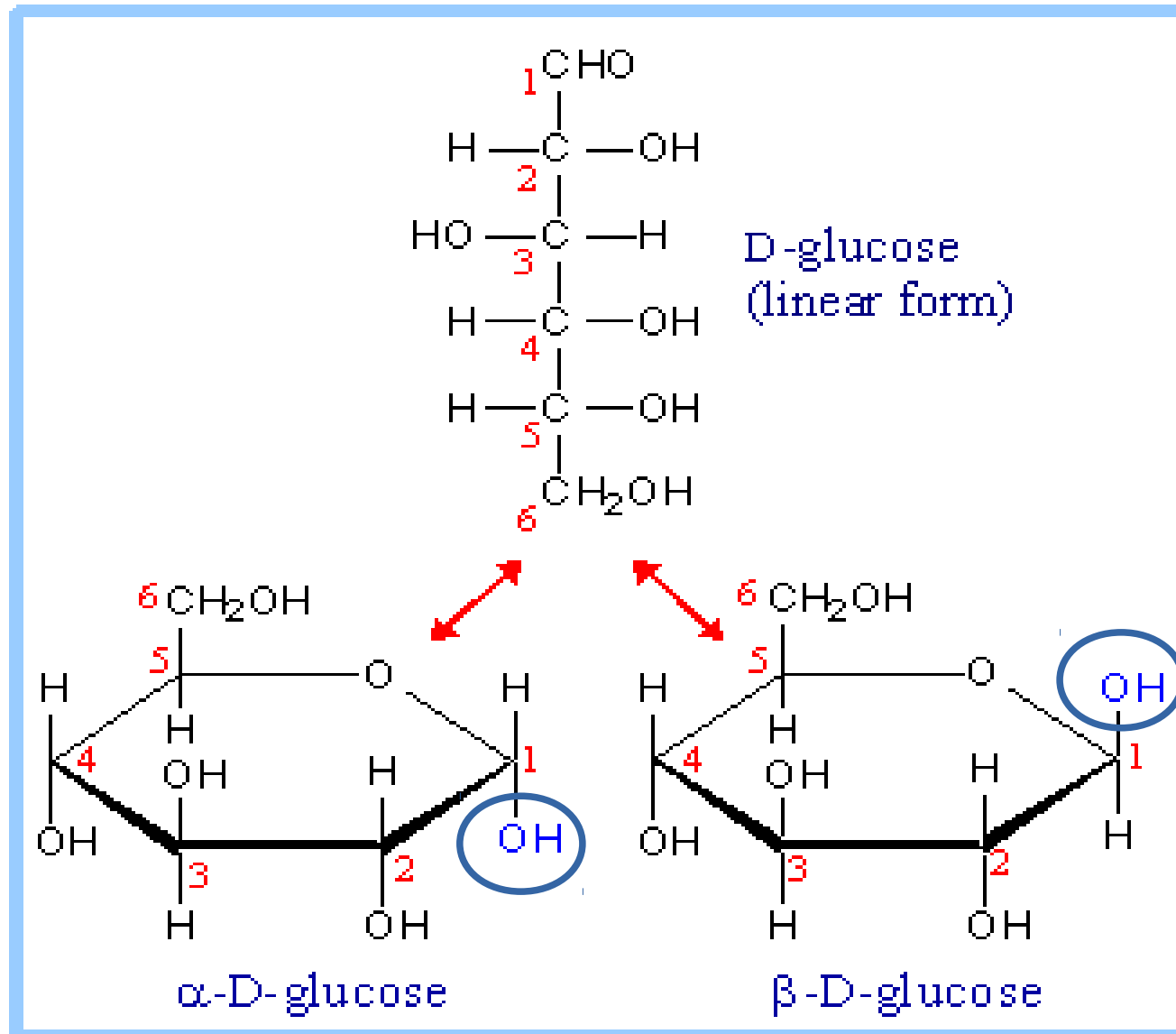
CATENA APERTA E CATENA CHIUSA (forma ciclica)



CATENA APERTA E CATENA CHIUSA (forma ciclica)



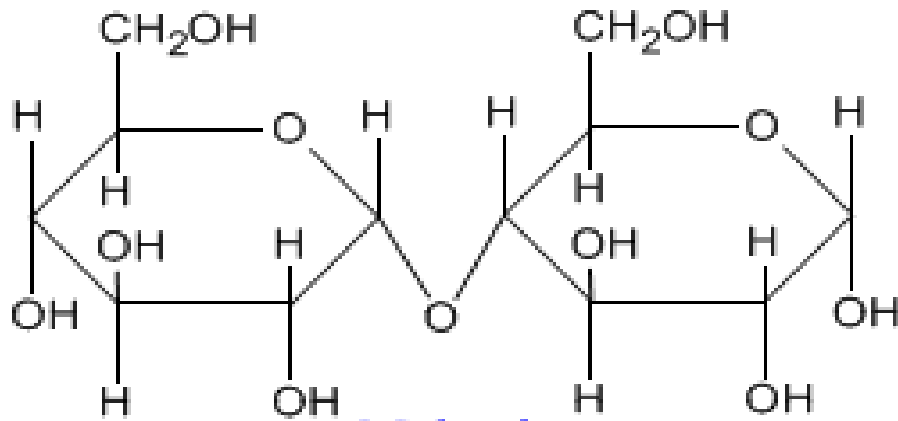
CATENA APERTA E CATENA CHIUSA (forma ciclica)



Ossidrile anomero

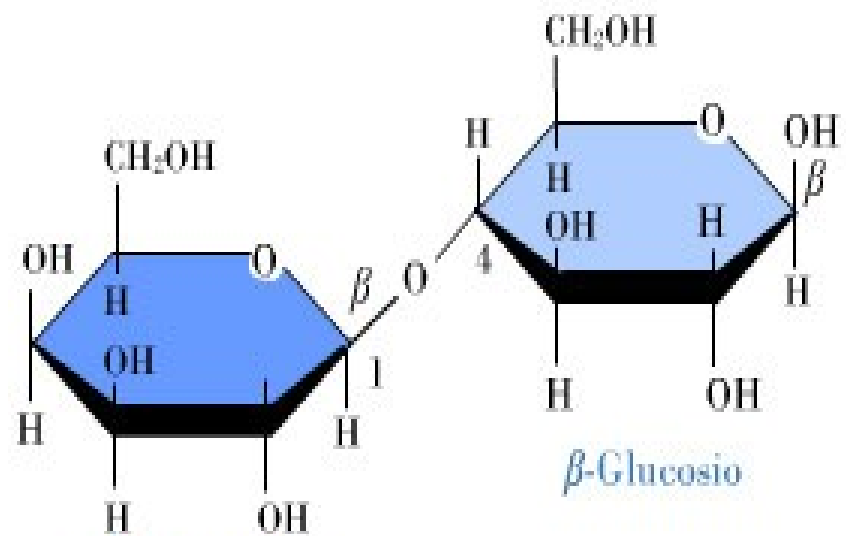
DISACCARIDI E POLISACCARIDI

DISACCARIDI E POLISACCARIDI



Maltosio

α -D-Glucosio(1→4) α -D-Glucosio



β -Galattosio

Lattosio

DISACCARIDI E **POLISACCARIDI**

Amido

Glicogeno

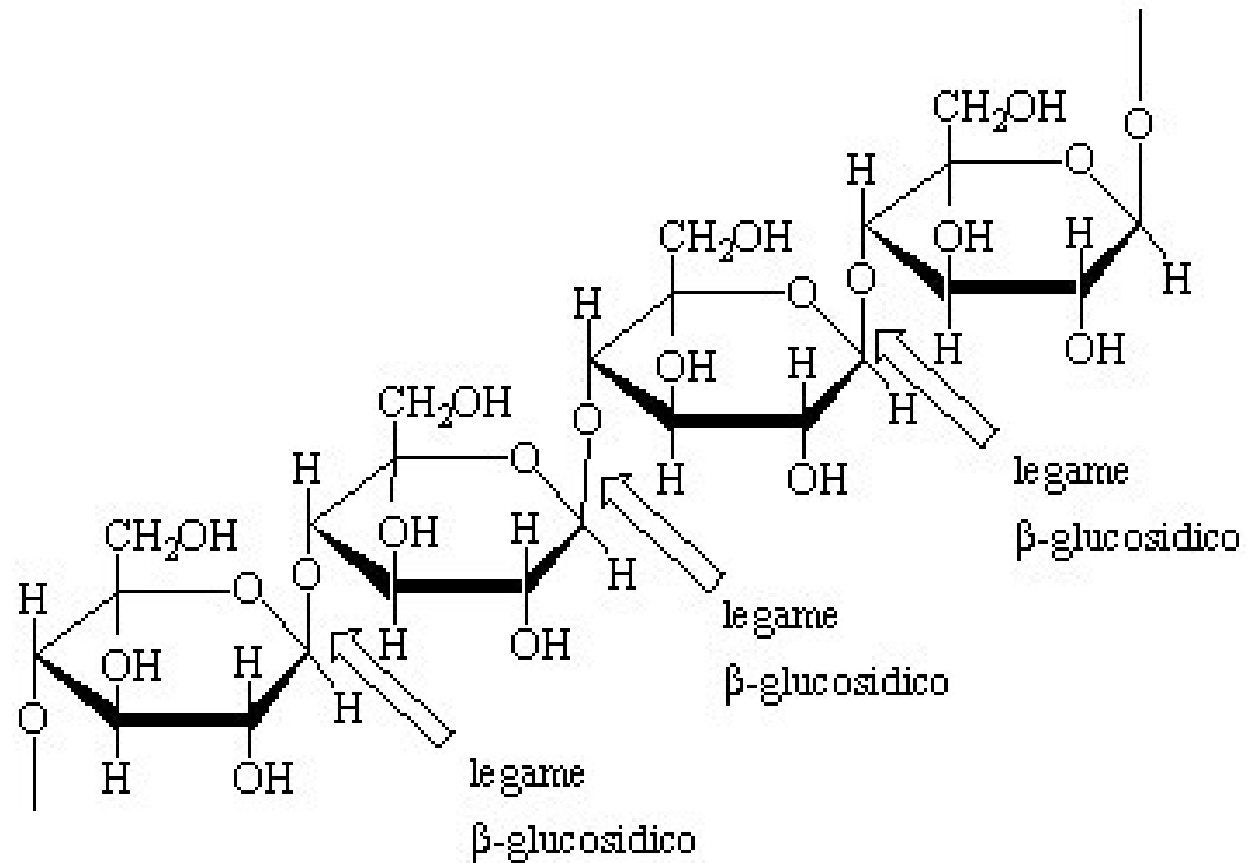
Cellulosa

DISACCARIDI E POLISACCARIDI

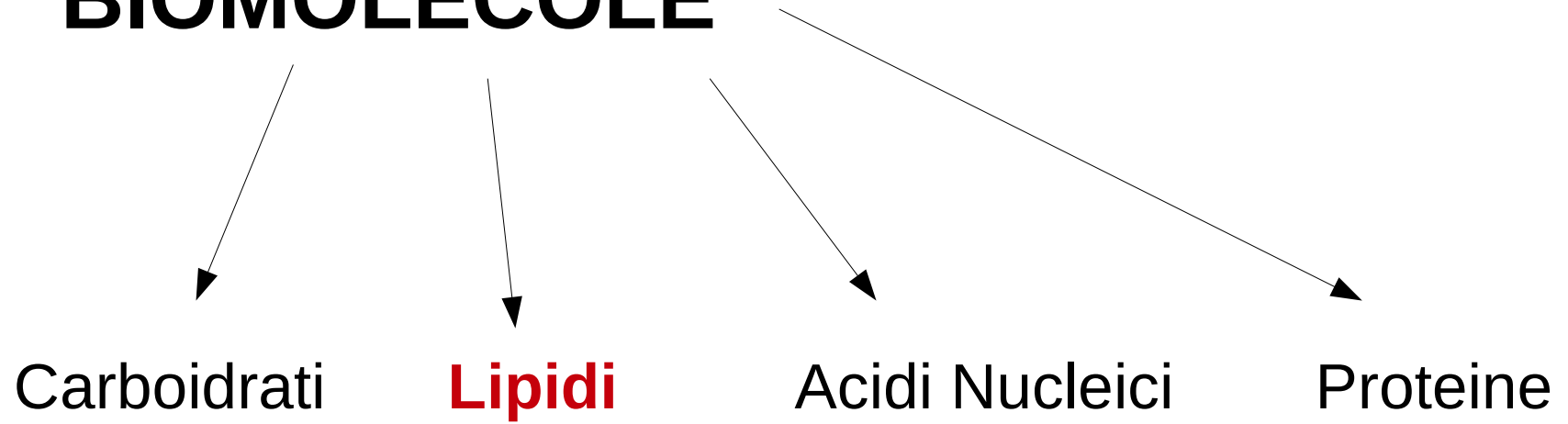
Amido

Glicogeno

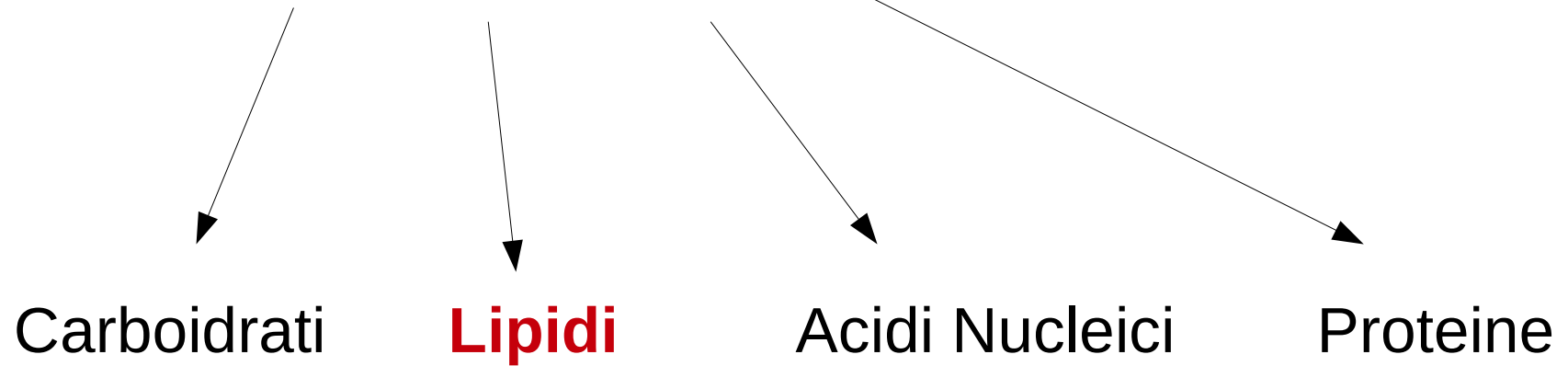
Cellulosa



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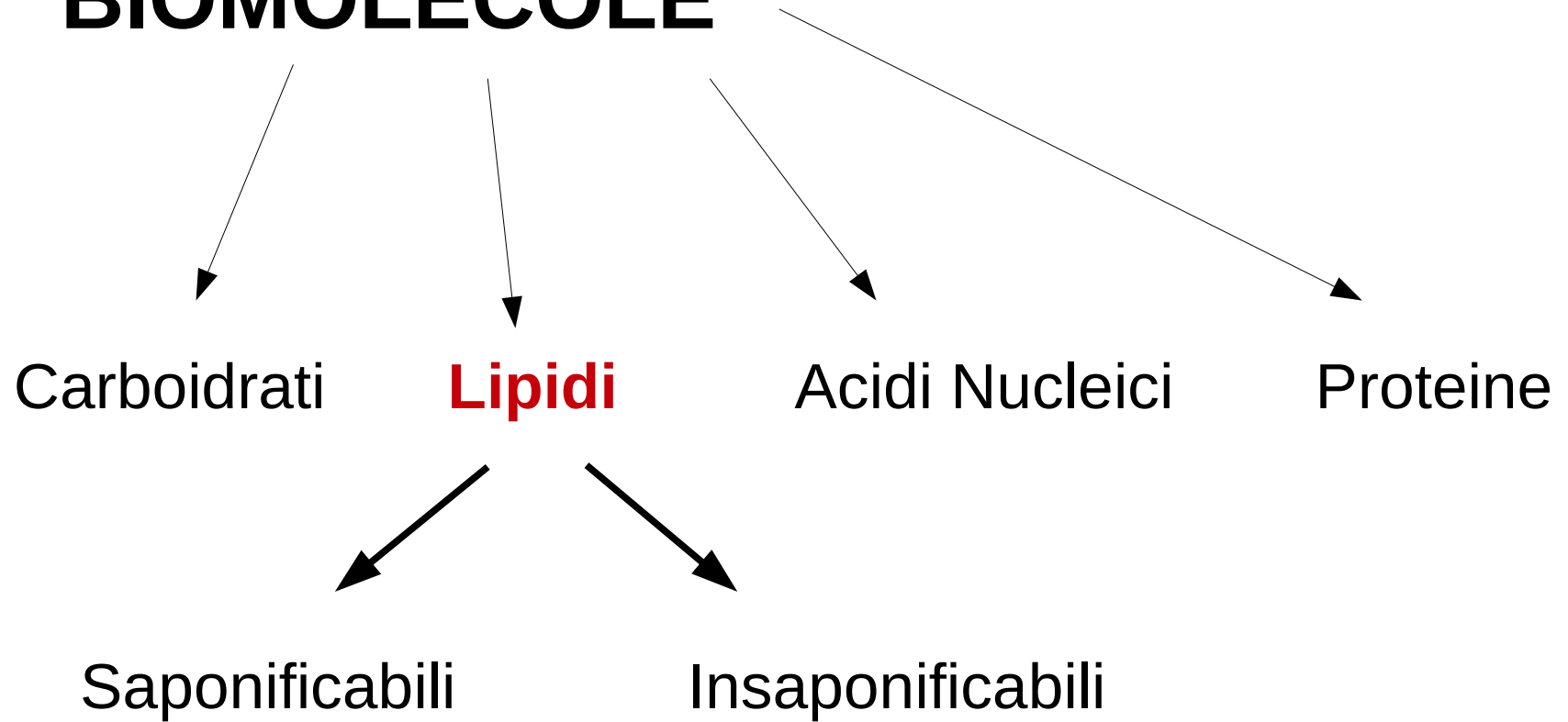
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Grassi, oli, cere, vitamine liposolubili

Non sono solubili in acqua

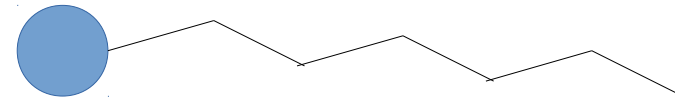
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Acido oleico

Acido linoleico

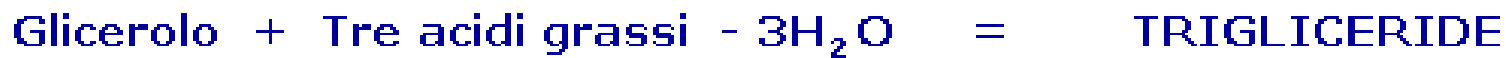
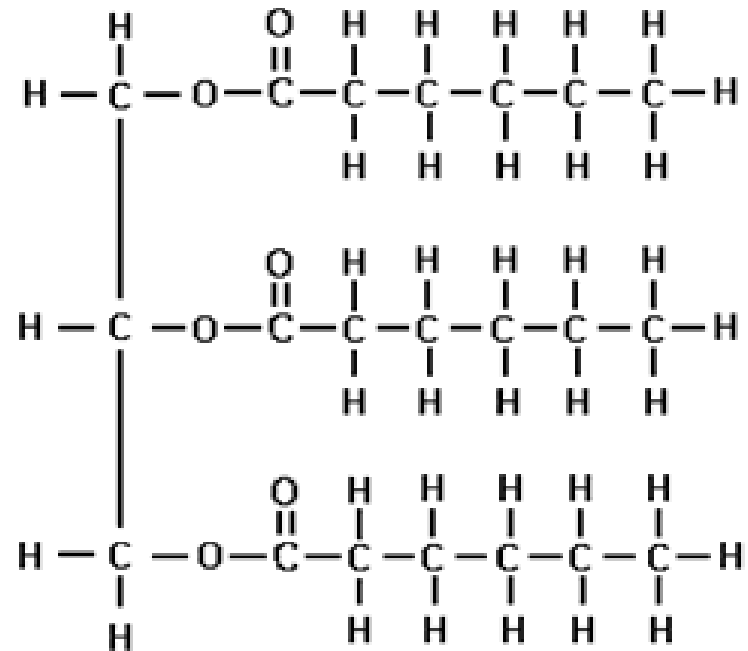
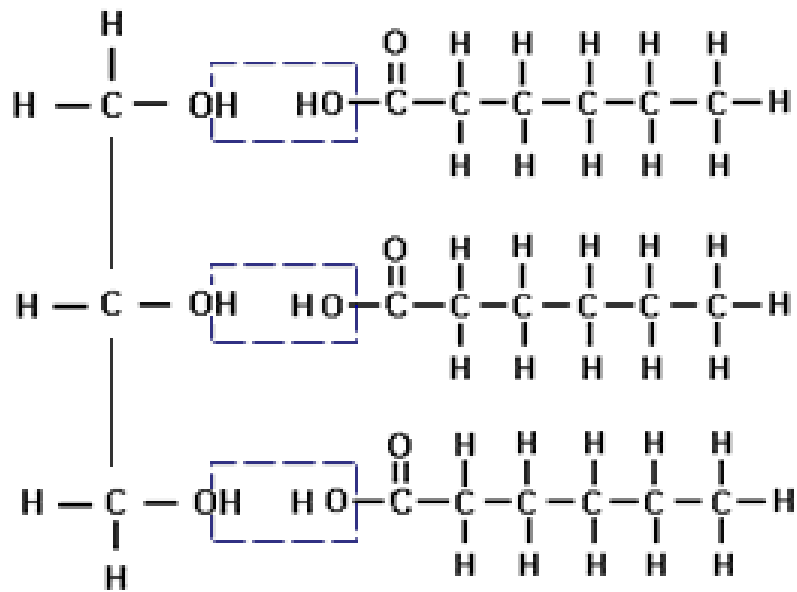
Acido linolenico



(Acidi grassi)

Saponificabili

Insaponificabili

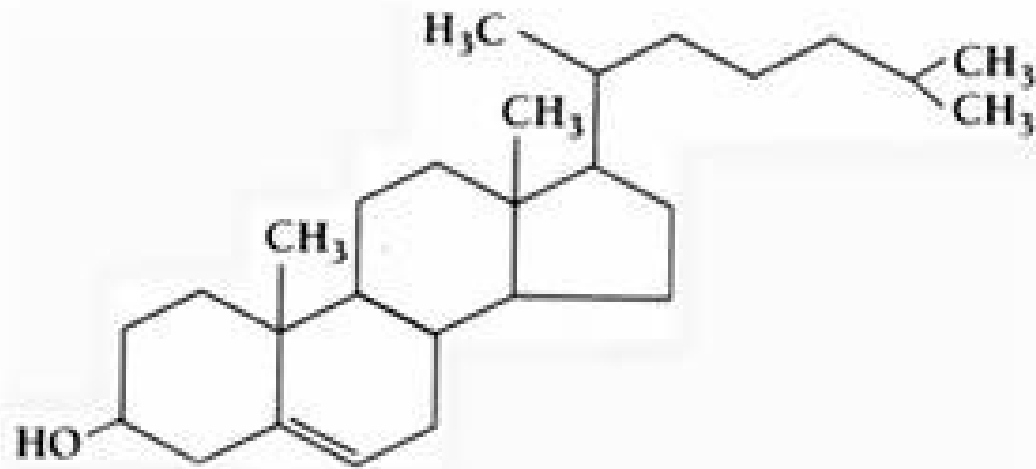


Saponificabili

Insaponificabili

Saponificabili

Insaponificabili

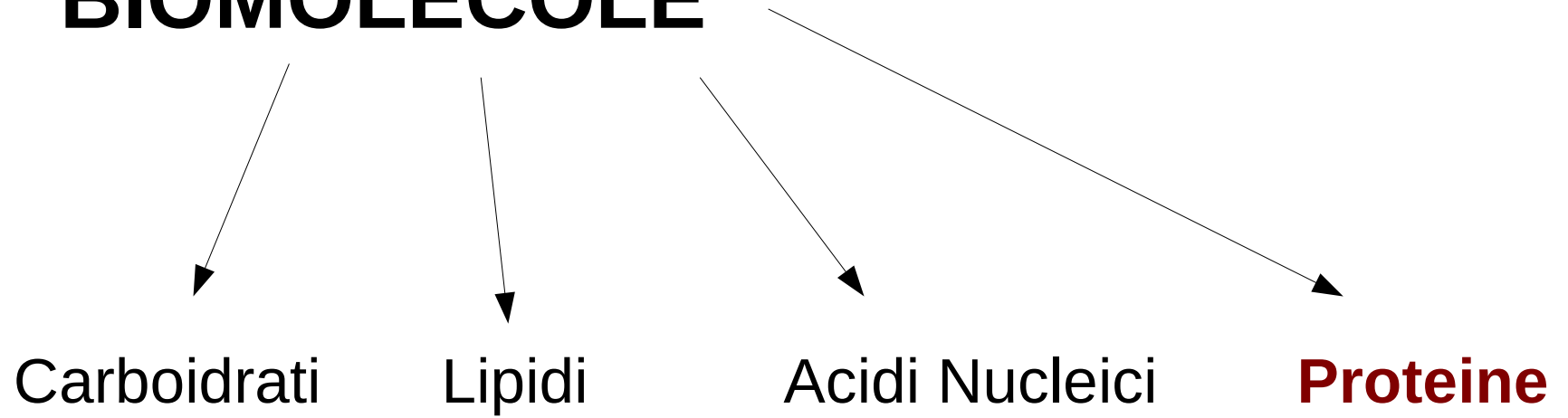


formula di struttura del colesterolo

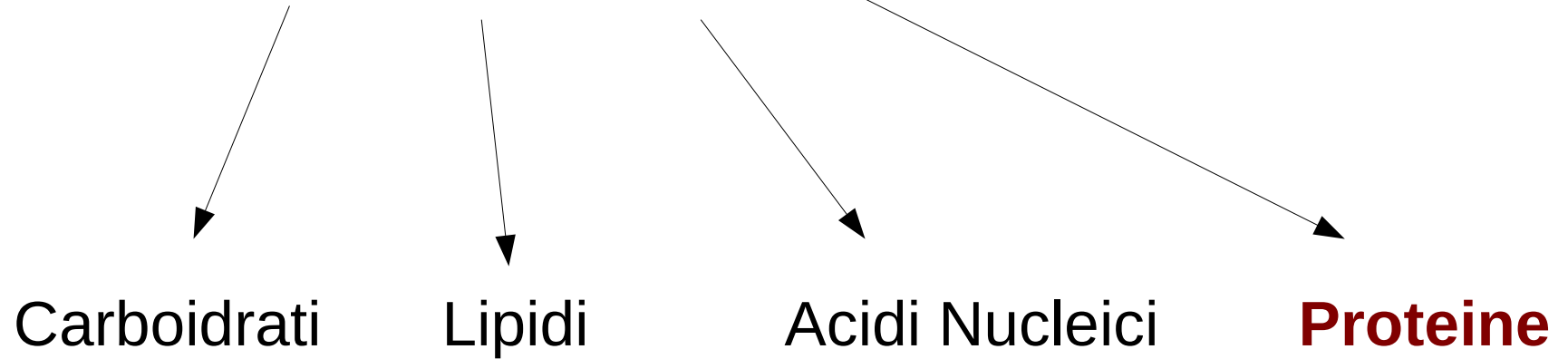
Saponificabili

Insaponificabili

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Diversi ruoli

Miosina

Actina

Cheratina

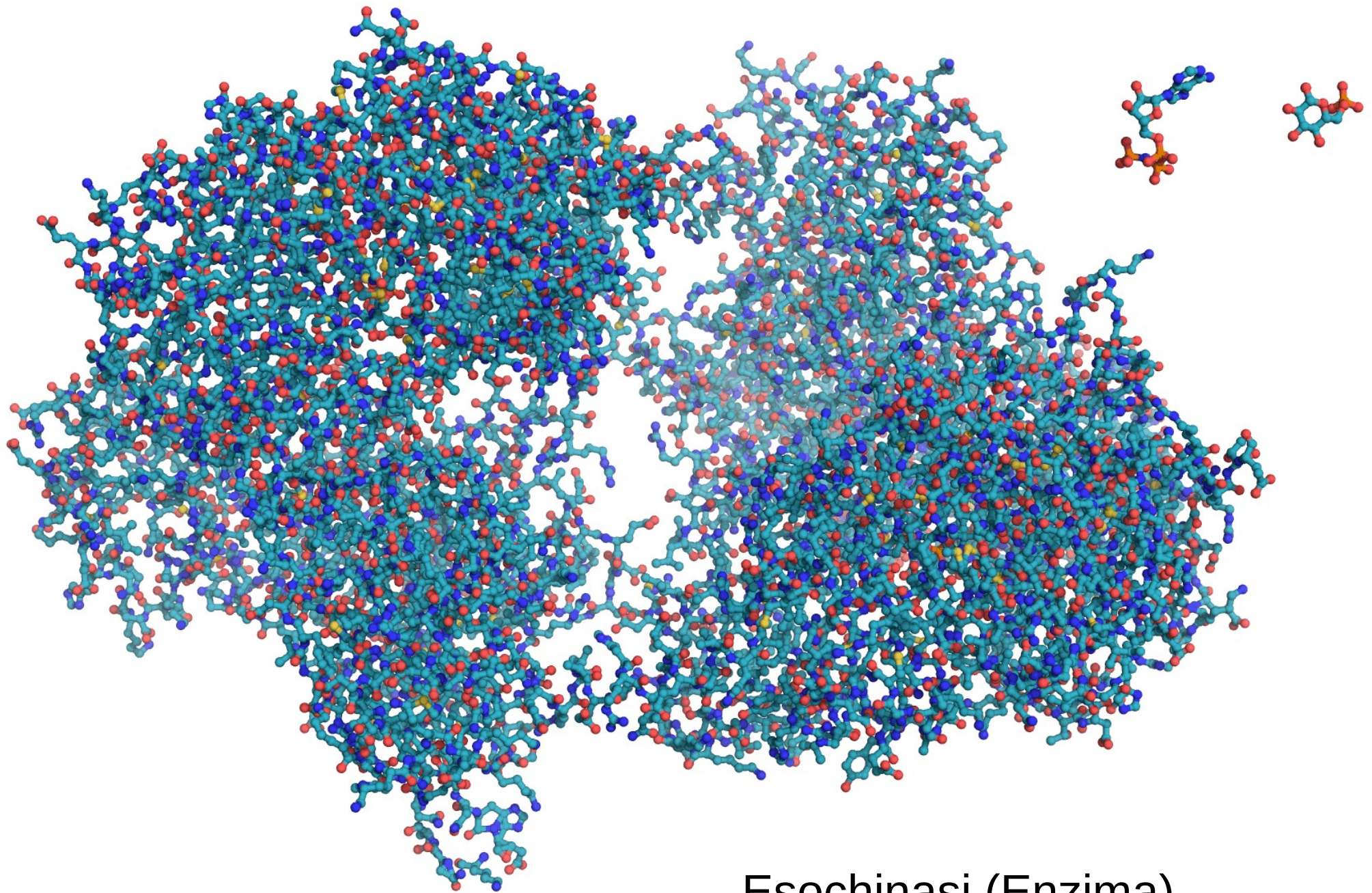
Collagene

Enzimi

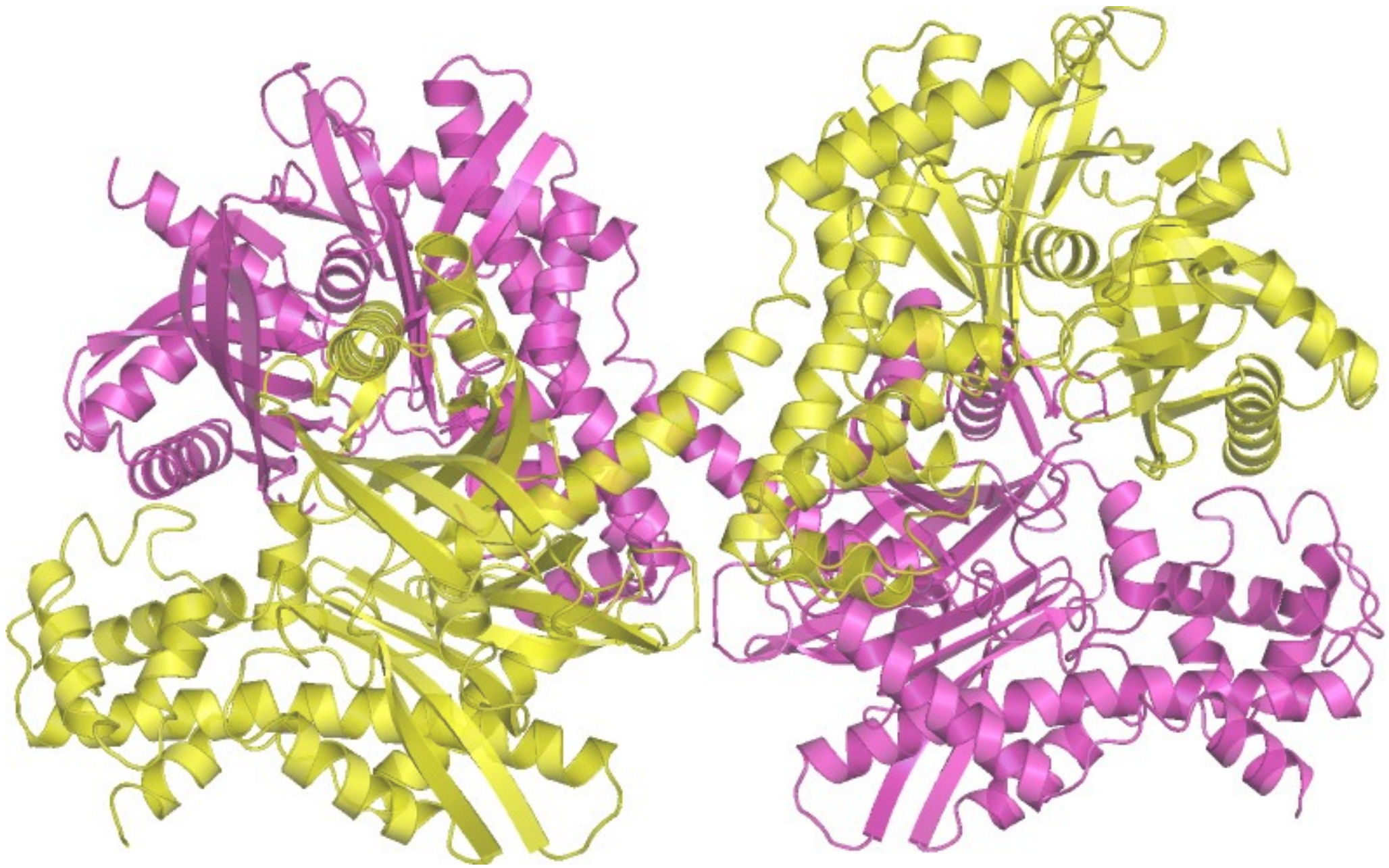
Emoglobina

Immunoglobuline

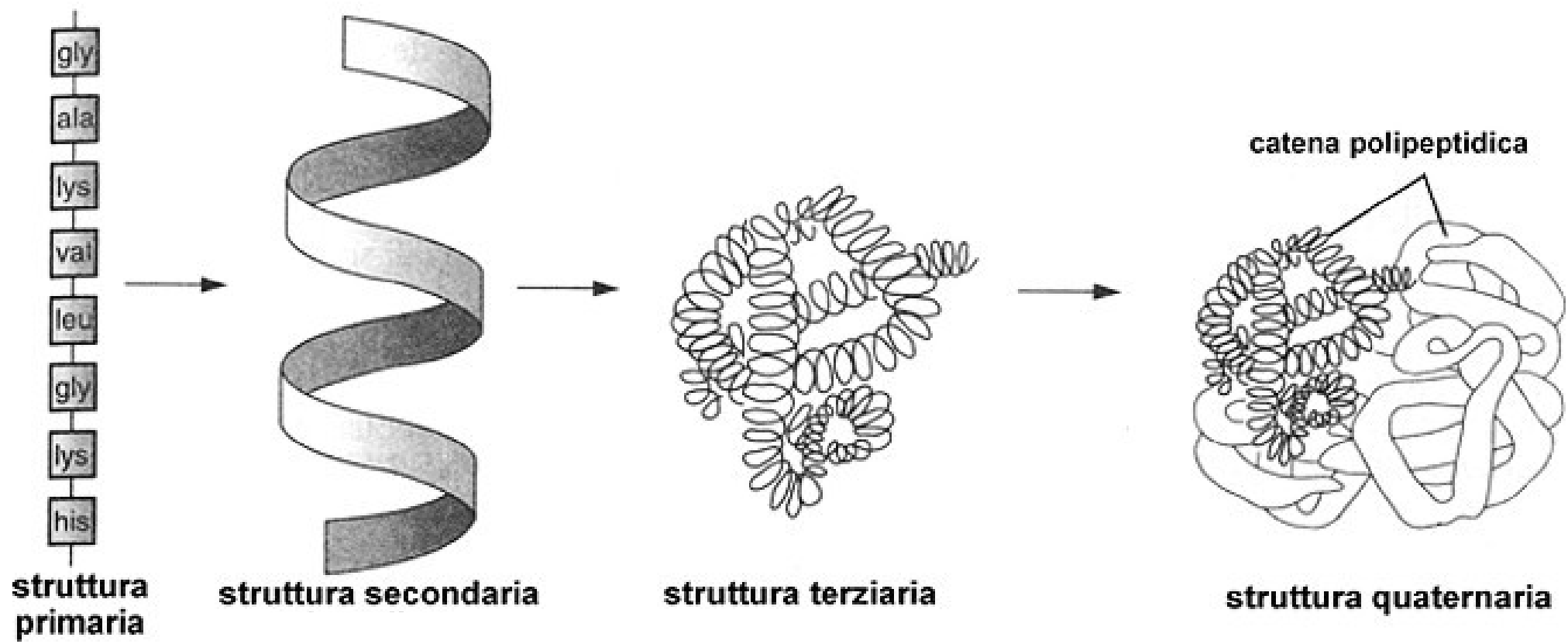
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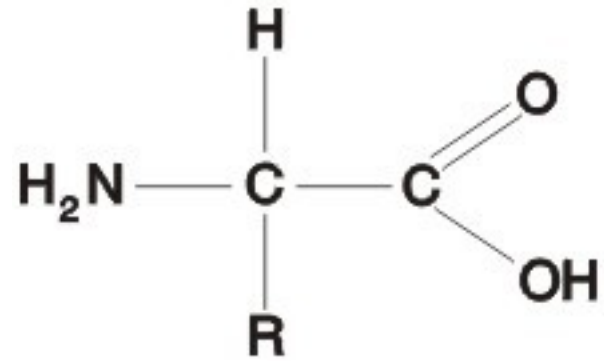
Esochinasi (Enzima)



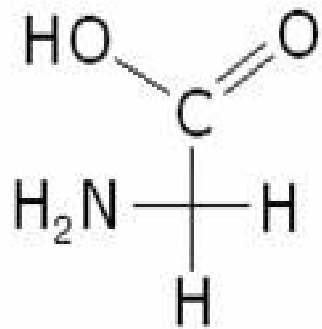
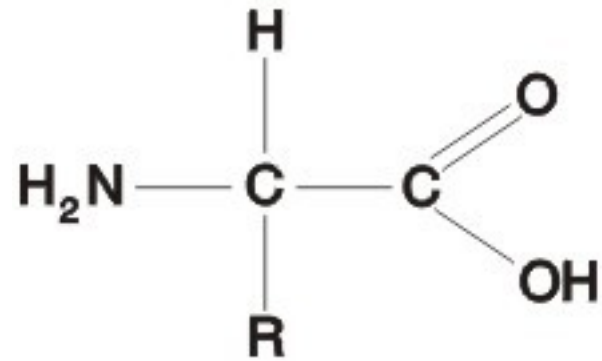
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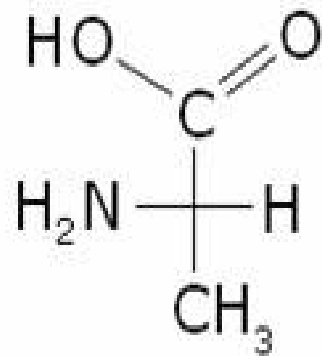
Amminoacidi



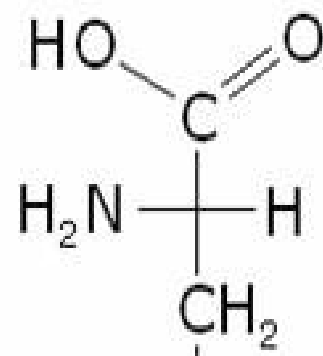
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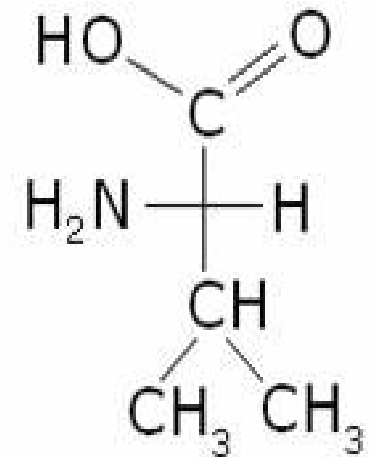
glicina



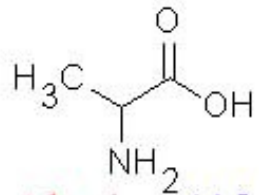
alanina



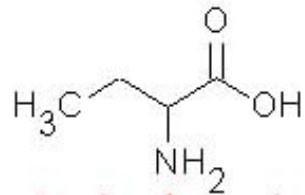
fenilalanina



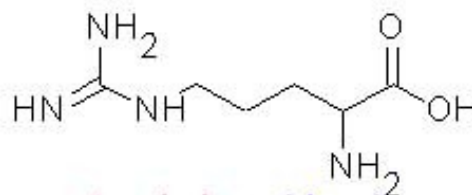
valina



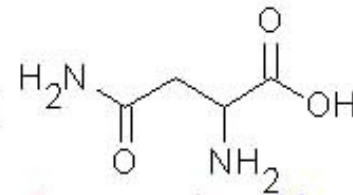
Alanine (Ala)



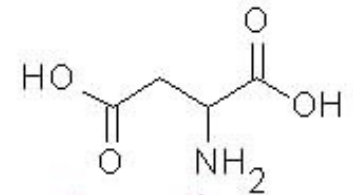
Aminobutyric Acid (Abu)



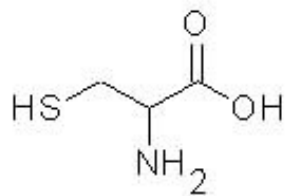
Arginine (Arg)



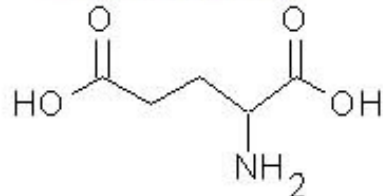
Asparagine (Asn)



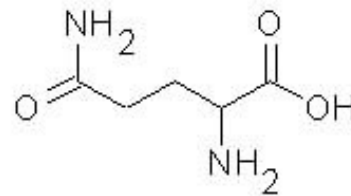
Aspartic Acid (Asp)



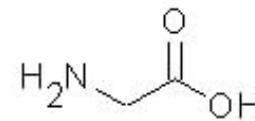
Cysteine (Cys)



Glutamic Acid (Glu)



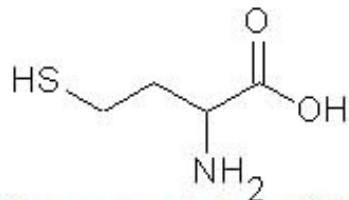
Glutamine (Gln)



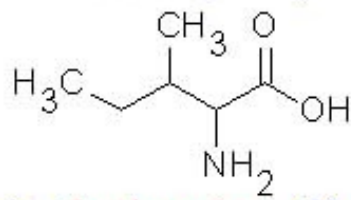
Glycine (Gly)



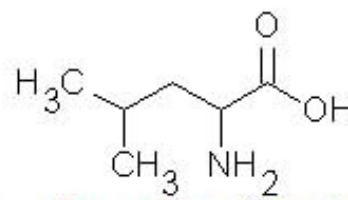
Histidine (His)



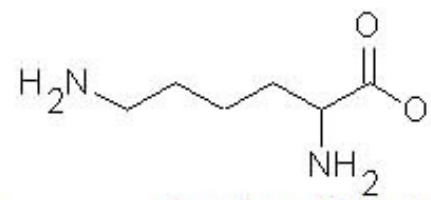
Homocysteine (Hcy)



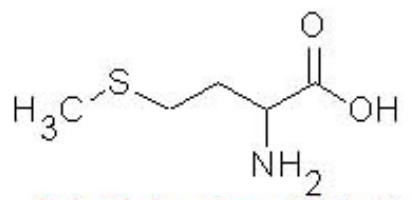
Isoleucine (Ile)



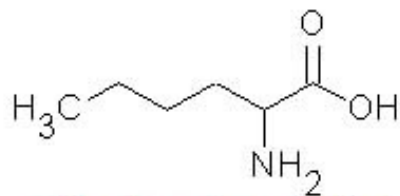
Leucine (Leu)



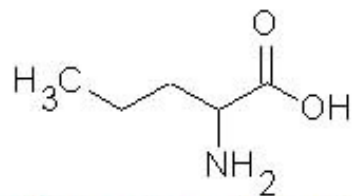
Lysine (Lys)



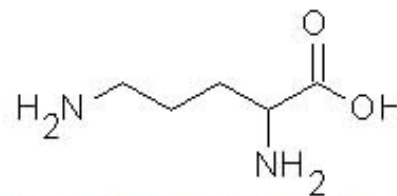
Methionine (Met)



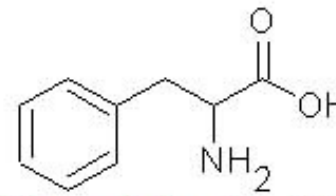
Norleucine (Nle)



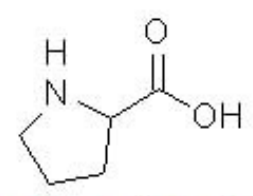
Norvaline (Nva)



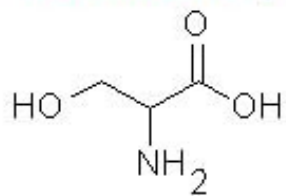
Ornithine (Orn)



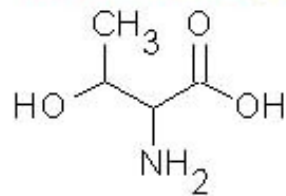
Phenylalanine (Phe)



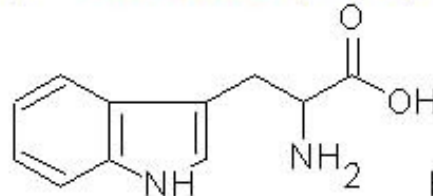
Proline (Pro)



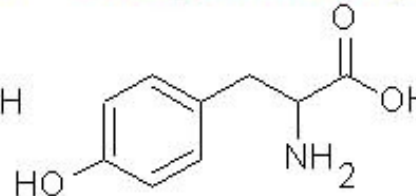
Serine (Ser)



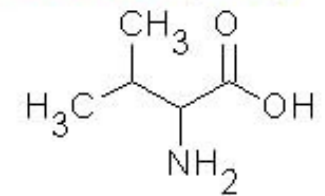
Threonine (Thr)



Tryptophan (Trp)



Tyrosine (Tyr)



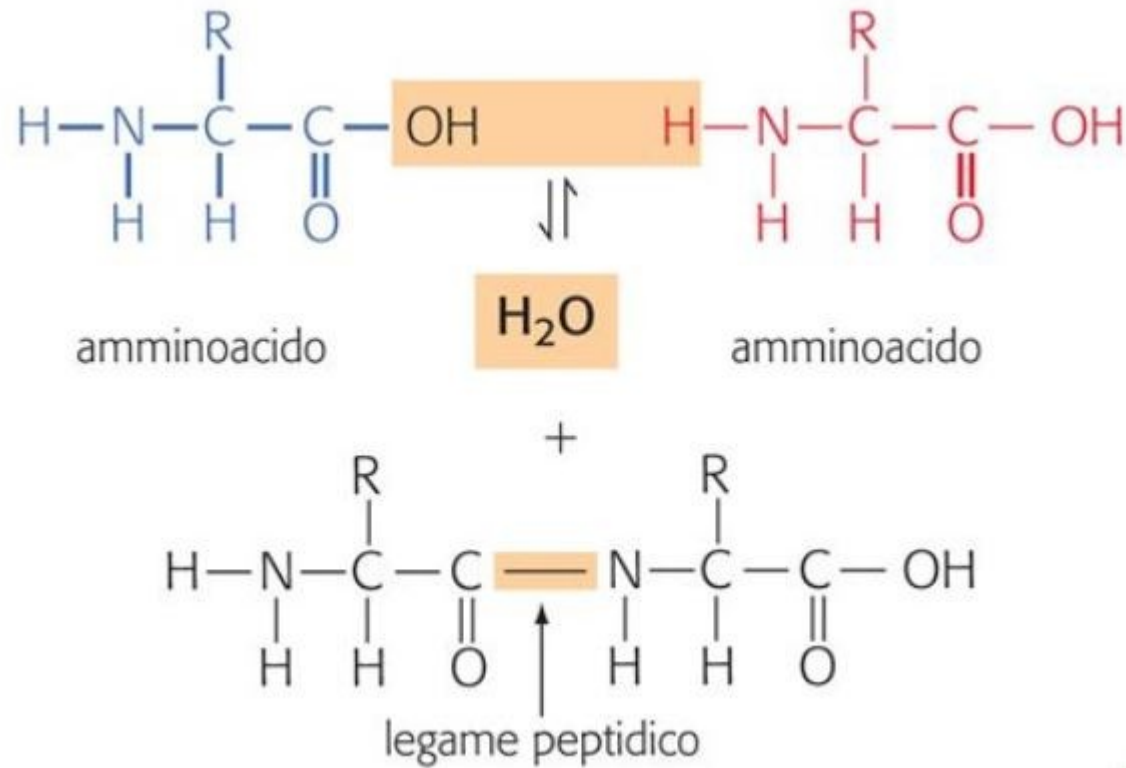
Valine (Val)

Legame ammidico

ovvero come gli amminoacidi sono uniti tra di loro

Legame ammidico

ovvero come gli amminoacidi sono uniti tra di loro

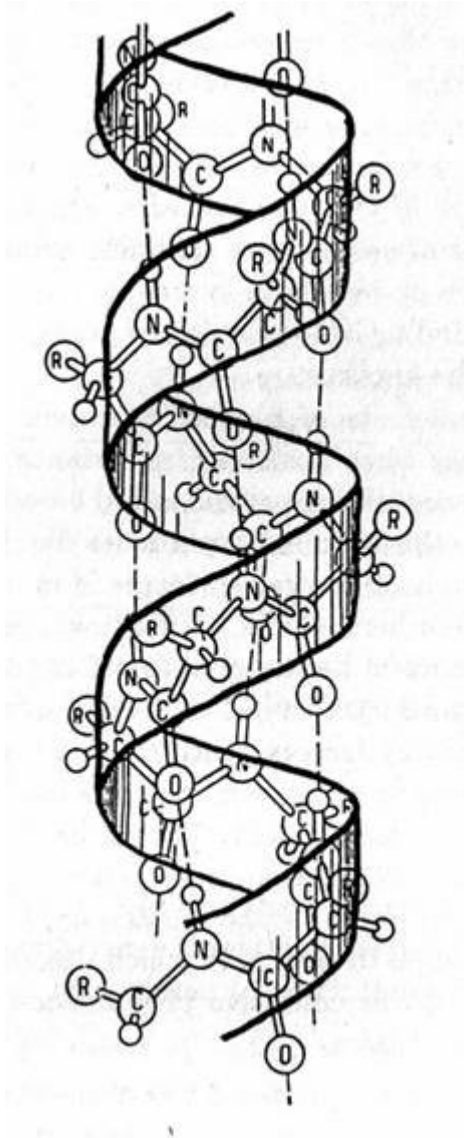


Struttura secondaria

ovvero la configurazione tridimensionale delle catene polipeptidiche

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ovvero la configurazione tridimensionale delle catene polipeptidiche

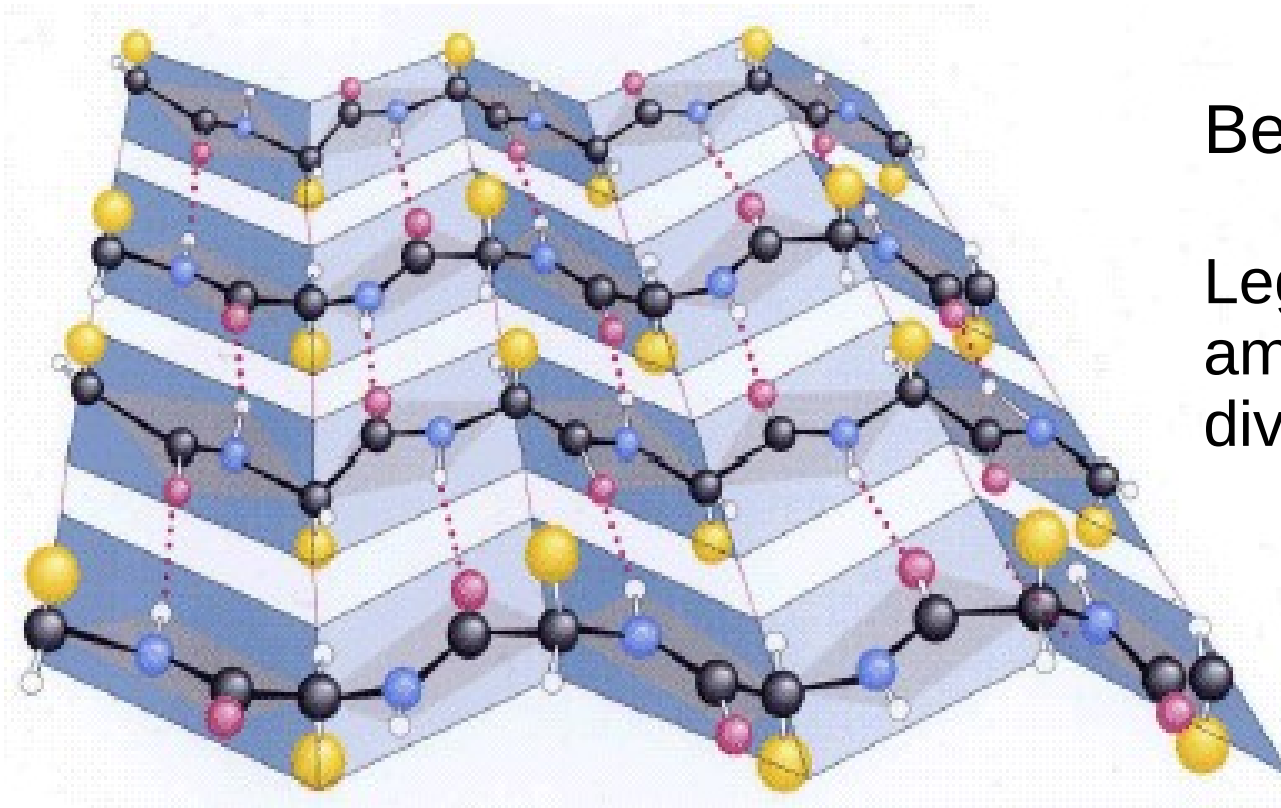


Alfa elica

Legami a idrogeno tra amminoacidi
della stessa catena

Struttura secondaria

ovvero la configurazione tridimensionale delle catene polipeptidiche

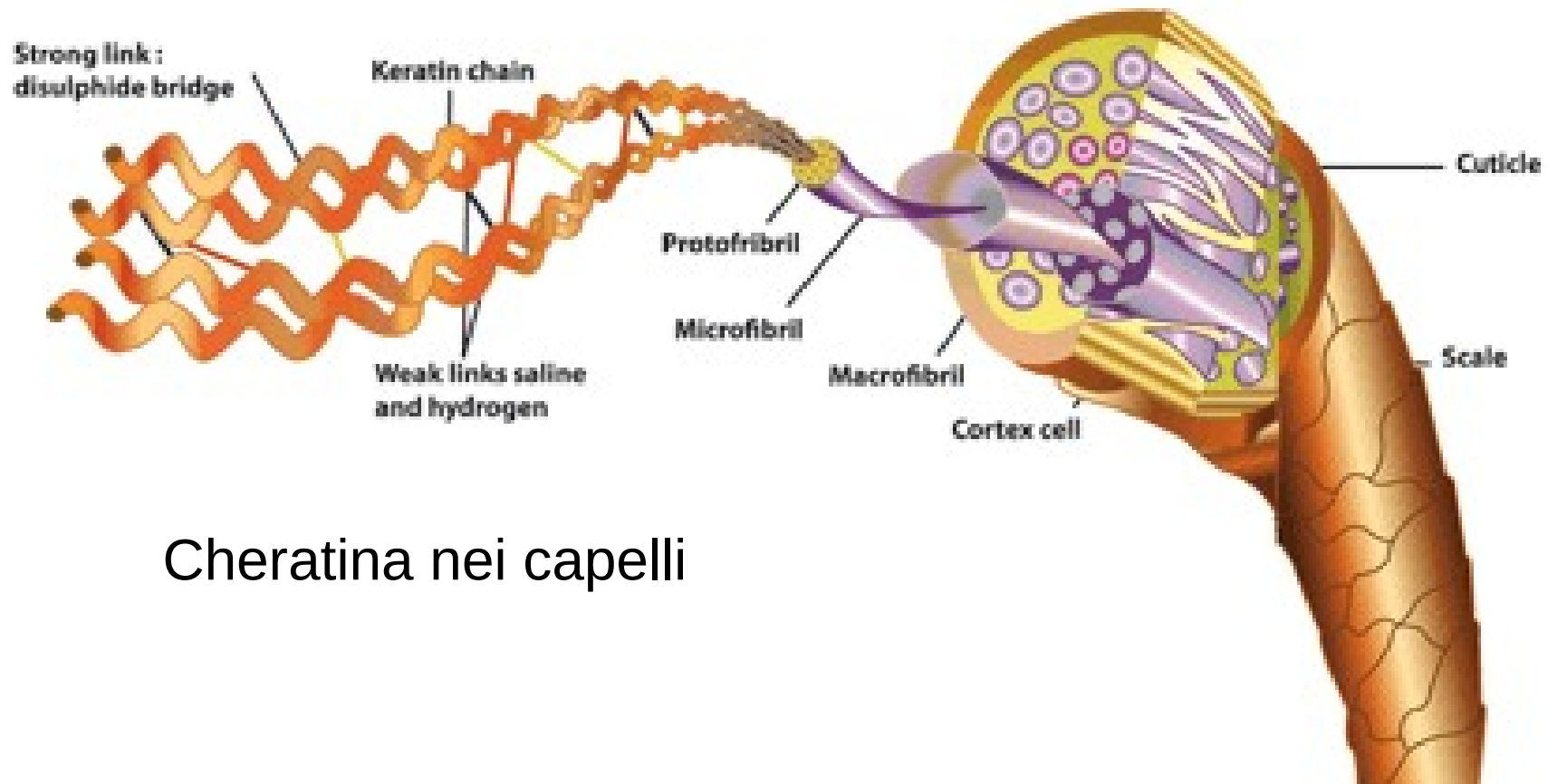


Beta foglietto

Legami a idrogeno tra
amminoacidi di catene
diverse

Struttura terziaria

ovvero l'ulteriore ripiegamento delle α -eliche e/o dei β -foglietti

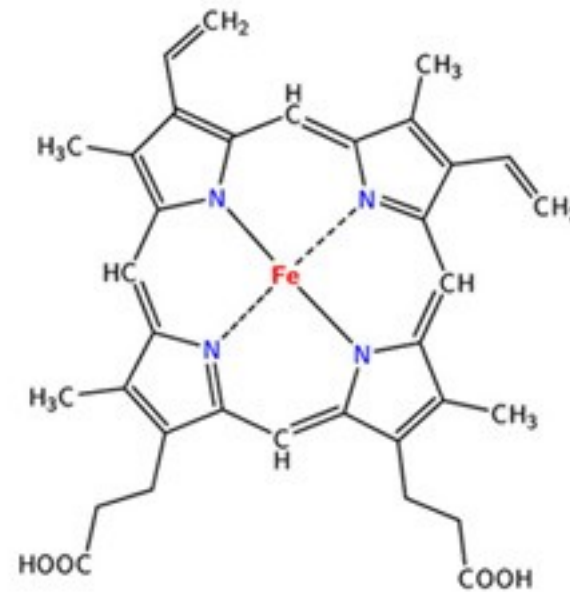
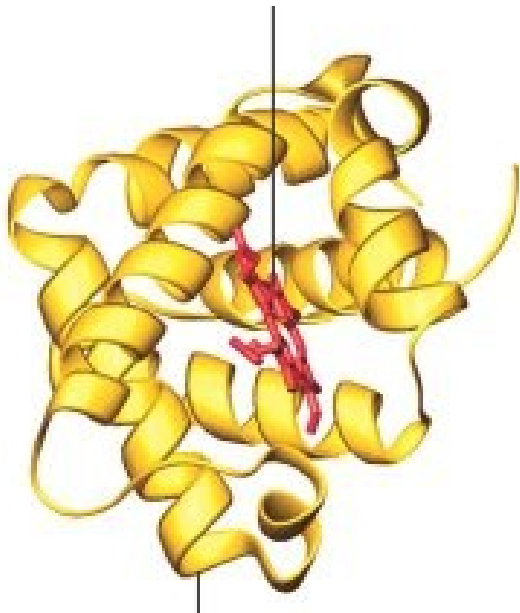


Cheratina nei capelli

Struttura terziaria

ovvero l'ulteriore ripiegamento delle α -eliche e/o dei β -foglietti

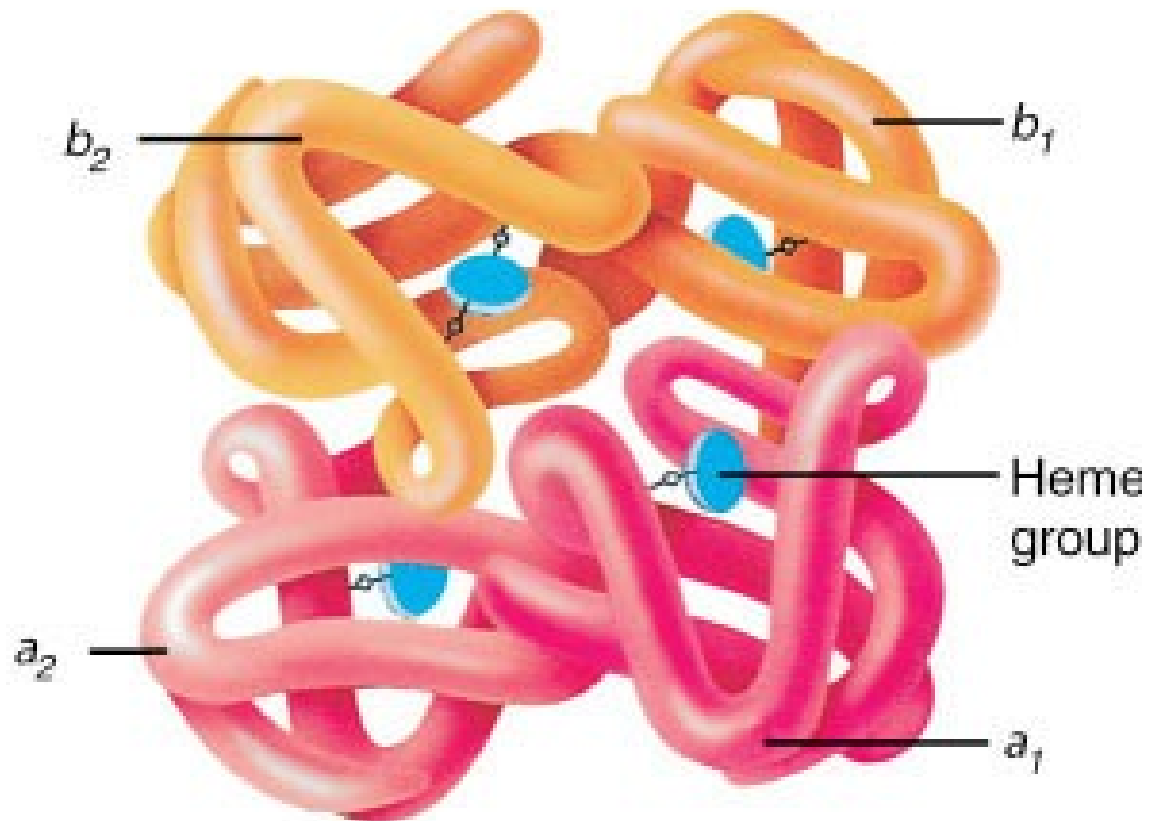
Gruppo eme



Emoglobina

Struttura quaternaria

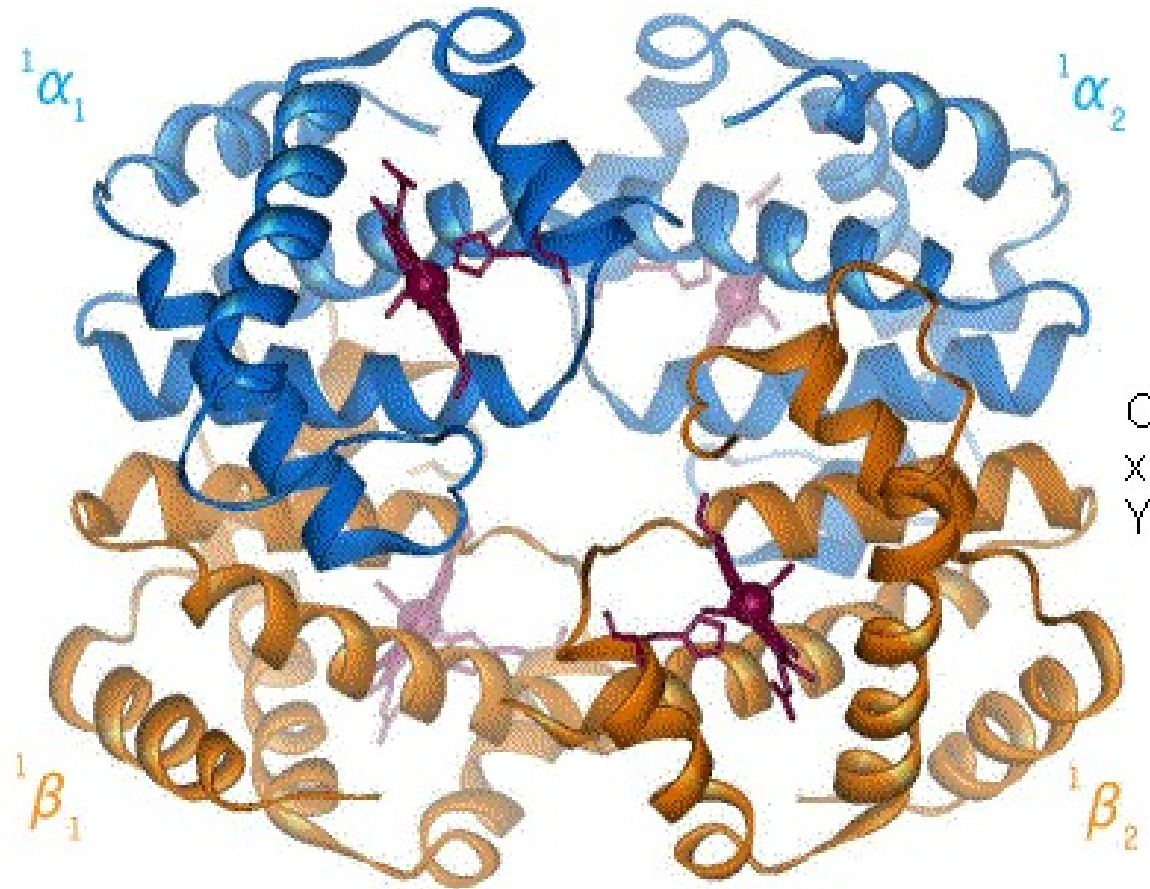
ovvero l'unione di più sub-unità dovuta ad interazioni elettrostatiche



Non necessariamente tutte le proteine hanno una struttura quaternaria

Struttura quaternaria

ovvero l'unione di più sub-unità dovuta ad interazioni elettrostatiche

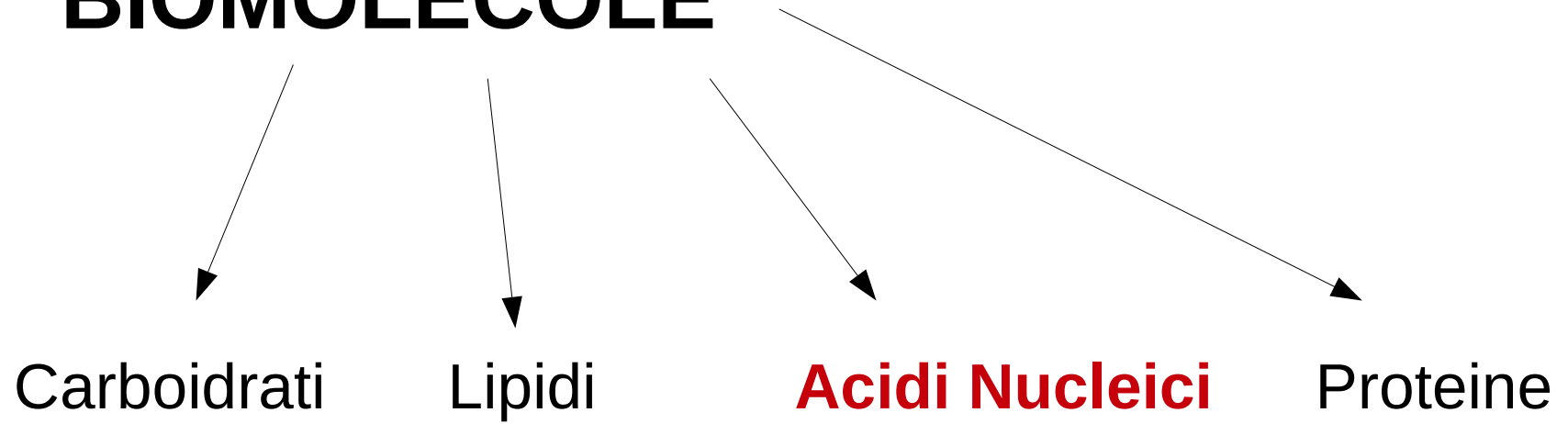


Attenzione:

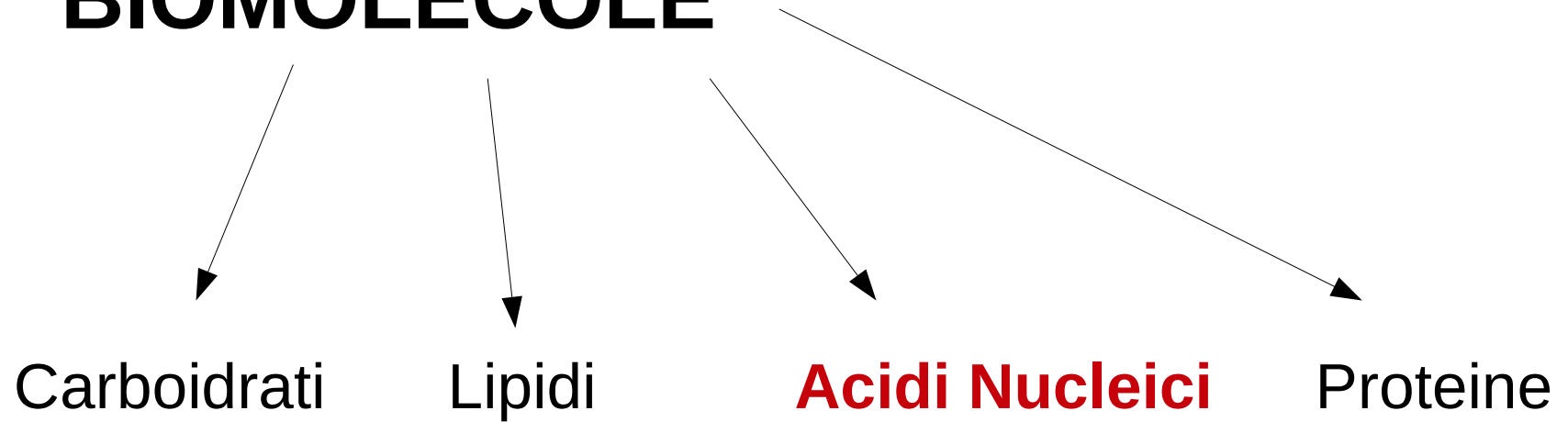
Le diverse strutture delle proteine non sono strutture “alternative” ma diversi livelli di organizzazione strutturale che esistono contemporaneamente

Se le proteine perdono la loro struttura terziaria addio funzioni biologiche

BIOMOLECOLE



BIOMOLECOLE

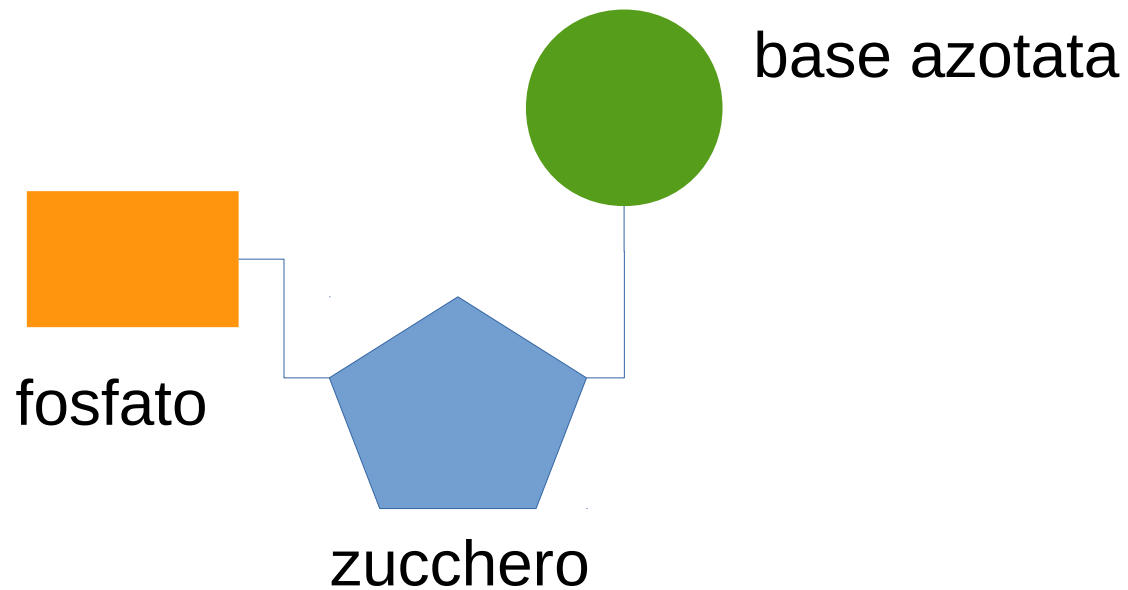


DNA & RNA

Depositari dell'informazione genetica e controllori della sintesi delle proteine

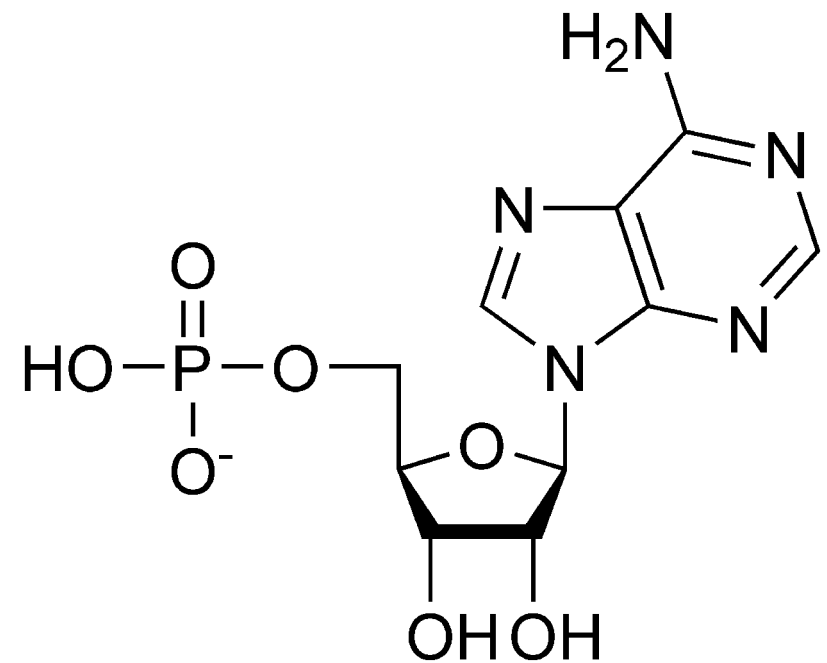
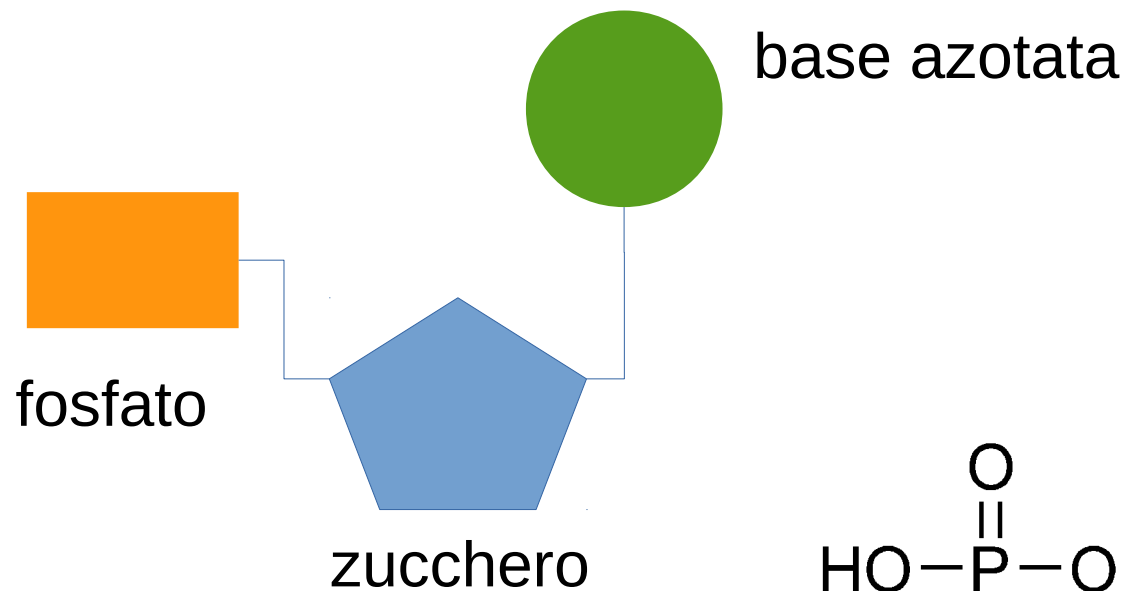
Acidi nucleici

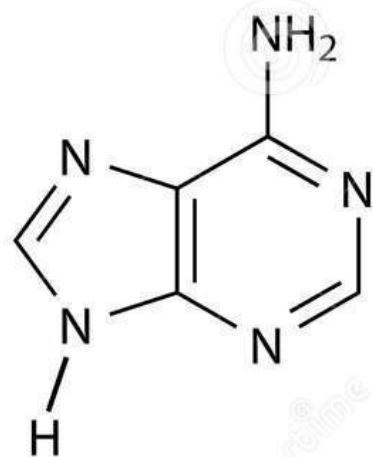
Polimeri la cui unità di base è chiamata nucleotide



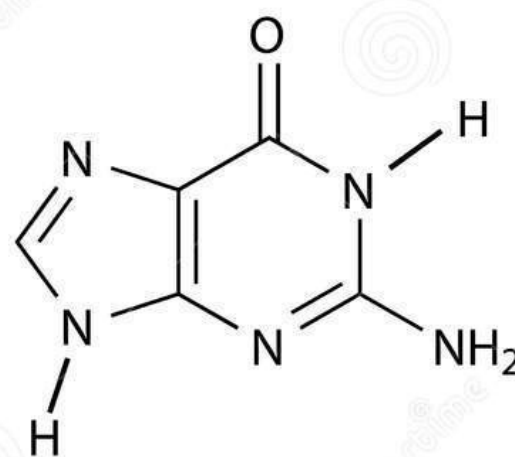
Acidi nucleici

Polimeri la cui unità di base è chiamata nucleotide

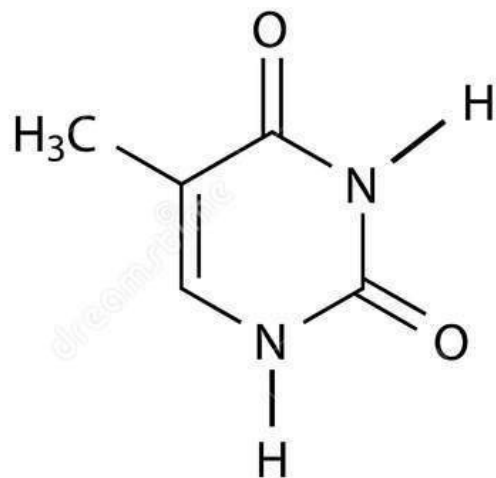




Adenine



Guanine

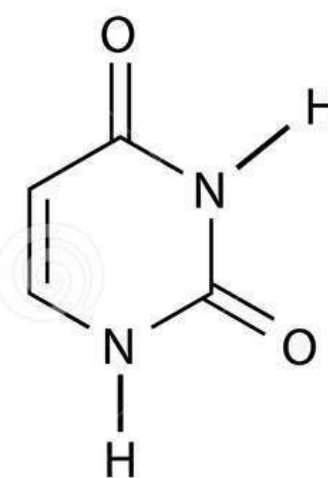


Thymine

(DNA)



Cytosine

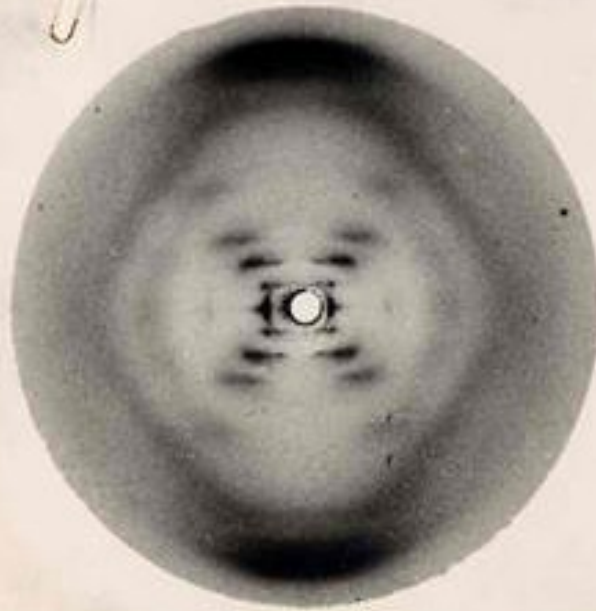


Uracil

(RNA)

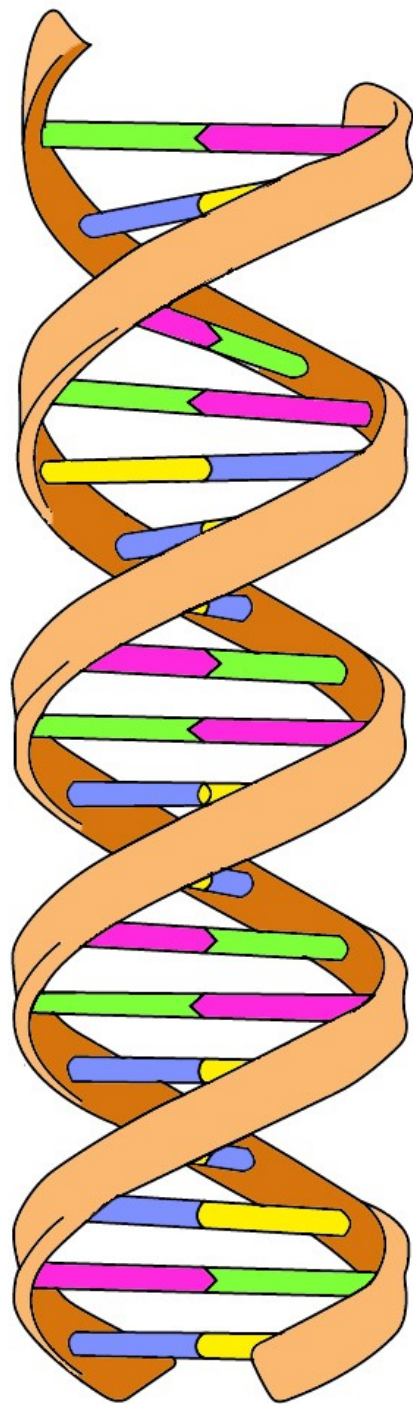
Rosalind Franklin



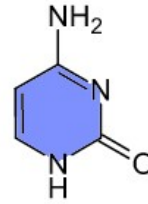


Franklin &
Poshing
Fossil
Type D

Plate 1

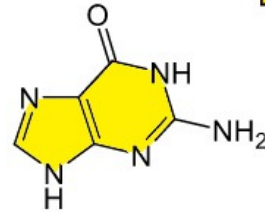


Citosina



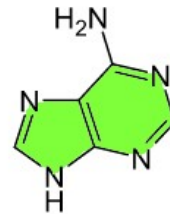
C

Guanina



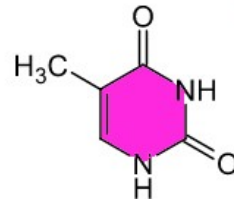
G

Adenina



A

Timina



T

Basi azotate

DNA

Acido Desossiribonucleico

