

TEMA

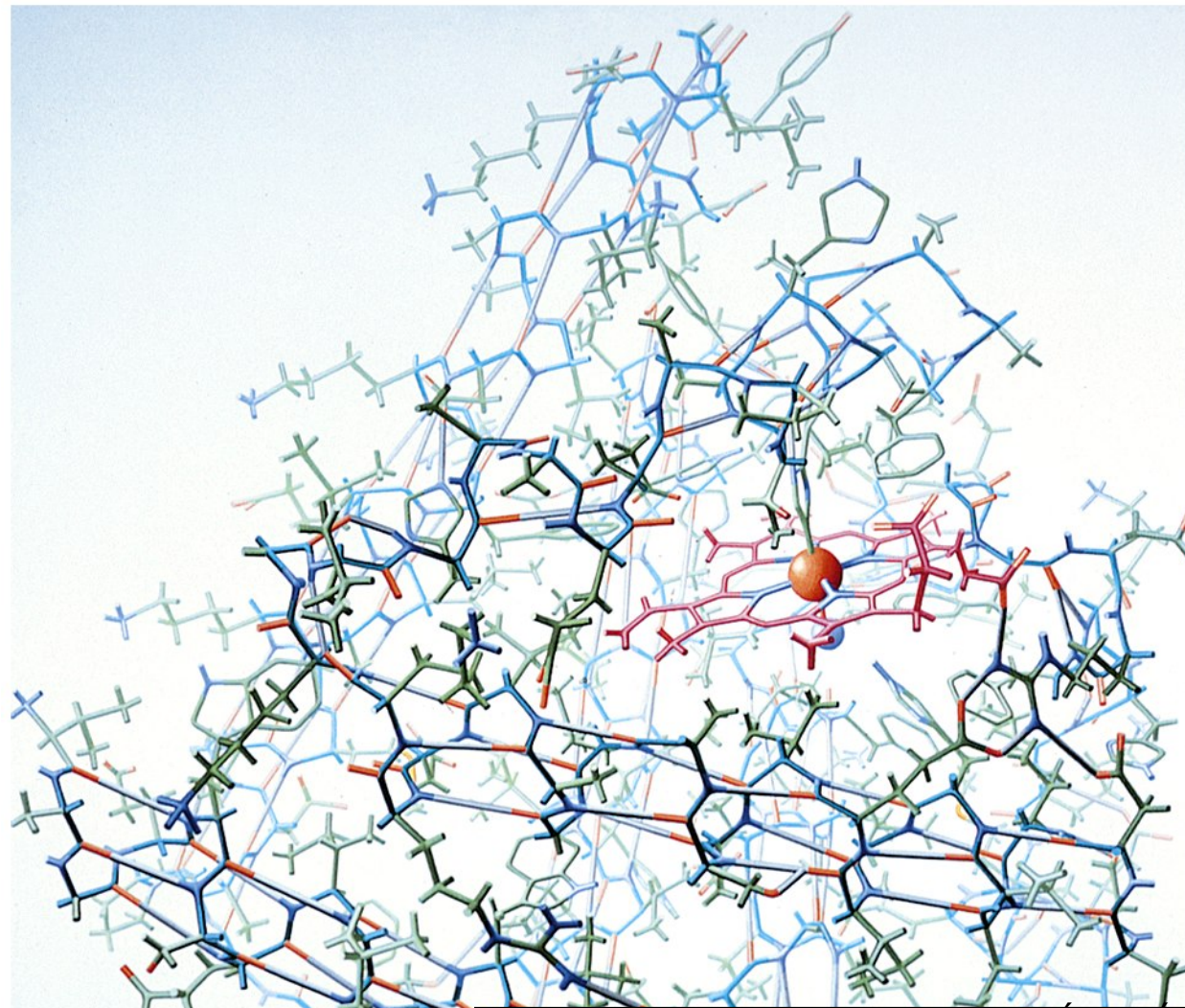
- **Los aminoácidos como constituyentes de las proteínas.**
- **Estructura y propiedades de los aminoácidos.**
- **Aminoácidos no proteicos.**

The logo for Cartagena99 features the text 'Cartagena99' in a stylized, green, serif font. The '99' is slightly larger and more prominent. The text is set against a light blue and orange gradient background that resembles a stylized wave or a banner.

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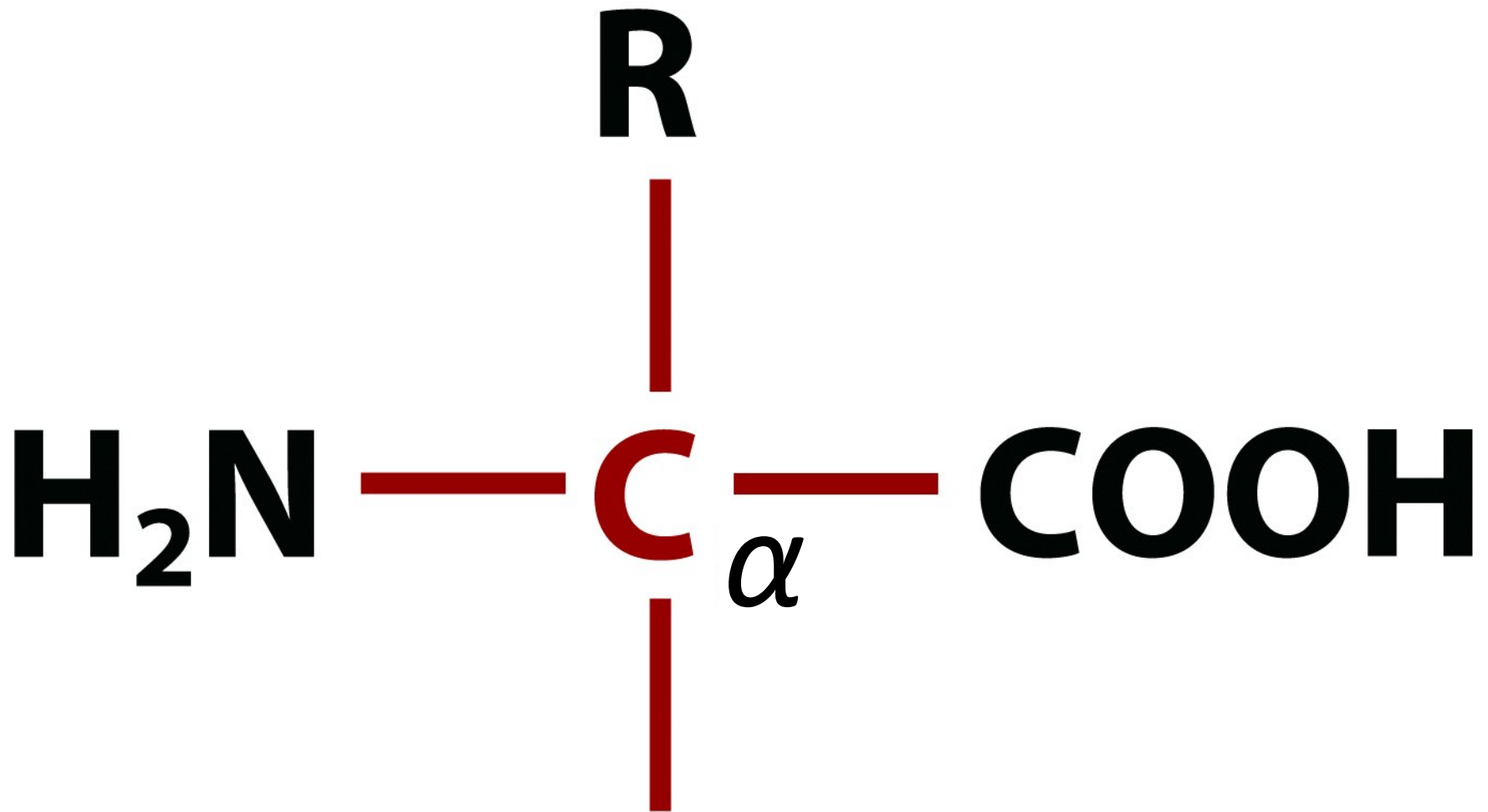


Dibujo
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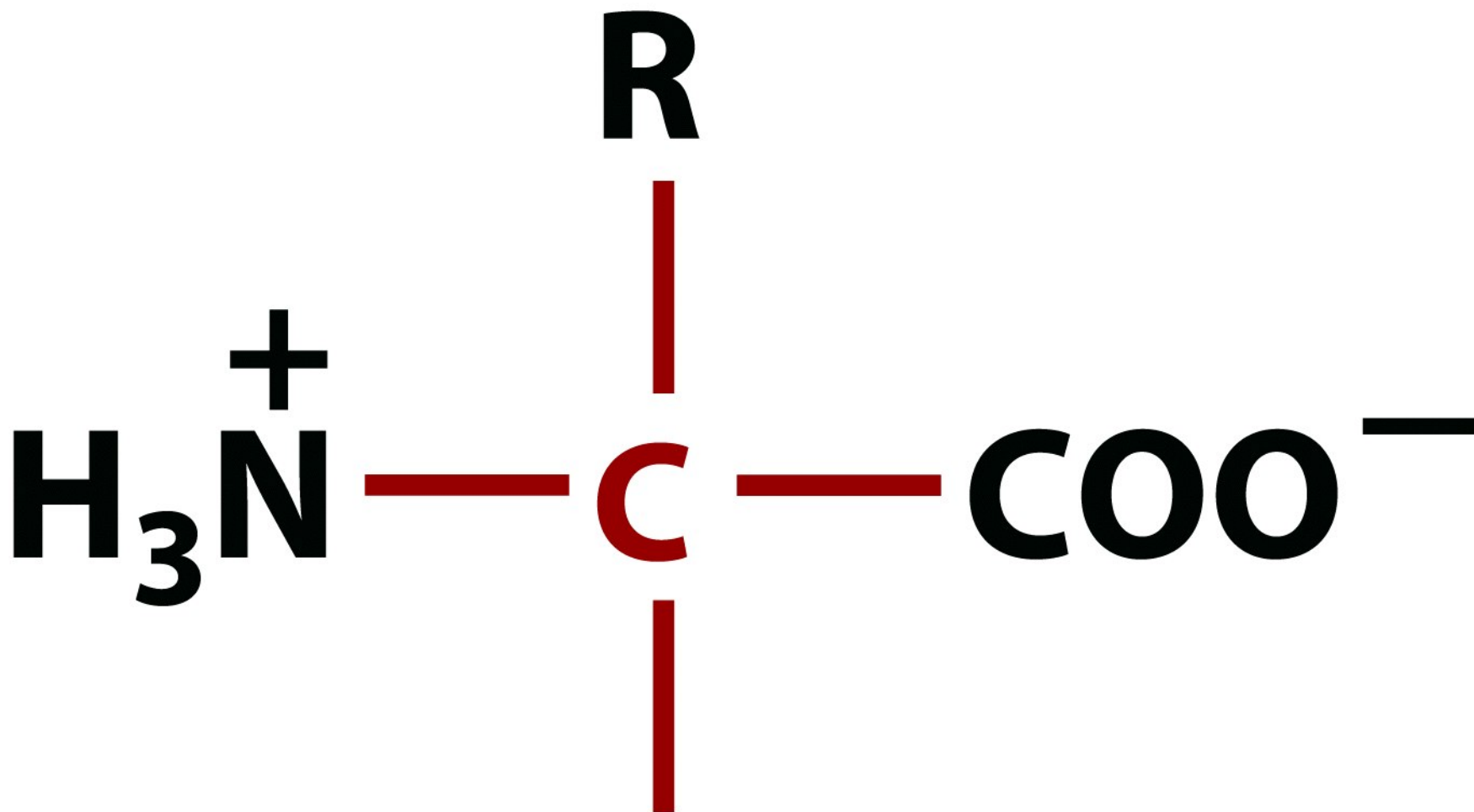
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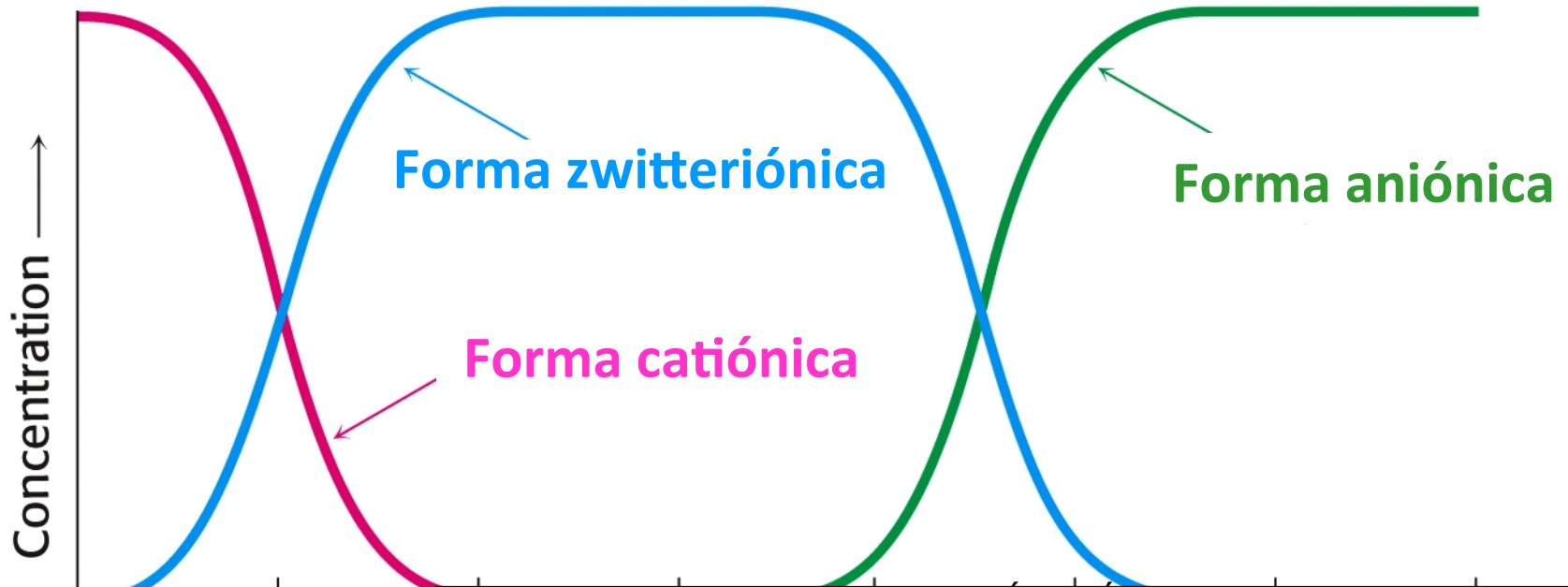
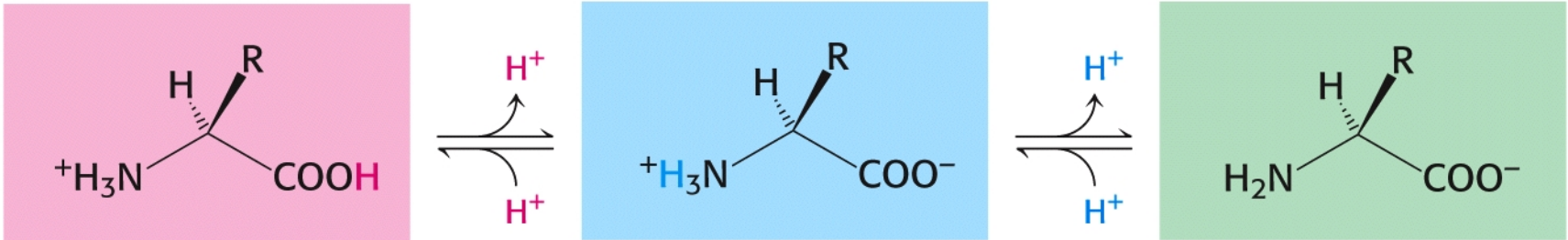


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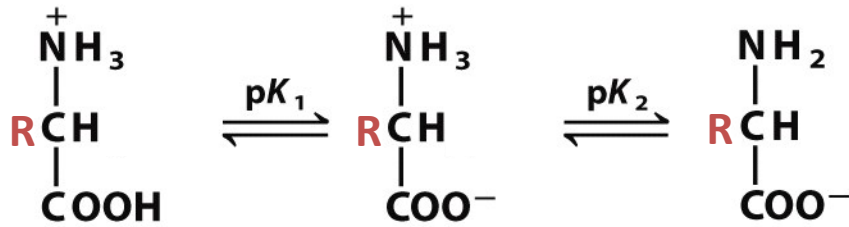
zwitterión



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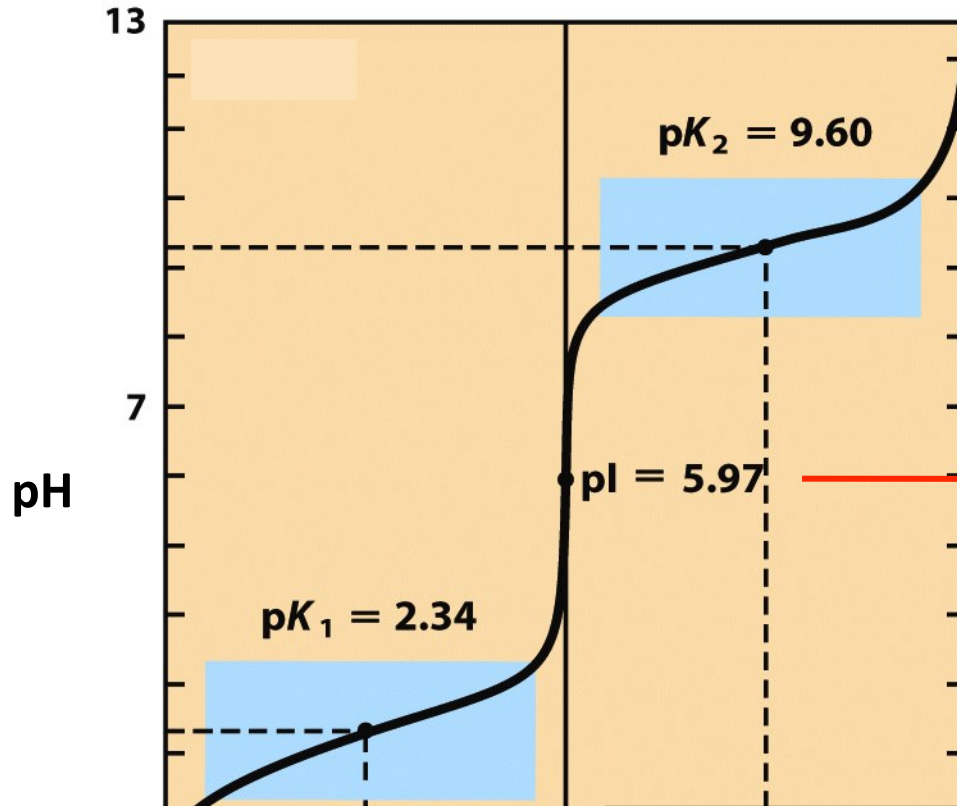
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Ec. de Henderson-Hasselbalch

$$\text{pH} = \text{p}K_a + \log \left(\frac{[\text{A}^-]}{[\text{HA}]} \right)$$



$$\text{pI} = (\text{p}K_1 + \text{p}K_2) / 2$$

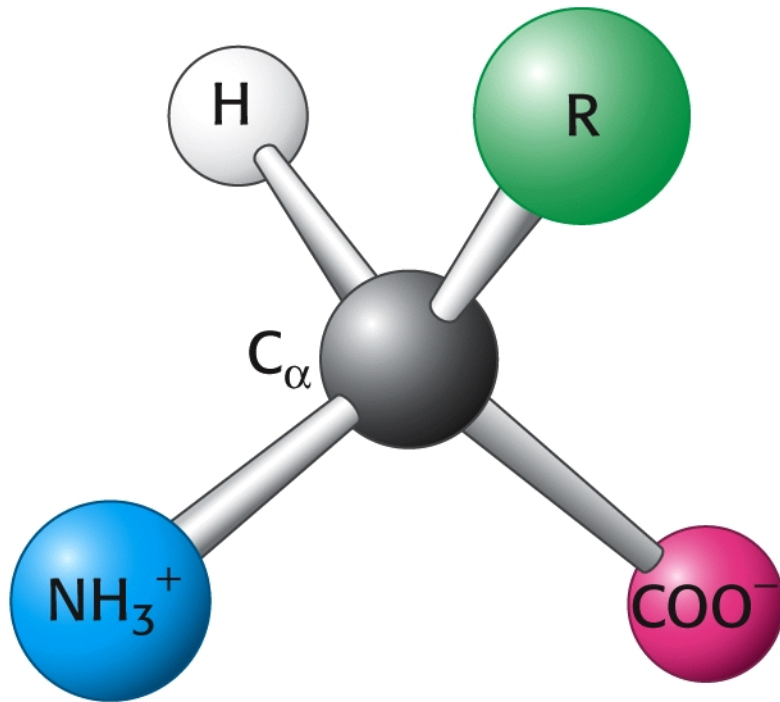
Punto Isoeléctrico

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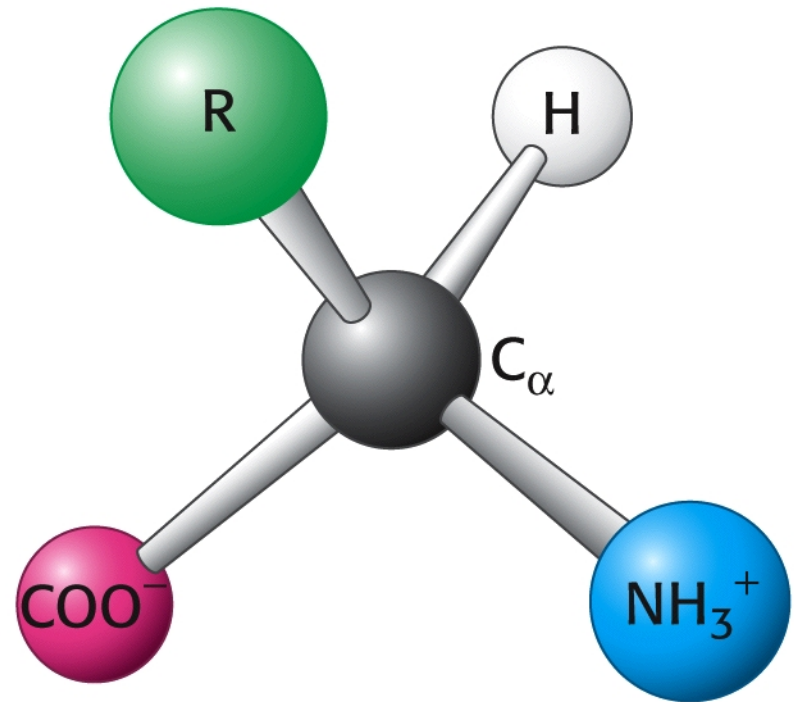
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Esteroisomería en los α -aminoácidos



Isómero L



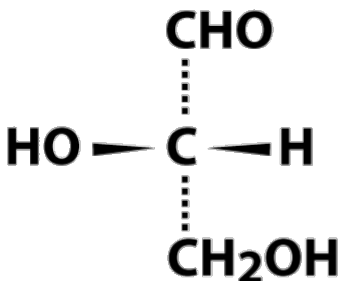
Isómero D

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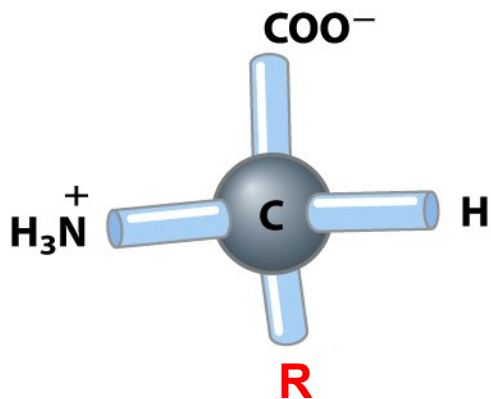
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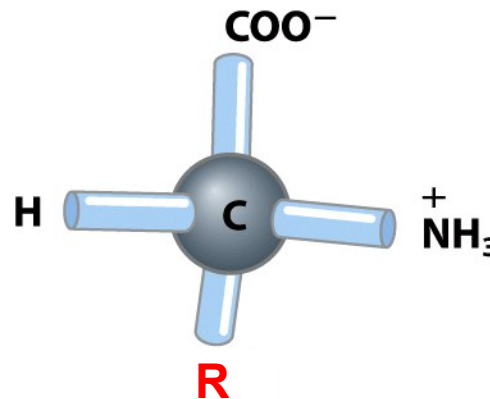
Especjo



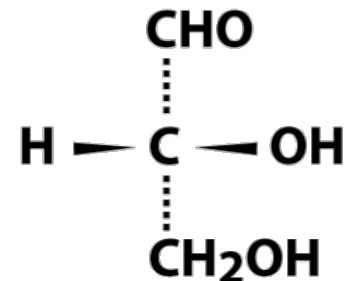
L-Gliceraldehido



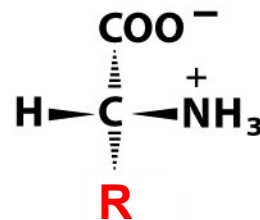
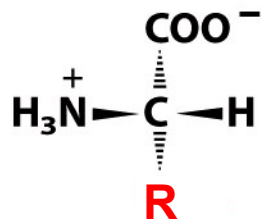
L-Aminoácido



D-Aminoácido



D-Gliceraldehido

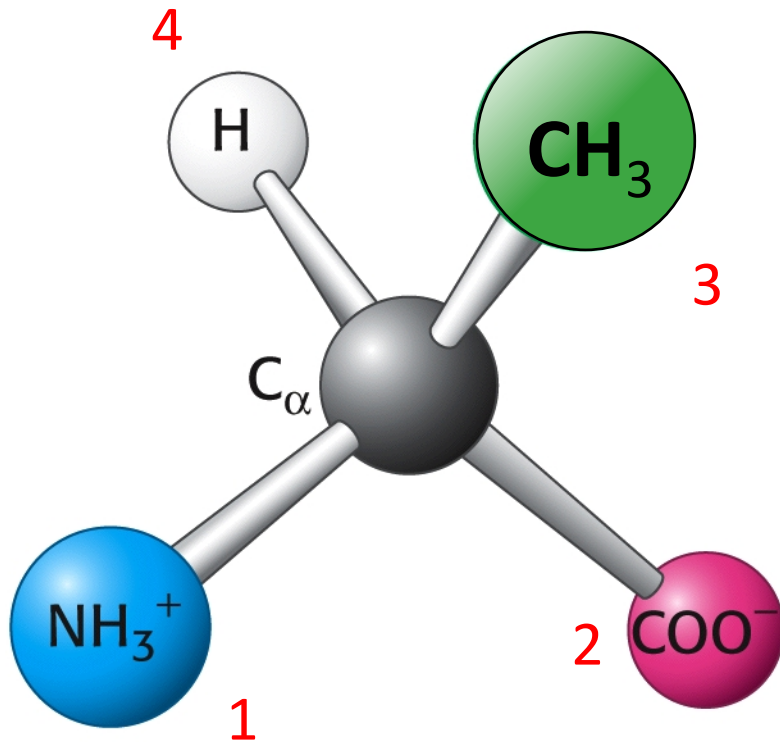


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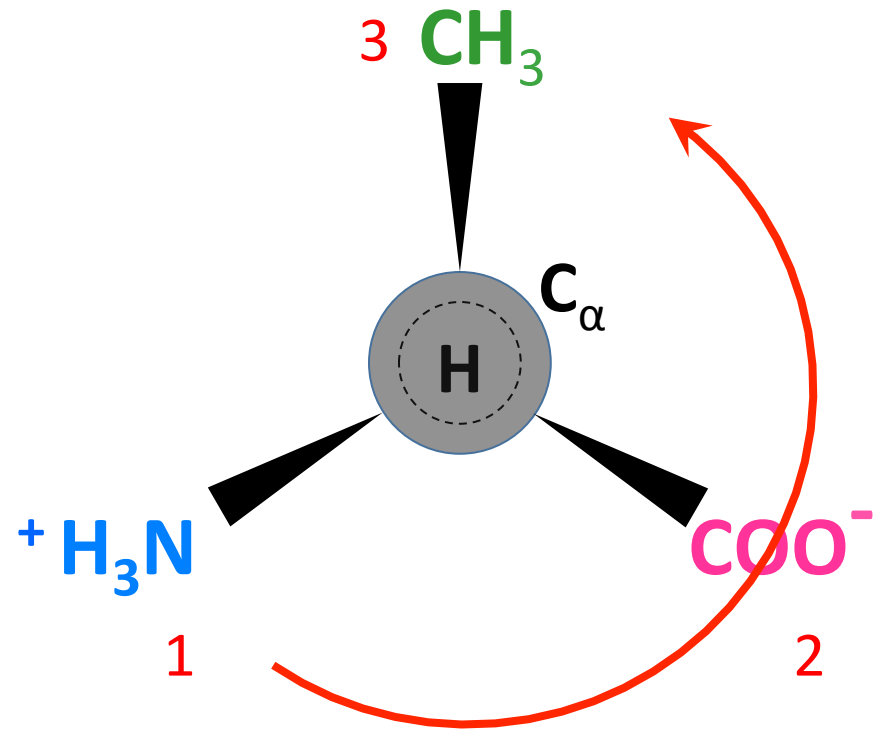
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Esteroisomería en los α -aminoácidos



L- alanina



S- alanina

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20 Aminoácidos proteicos

Aminoácido	Código 3 letras	Código 1 letra	Aminoácido	Código 3 letras	Código 1 letra
Alanina	Ala	A	Isoleucina	Ile	I
Arginina	Arg	R	Leucina	Leu	L
Asparagina	Asn	N	Lisina	Lys	K
Aspartato	Asp	D	Metionina	Met	M
Cisteína	Cys	C	Prolina	Pro	P
Fenilalanina	Phe	F	Serina	Ser	S
Glicocola	Gly	G	Tirosina	Tyr	Y

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Histidina

His

H

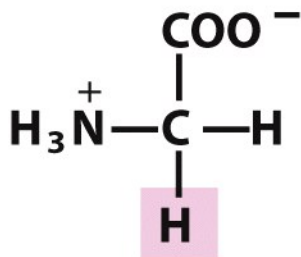
Valina

Val

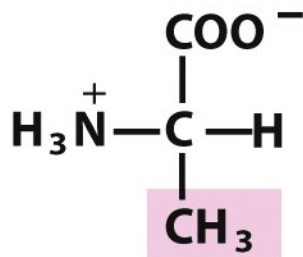
V

Aminoácidos proteicos

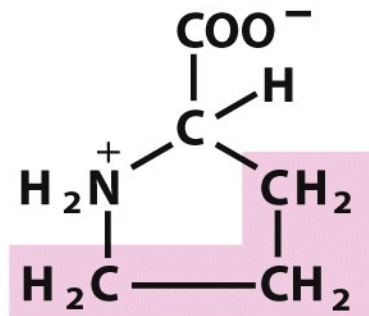
Cadena lateral R: Alifática, No Polar



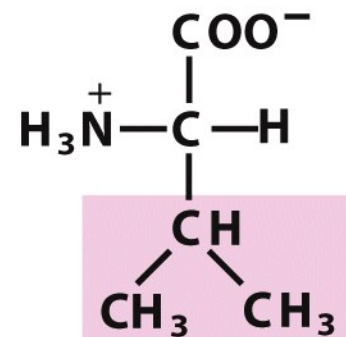
Glicocola
(Gly, **G**)



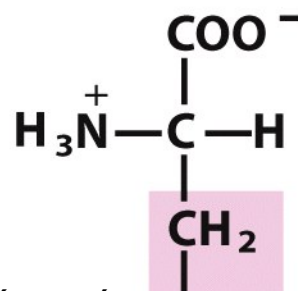
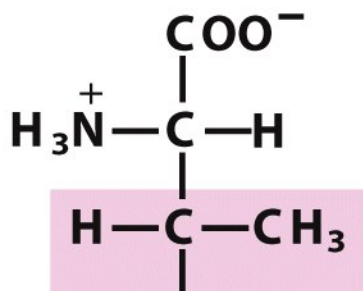
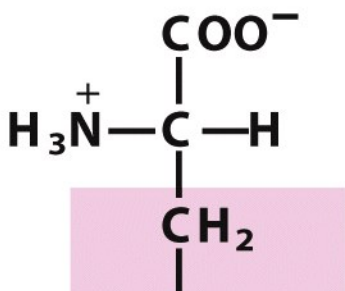
Alanina
(Ala, **A**)



Prolina
(Pro, **P**)



Valina
(Val, **V**)



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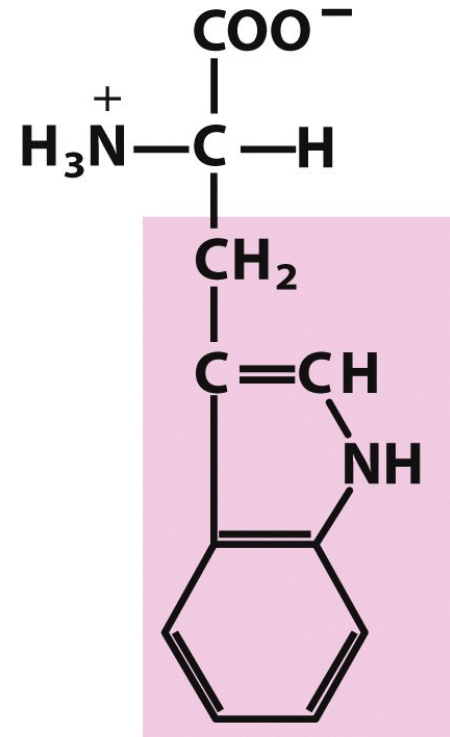
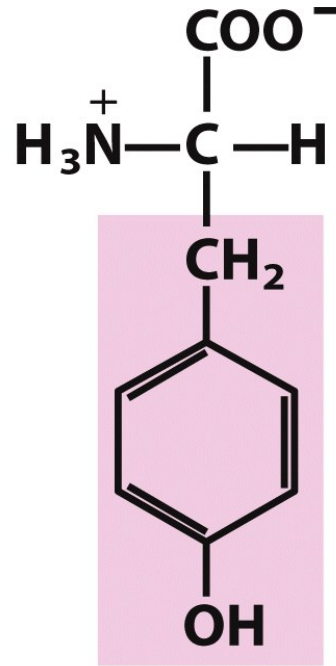
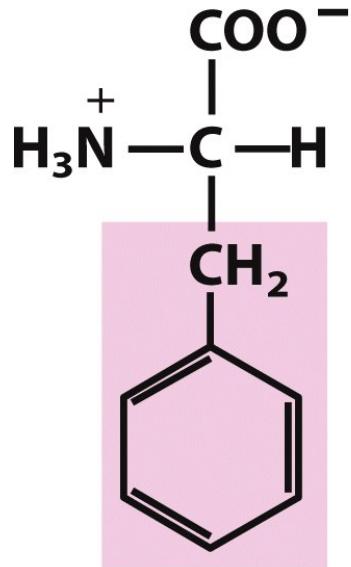
Leucina
(Leu, **L**)

Isoleucina
(Ile, **I**)

Metionina
(Met, **M**)

Aminoácidos proteicos

Cadena lateral R: Aromática



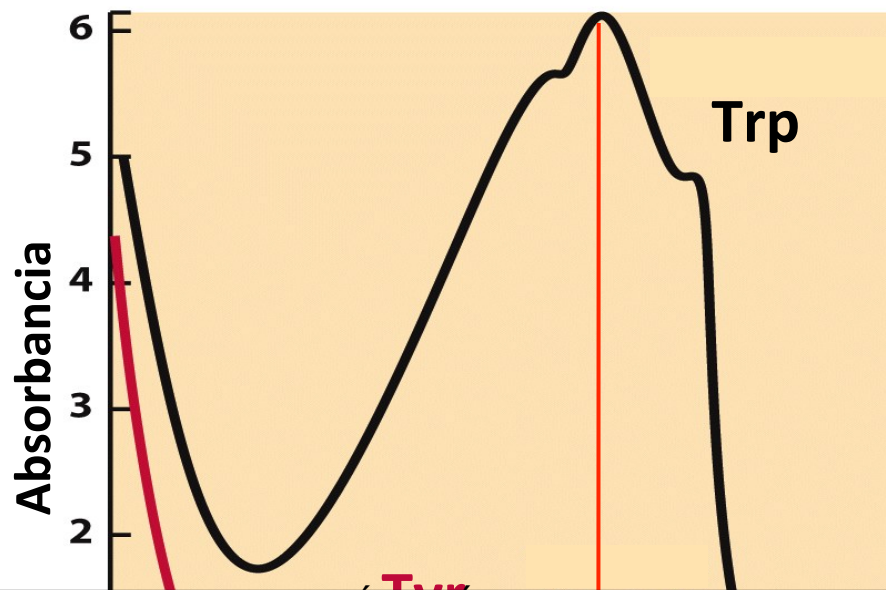
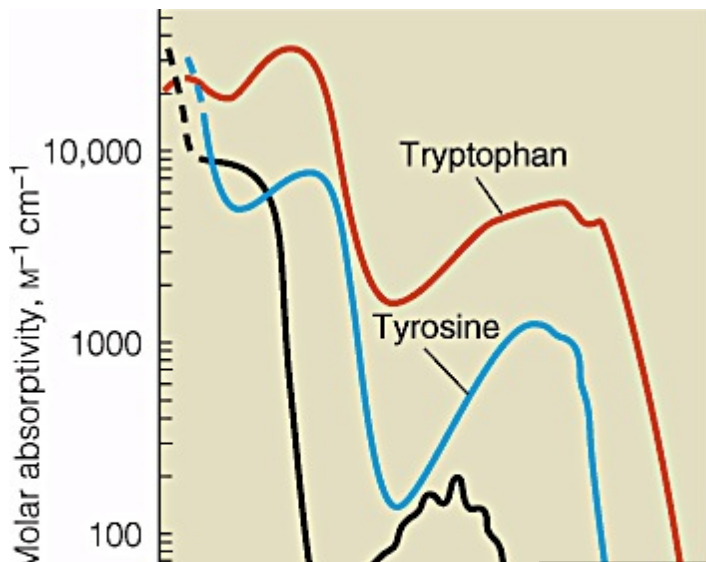
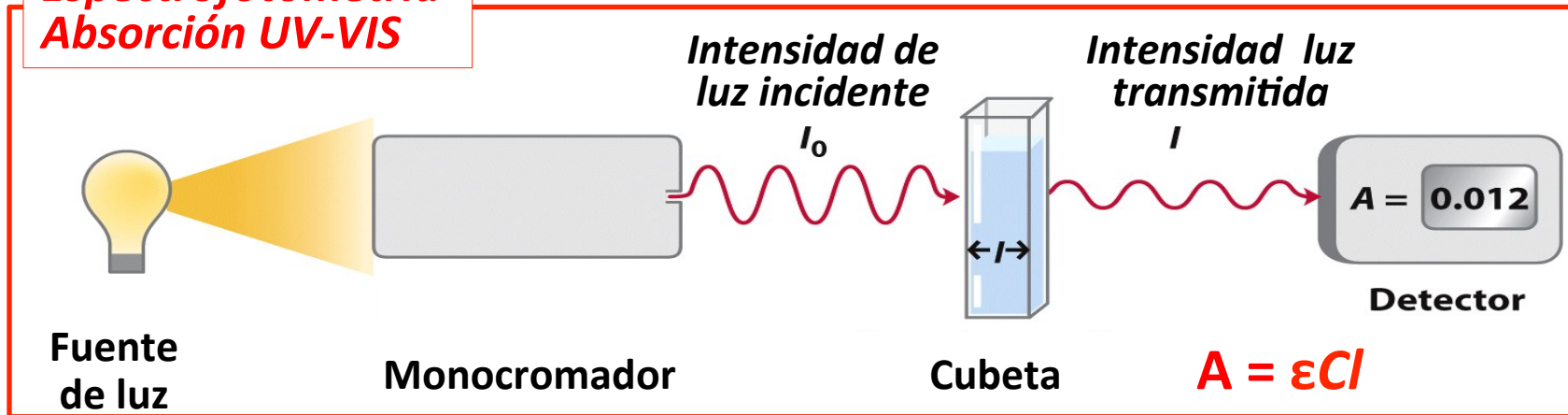
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Espectrofotometría

Absorción UV-VIS



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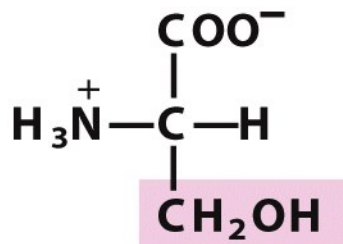
230 240 250 260 270 280 290 300 310

longitud de onda (nm)

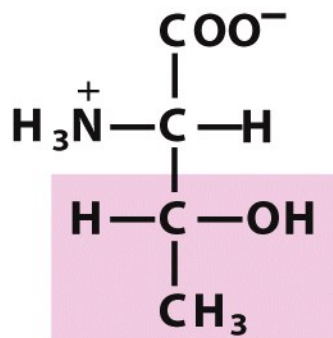
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Aminoácidos proteicos

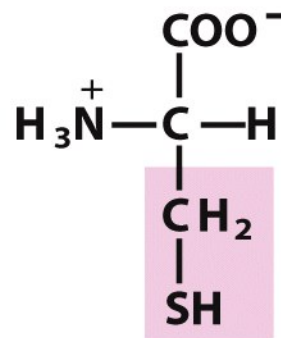
Cadena lateral R: Polar sin carga



Serina
(Ser, **S**)

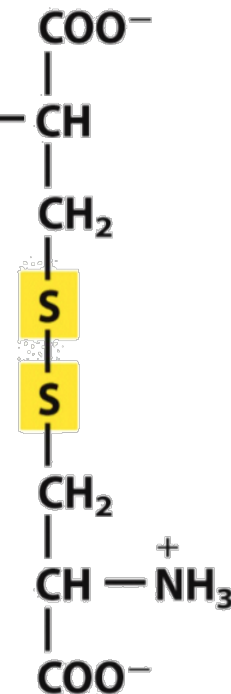
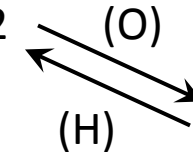


Treonina
(Thr, **T**)

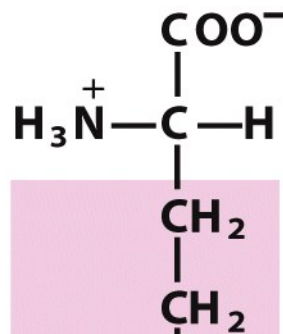
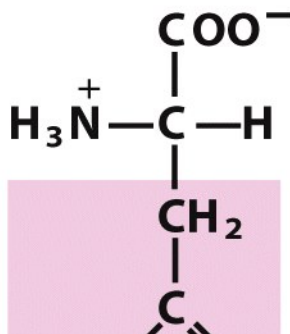


Cisteína
(Cys, **C**)

x2



Cistina
(Cys -S-S-Cys)



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Asparagina

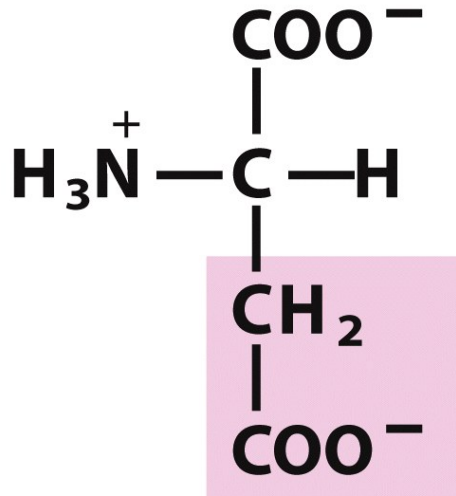
Glutamina

(Asn, **N**)

(Gln, **Q**)

Aminoácidos proteicos

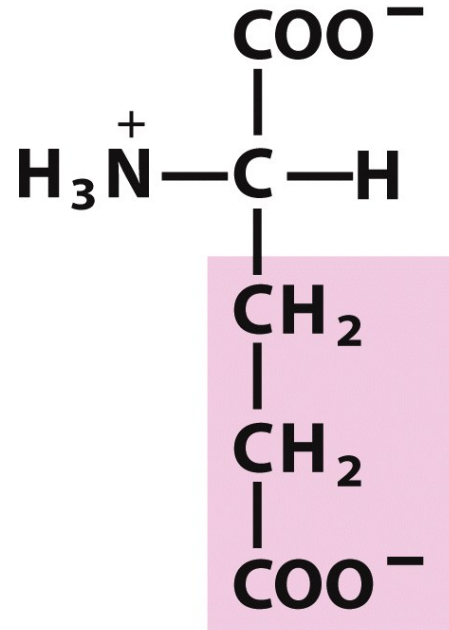
Cadena lateral R: Polar con carga negativa



Aspartato

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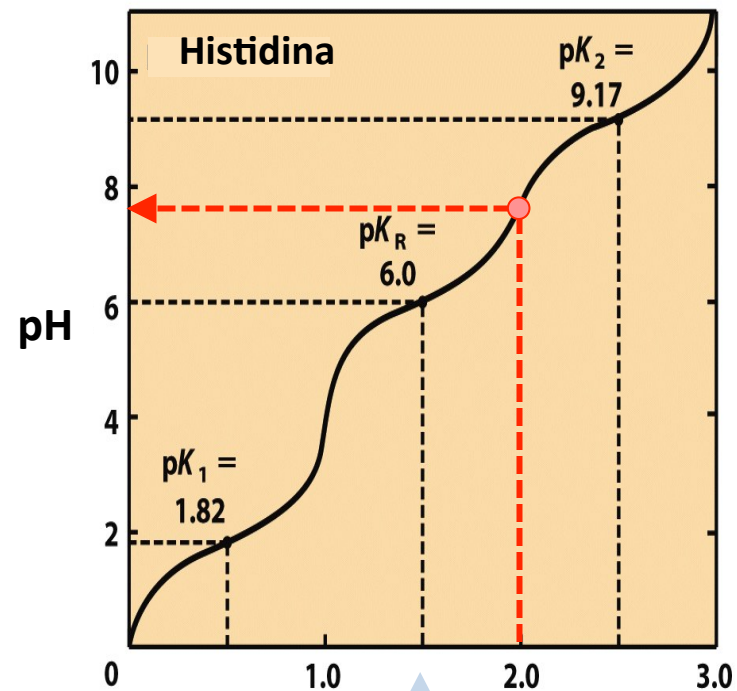
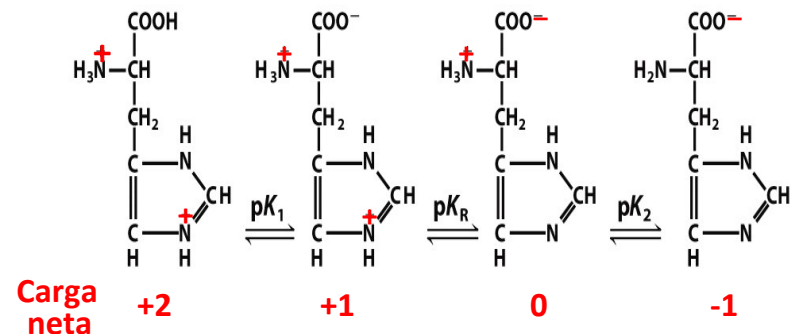


Glutamato

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PROPIEDADES DE LOS AMINOÁCIDOS PROTEICOS

Cadena R	aa	M_r	pK_1	pK_2	pK_R	pl	%
ALIFÁTICA NO POLAR	G	75	2,34	9,60		5,97	7,53
	A	89	2,34	9,69		6,01	9,04
	P	115	1,99	10,96		6,48	4,62
	V	117	2,32	9,62		5,97	6,93
	L	131	2,36	9,60		5,98	7,53
	I	131	2,36	9,68		6,02	4,62
	M	149	2,28	9,21		5,74	1,71
AROMÁTICA	F	165	1,83	9,13		5,48	3,51
	Y	181	2,20	9,11	10,07	5,66	3,51
	W	204	2,38	9,39		5,89	1,10
POLAR SIN CARGA	S	105	2,21	9,15		5,68	7,13
	T	119	2,11	9,62		5,87	6,02
	C	121	1,96	10,28	8,18	5,07	2,81
	N	132	2,02	8,80		5,41	4,42
	Q	146	2,17	9,13		5,65	3,92



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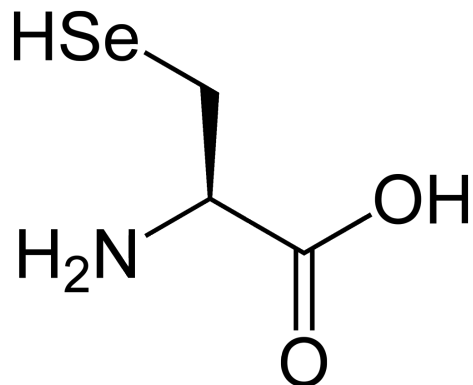
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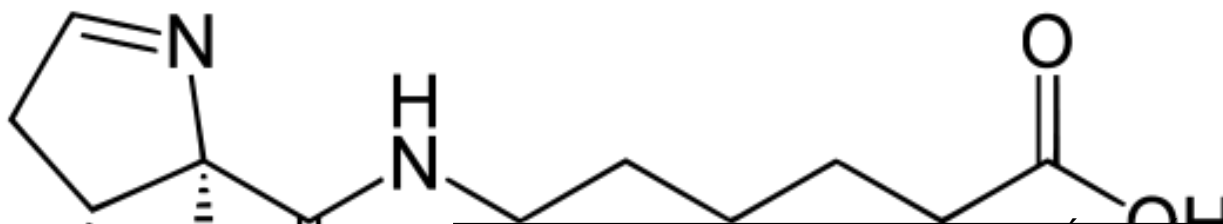
POLAR CON CARGA **D** 133 1,88 9,60 3,65 2,77 5,52

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Los aminoácidos 21 y 22



Selenocisteína
(Sec)



Pirrolisina

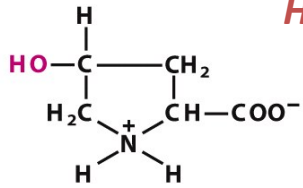
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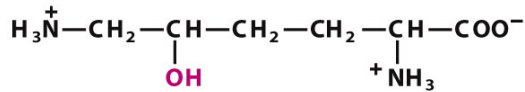
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AMINOÁCIDOS PROTEICOS MODIFICADOS

HIDROXILACIÓN

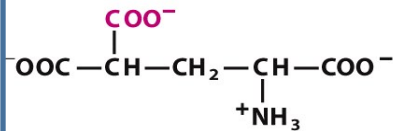


4-hidroxi prolina



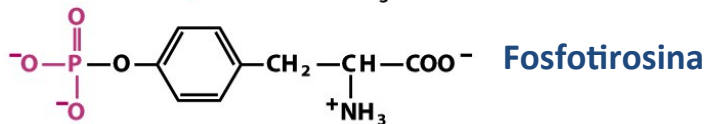
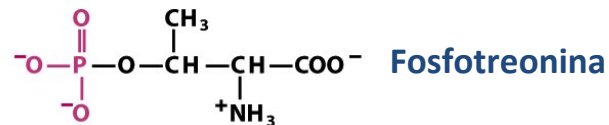
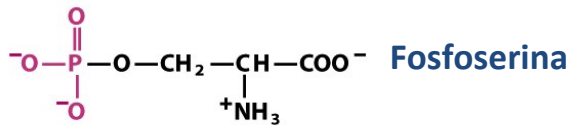
5-hidroxi lisina

CARBOXILACIÓN

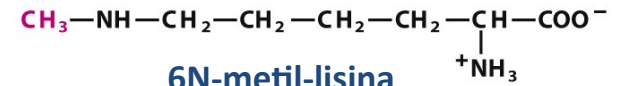


γ -carboxiglutamato

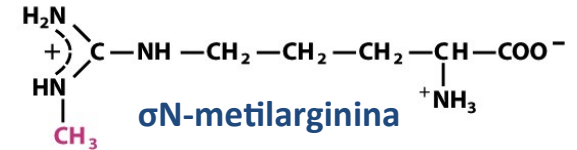
FOSFORILACIÓN



METILACIÓN

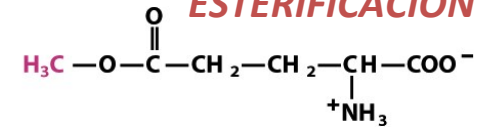


6N-metil-lisina

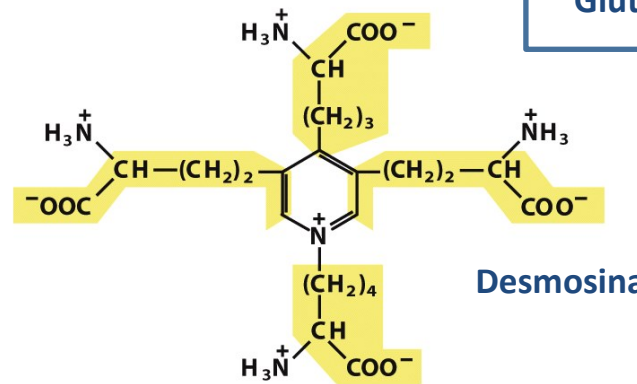


σ N-metilarginina

ESTERIFICACIÓN



Glutamato metil éster



Desmosina

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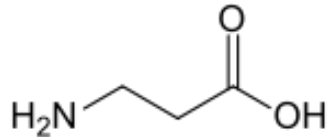
6N-acetil-lisina

Adenilil tirosina

AMINOÁCIDOS NO PROTEICOS

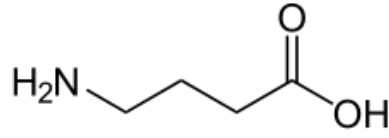
D-aminoácidos:

D-alanina, D-glutamato (paredes celulares bacterianas)
D-serina (interviene en neurotransmisión excitadora)



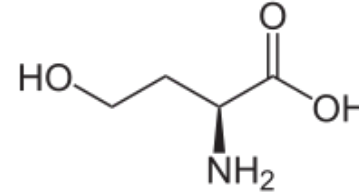
β-alanina

Ác. Pantoténico (vit B₅) → CoA
Pépt. naturales e.g., carnosina



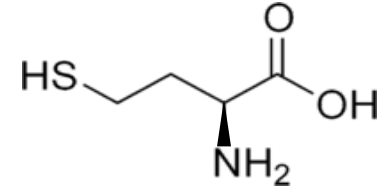
Ác. γ-aminobutírico
GABA

Neurotransmisor inhibitor



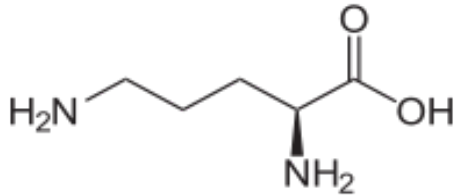
L-homoserina

Intermedio biosíntesis
de Met, Thr, Ile



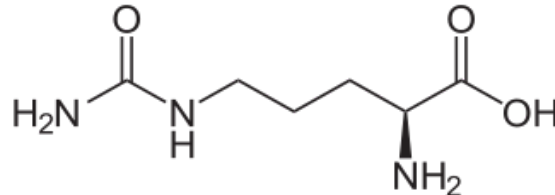
L-homocisteína

Intermedio síntesis Met
en "ciclo metilos activados"



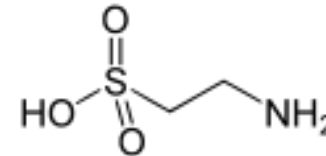
Ornitina

Interm. Ciclo Urea;
Síntesis de Arg



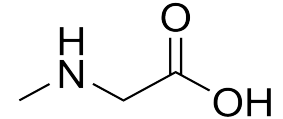
Citrulina

Interm. Ciclo Urea;
Síntesis de Arg
(presente en algunas proteínas
por modificación de Arg)



Taurina

Componente de la bilis,
junto con Gly. Múltiples
implicaciones funcionales



Sarcosina

Interm. Metabol.
de Gly y colina.

Cartagena99

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