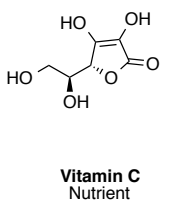
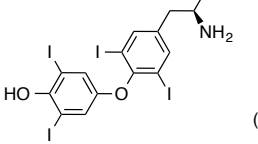
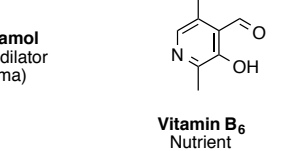
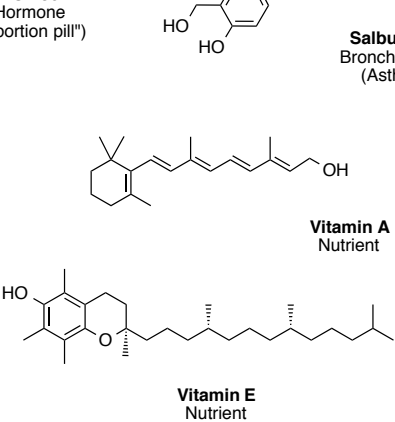
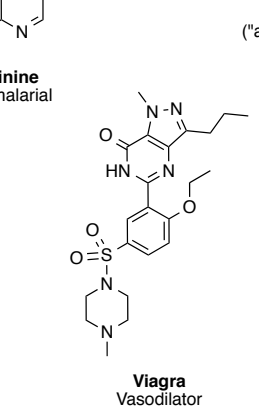
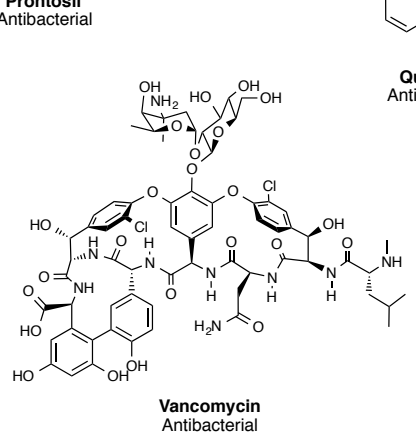
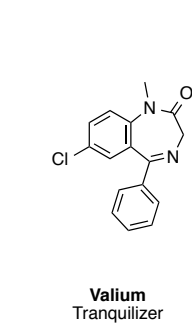
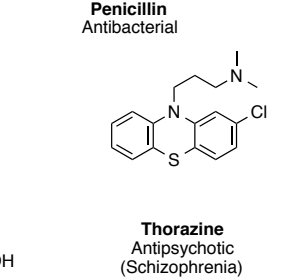
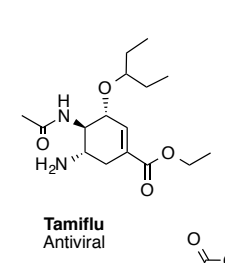
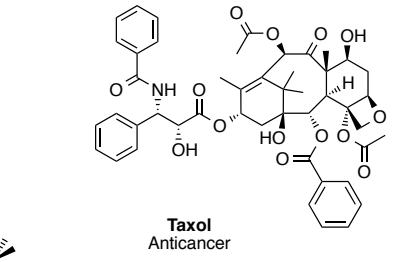
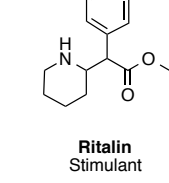
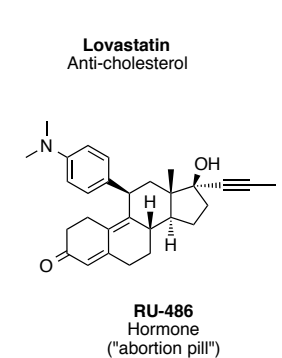
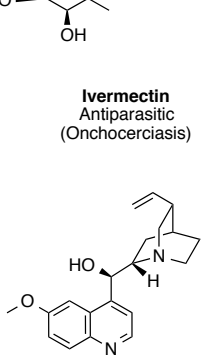
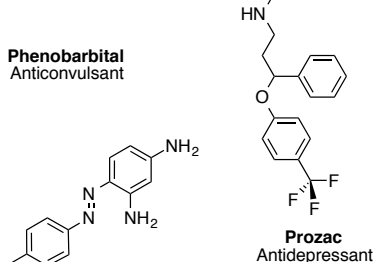
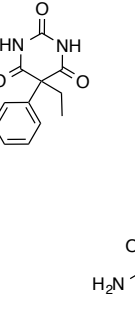
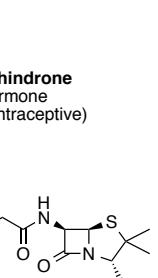
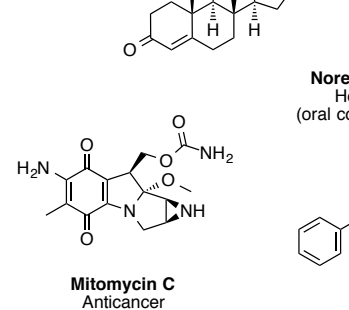
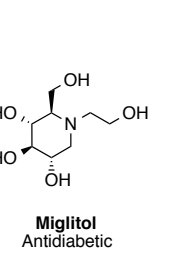
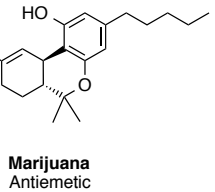
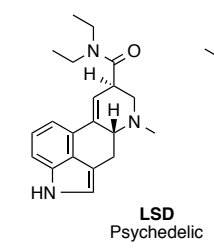
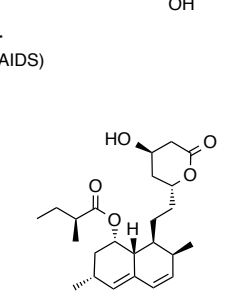
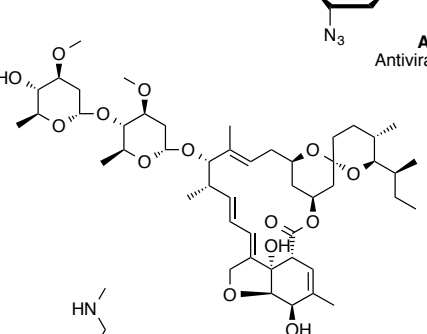
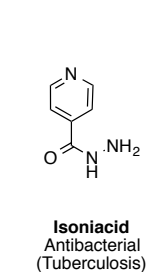
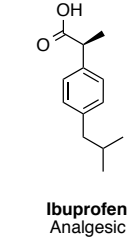
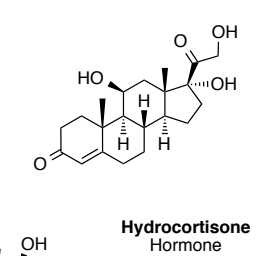
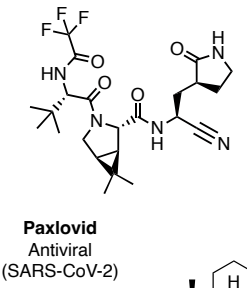
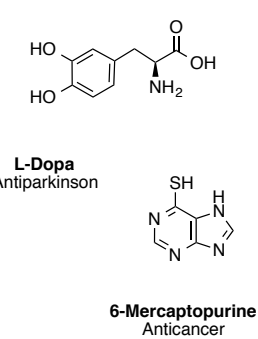
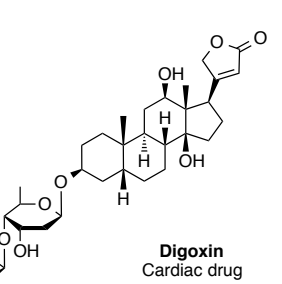
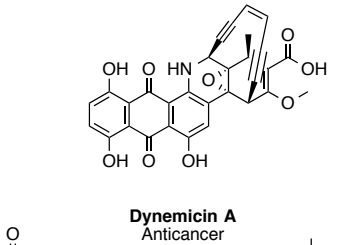
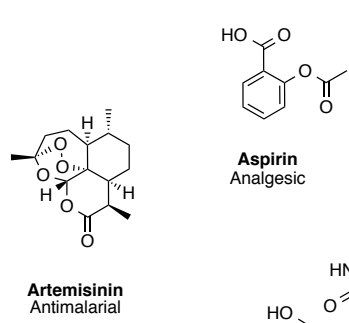
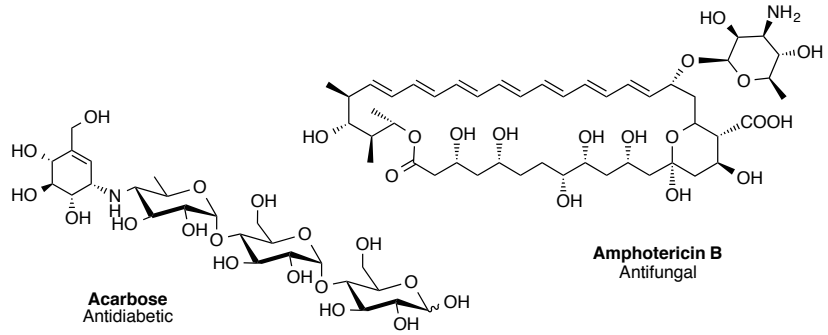


Molécules qui ont changé notre monde...



CHIMIE ORGANIQUE - CONTENU SPÉCIFIQUE

	A. COURS	B. AUTO-APPRENTISSAGE	C. Partie du livre à connaître (A+B)
1. Généralités (1, 2, 15)	2.6, 2.1, 1.3, (15.1), (15.3.1), (1.1), (1.2), (1.4), 1.6, (16.4)	1.1, 1.2, 1.4, 1.5, 2.6 Exercices I et 1.7,30,34; 2.15,16,34, 35,66; 15.8,17,18	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10 2.1, (2.2), (2.4), 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11 3.2, 3.3, 3.4, (3.9), 3.10 4.6, 4.9.1, 4.11 (5.1), 5.2 6.1, 6.2, (6.4), 6.6, 6.7, 6.8, 6.9, 6.11, (6.12) (7.4), (7.5), 7.10.1 8.2, (8.3), 8.4.2, 8.4.3, 8.5.2, 8.6.4, (8.9) 9.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10 10.2, (10.3), (10.5), 10.6, (10.7), (10.8), (10.11), 10.12.1 (11.1), 11.4, 11.8, 11.9, 11.10, 11.11 12.2, 12.3, 12.4.2, 12.4.3, 12.6 14.2, 14.3, 14.4, 14.5, 14.6, 14.7.2/3, (14.8), (14.9), 14.10 15.1, (15.2), 15.5, (15.9) 15.10.1 (16.2), 16.3, (16.4), 16.5, 16.6, (16.7), (16.9), (16.13) (17.2.4), (17.4.2), (17.5)
2. Lipides – stéroïdes - alcanes - alcènes - arènes - (2 - 5, 16)	1.7, (2.2), (15.1), 2.5, (16.4), 2.7, 2.9, 2.8, 2.10, 2.11, 14.6, (16.5), 1.9, (15.9), (2.4), 1.8, 3.2, 3.3, 3.4, (16.2), 4.6, 4.9.1, 4.11, 5.2, (5.1), (15.5), (15.9)	2.2, 2.5, 2.9 Exercices II et 1.27,28,64; 2.5,8,23, 24,29,40,44,54,67,68,71; 3.8,19	
3. Glucides - stéréochimie - (6, 14)	(14.4), 14.2, 6.1, 6.2, 14.2, 14.3, (6.4), 6.6, (15.1), 6.7, 6.8, 6.11, 6.9, 14.3, 14.4, (15.9), (6.12)	Exercices III et 6.3,18,22,23,24,46,58,59,60; 14.3,23,24,25,32,39,40; 15.2,19,26	
4. Alcools - éthers - phénols - thiols (8, 15)	1.9, 1.4, 8.2, 1.10, (8.3), (15.1), (15.2), 8.4.2, 8.4.3 8.5.2, 9.3.1, 14.7.3, (16.5), 8.6.4, (8.9), (15.5)	Exercices IV et 8.6,41,42,54,62	
5. Glucides - aldéhydes - cétones - imines - (9, 14)	9.1, 9.5, 9.7, (3.9), (3.10), 14.4, 14.5, 14.6, 9.8, 9.9, 14.7.2, (14.8), (14.9), 9.9, 16.6, 10.6, (10.9), 9.6, (17.2.4), 9.10, 12.4.3, (17.5), (7.5.5),	Exercices V, VI et 9.14,15,16,44,45; 12.11,12; 14.19,34,43,44,48; 17.8,9	
6. Protéines - lipides - acides - esters - amides - (10, 11, 15, 16)	10.2, 1.10, (10.3), (10.8), 10.6, (10.11), 16.3, (10.5), 10.12.1, (16.13), 15.10.1, (11.1), 16.5, 11.4, 11.8, 11.9, 11.10, 11.11; (17.4.2)	Exercices VII, VIII et 10.5,20,21,28; 11.8,19,20,30,33,40,43	
7. Acides nucléiques - amines - (12, 16)	12.2, 12.3, 12.4.2, 8.8.2, (7.4), (7.5), 7.10.1, 12.6 (16.7), (16.9)	Exercices VIII et 12.1,5,6,16,19,28,37	

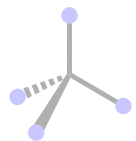
xx.x.y : seulement sujet y du chapitre xx.x
(xx.x) : seulement partie du chapitre xx.x

CHIMIE ORGANIQUE - CONTENU SPÉCIFIQUE

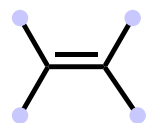
	A. COURS	B. AUTO-APPRENTISSAGE	C. Partie du livre à connaître (A+B)
1. Généralités (1, 2, 15)	2.6, 2.1, 1.3, (15.1), (15.4), (1.1), (1.2), (1.5), (16.4), 1.7	1.1, 1.2, 1.4, 1.5, 1.6, 2.6 Exercices I et 1.13,27,34; 2.14,15,27, 48,64; 15.9,52,53	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 1.12
2. Lipides – stéroïdes - alcanes - alcènes - arènes - (2 - 5, 16)	1.8, (2.2), (15.1), 2.5, (16.4), 2.7, 2.9, 2.8, 2.10, 2.11, 14.7, (16.5), 1.11, (15.10), (2.4), 1.8, 1.9, 1.10, (4.13), 3.2, 3.3, 3.4, (16.2), 4.6, 4.10.1, 4.12, 5.3, (5.2), (15.10)	2.2, 2.5, 2.9 Exercices II et 1.62,67,68; 2.4,7,22, 23,33,37,40,56,57,61,65; 3.10,58	2.1, 2.2, (2.4), 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11 3.2, 3.3, 3.4, (3.10), (3.11) 4.6, 4.10.1, (4.12), (4.13) (5.2), 5.3
3. Glucides - stéréochimie - (6, 14)	(14.4), 14.2, 6.1, 6.2, 14.2, (6.4), 6.6, (15.1), 6.7, 6.8, 6.11, 6.12, 6.9, 14.3, 14.4, (15.10), (6.14)	Exercices III et 6.3,16,39,53,54,55,61, 62,63; 14.4,28,36,37,56,57,58; 15.2, 25,54	6.1, 6.2, (6.4), 6.6, 6.7, 6.8, 6.9, 6.11, (6.12), (6.14) (7.6), (7.7), 7.12
4. Alcools - éthers - phénols - thiols (8, 15)	1.11, 1.5, 8.2, 1.12, (8.3), (15.1), (15.2), (15.3), 8.5, 8.7.3, 9.4.1, 14.8.3, (16.5), 8.8.3, (8.12), 15.5	Exercices IV et 8.8,37,38,39,49	8.2, (8.3), 8.5, 8.7.3, 8.8.3, (8.12) (9.1), 9.2, 9.4.1, 9.6, 9.7, 9.8, 9.9.1, 9.11 10.2, (10.3), (10.5), (10.6), (10.9), (10.10) (11.1), 11.4, 11.7, 11.8, 11.9, 11.10
5. Glucides - aldéhydes - cétones - imines - (9, 14)	(9.1), 9.2, 9.6, 9.7, (3.10), (3.11), 14.5, 14.6, 14.7, (14.8), 9.8, (14.10), 8.5, 17.2.4, 9.9.1, 9.11.1, (17.5)	Exercices V, VI et 9.15,38,39; 14.20,31,39,40,45, 17.9	12.2, 12.3, 12.4.1, 12.6
6. Protéines - lipides - acides - esters - amides - (10, 11, 15, 16)	10.2, (10.3), (10.5), (10.6), (10.9), (16.2), 16.3, 10.6.1, (15.1), (10.9), (16.12), (10.10), (15.11), (11.1), 11.4, 11.7, 11.8, 11.9, 11.10, (17.4)	Exercices VII, VIII et 10.5,23,24,66; 11.9,32,41,42,49,50	14.2, 14.3, 14.4, 14.5, 14.6, 14.7, (14.8) 15.1, (15.2), (15.3), (15.4), 15.5, (15.10) (16.2), 16.3, (16.4), (16.5), (16.6), (16.7), (16.8), (16.12)
7. Acides nucléiques - amines - (12, 16)	12.2, 12.3, (16.7), 12.4.1, 8.11, (7.6), (7.7), 7.12, 12.6, (16.6)	Exercices VIII et 12.1,6,7,19,23,37,54	(17.2), (17.5)

xx.x.y : seulement sujet y du chapitre xx.x

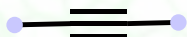
(xx.x) : seulement partie du chapitre xx.x



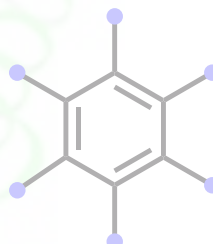
Alkane



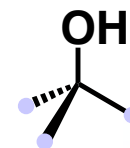
Alcène



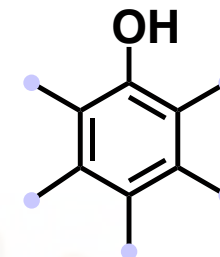
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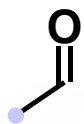
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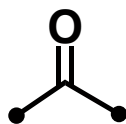
Alcool



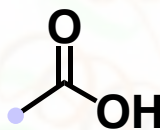
Phénol



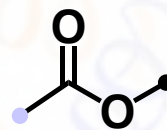
Aldéhyde



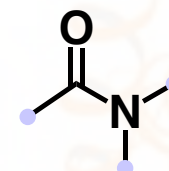
Cétone



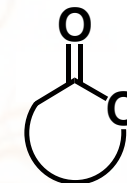
Acide
carboxylique



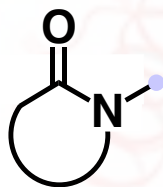
Ester



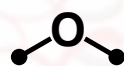
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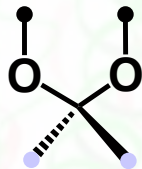
Lactone



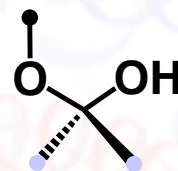
Lactame



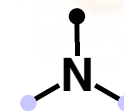
Éther



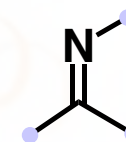
Acétal



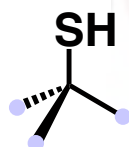
Hémiacétal



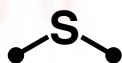
Amine



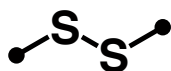
Imine



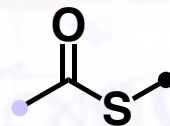
Thiol



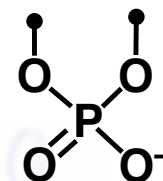
Sulfure



Disulfure



Thioester



Phosphodiester



X = F, Cl, Br, I

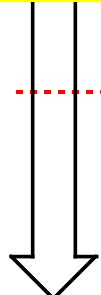
Halogénure

●● = Reste de la molécule ● = H possible

Résumé acides et bases

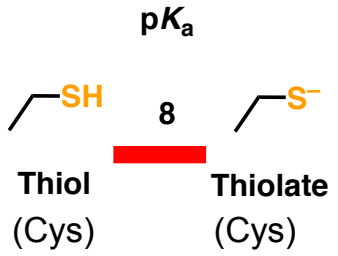
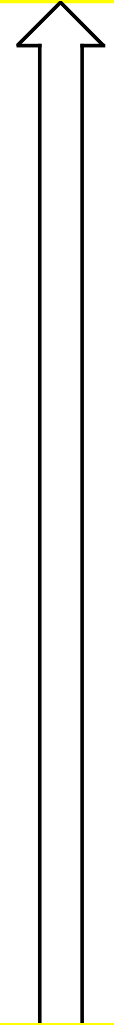
	Acide	pK _a	Base conjuguée	Acide	pK _a	Base conjuguée	
	<chem>CCN</chem>	>25	<chem>CC[NH-]</chem>	<chem>CCC</chem>	>25	<chem>CC[CH-]</chem>	Base conjuguée forte
	Amine (alkyle)			Alcane			
	<chem>CC(=O)N</chem>	>25	<chem>CC(=O)[NH-]</chem>	<chem>CCC(=O)C</chem>	20	<chem>CCC(=O)[O-]</chem>	
	Amide			Cétone (Aldehyde, Ester)		Énolate	
	<chem>CC[NH3+]</chem>	10	<chem>CCN</chem>	<chem>CCO</chem>	15	<chem>CC[O-]</chem>	
	Ammonium (alkyle)		Amine (alkyle)	Alcool		Alcoolate	
	<chem>c1ccc(N)cc1</chem>	5	<chem>c1ccc(N)cc1</chem>	<chem>c1ccc(O)cc1</chem>	10	<chem>c1ccc([O-])cc1</chem>	
	Ammonium (aryle)		Amine (aryle)	Phénol		Phénolate	
	<chem>CC(=O)[NH3+]</chem>	<1	<chem>CC(=O)N</chem>	<chem>CC(=O)O</chem>	5	<chem>CC(=O)[O-]</chem>	
	Acide fort		Amide	Acide carboxylique		Carboxylate	
				<chem>c1ccc(C(=O)O)cc1</chem>	5	<chem>c1ccc(C(=O)[O-])cc1</chem>	
				Acide benzoïque		Bénzoate	
	<chem>CC[OH2+]</chem>	<1	<chem>CCO</chem>				Base conjuguée faible
				Alcool			

Acide faible

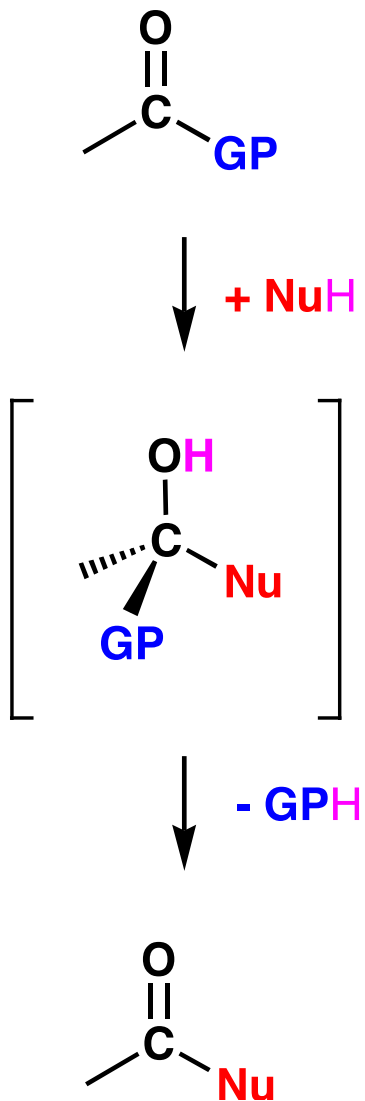


Acide fort

Base conjuguée faible



**Groupes partants
(groupes sortants,
nucléofuges)**

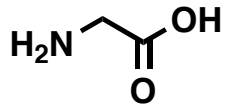


<i>Groupe partant</i>		<i>Acide conjuguée</i>	pK_a	
	\rightarrow	I^-	HI	-5,2
	\rightarrow	Br^-	HBr	-5,0
	\rightarrow	Cl^-	HCl	-2,2
	\rightarrow	H_2O	H_3O^+	-1,7
	\rightarrow	NH_3	NH_4^+	9,3
	\rightarrow	CH_3O^-	CH_3OH	15,5
	\rightarrow	OH^-	H_2O	15,7
	\rightarrow	NH_2^-	NH_3	35
	\rightarrow	H^-	H_2	35
	\rightarrow	CH_3^-	CH_4	~ 50
	\rightarrow	O^{2-}	OH^-	?

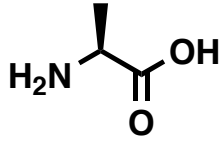
Bon groupe partant

Mauvais groupe partant

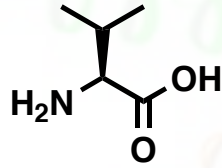
Les acides aminés (formes neutres)



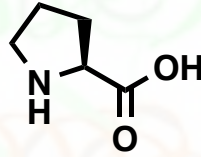
Glycine
(Gly, G)



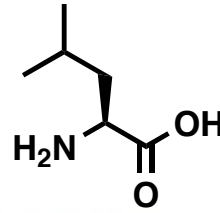
Alanine
(Ala, A)



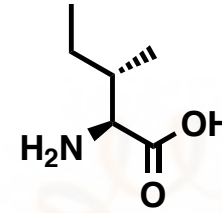
Valine
(Val, V)



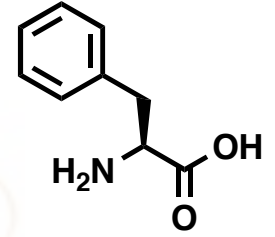
Proline
(Pro, P)



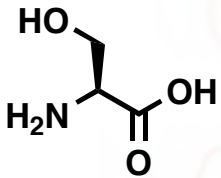
Leucine
(Leu, L)



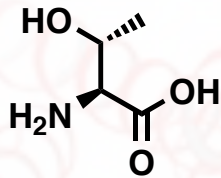
Isoleucine
(Ile, I)



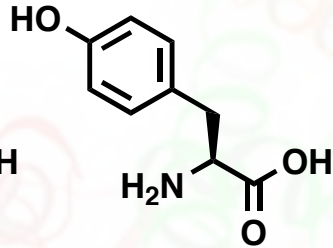
Phénylalanine
(Phe, F)



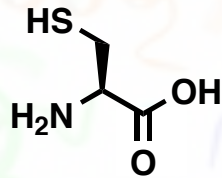
Sérine
(Ser, S)



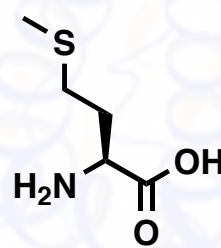
Thréonine
(Thr, T)



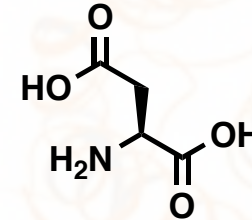
Tyrosine
(Tyr, Y)



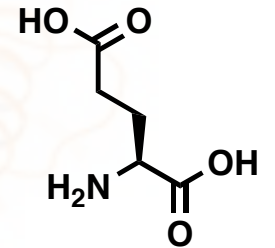
Cystéine
(Cys, C)



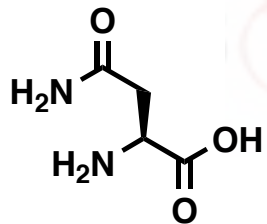
Méthionine
(Met, M)



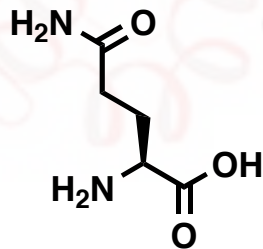
Acide aspartique
(Asp, D)



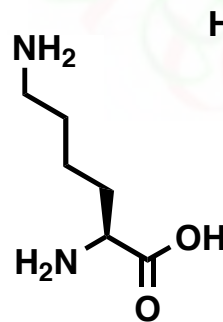
Acide glutamique
(Glu, E)



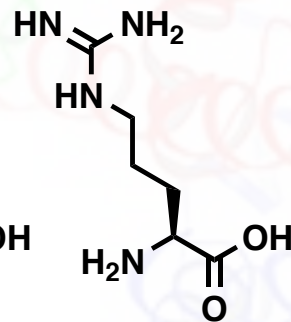
Asparagine
(Asn, N)



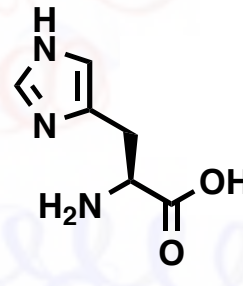
Glutamine
(Gln, Q)



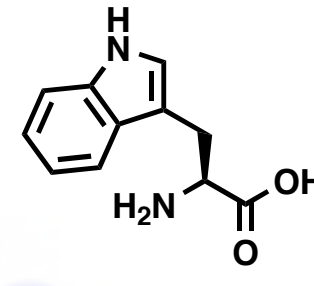
Lysine
(Lys, K)



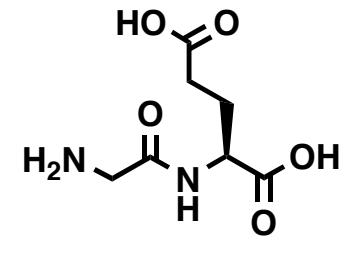
Arginine
(Arg, R)



Histidine
(His, H)

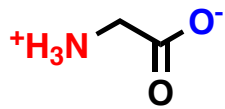


Tryptophane
(Trp, W)



Asparagine
(Asn, N)

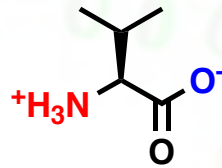
Les acides aminés (pH = 7)



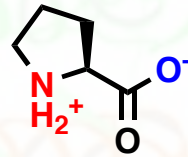
Glycine
(Gly, G)



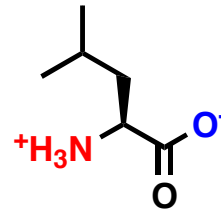
Alanine
(Ala, A)



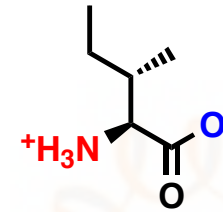
Valine
(Val, V)



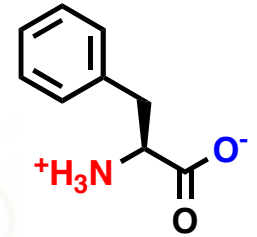
Proline
(Pro, P)



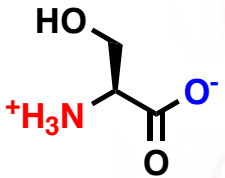
Leucine
(Leu, L)



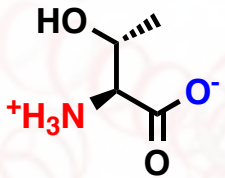
Isoleucine
(Ile, I)



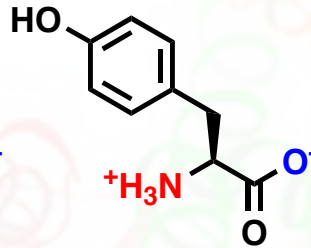
Phénylalanine
(Phe, F)



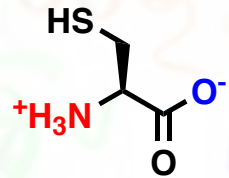
Sérine
(Ser, S)



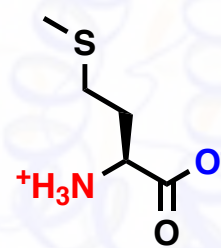
Thréonine
(Thr, T)



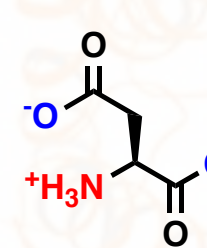
Tyrosine
(Tyr, Y)



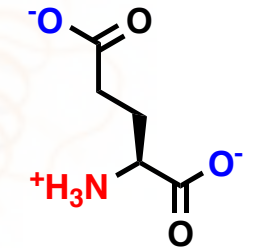
Cystéine
(Cys, C)



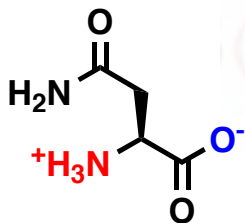
Méthionine
(Met, M)



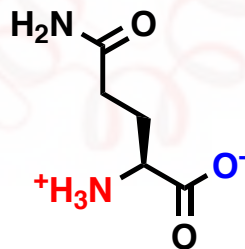
Acide aspartique
(Asp, D)



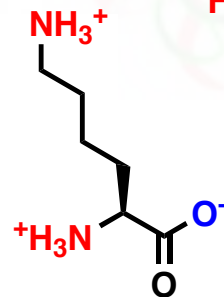
Acide glutamique
(Glu, E)



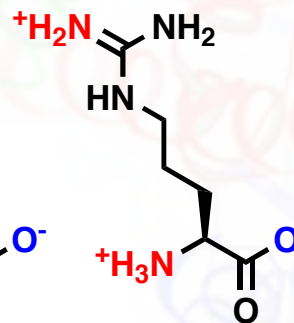
Asparagine
(Asn, N)



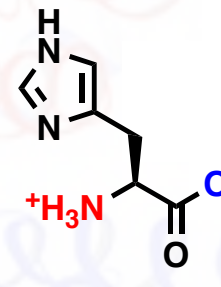
Glutamine
(Gln, Q)



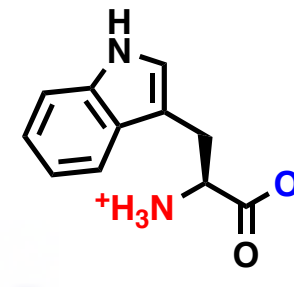
Lysine
(Lys, K)



Arginine
(Arg, R)



Histidine
(His, H)



Tryptophane
(Trp, W)

