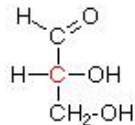
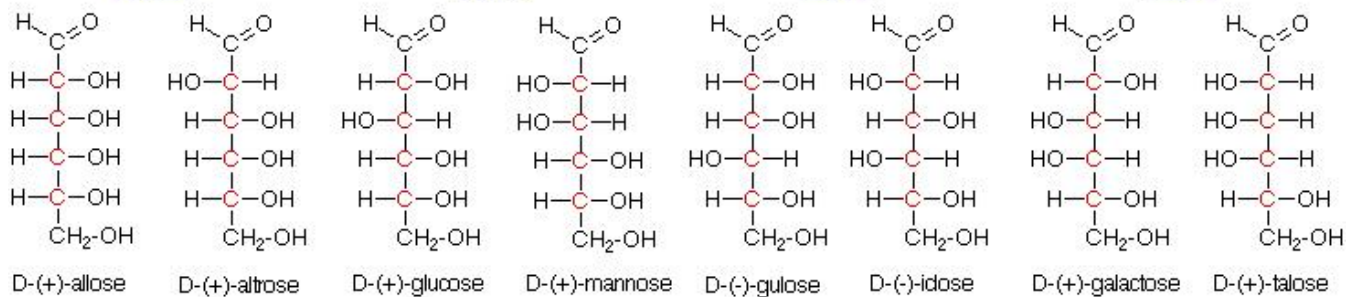
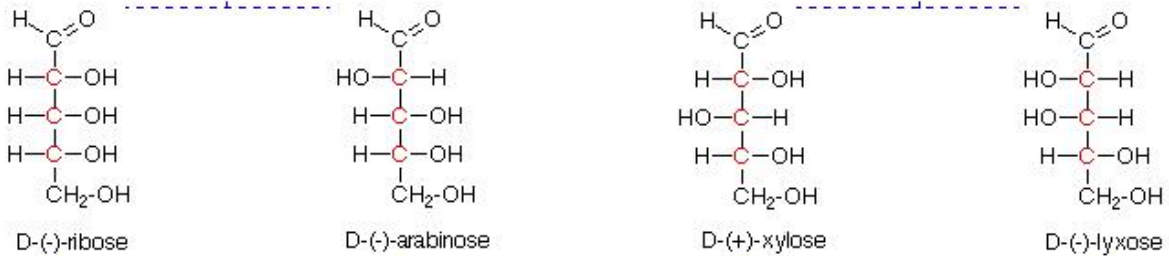
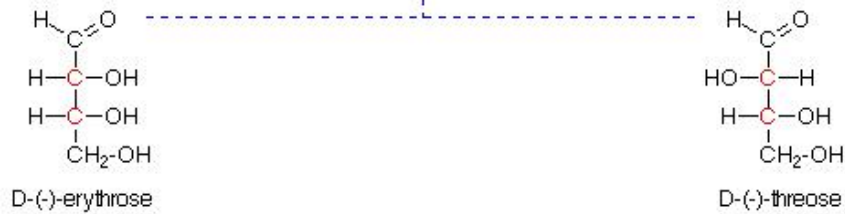


# Cheat Sheet Biochemistry – S18

(useable on all exams)

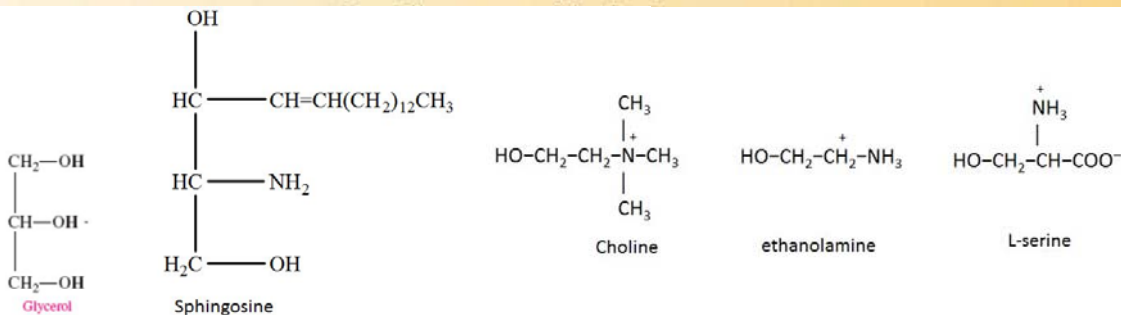


D-(+)-glyceraldehyde



**Table 28.1 Some Naturally Occurring Fatty Acids**

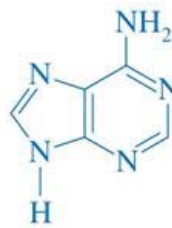
Fatty acid	Number of C atoms	Formula	Solubility (g/100 g water)	Melting point (°C)
<b>Saturated acids</b>				
Butyric acid	4	CH <sub>3</sub> CH <sub>2</sub> CH <sub>2</sub> COOH	∞	-4.7
Caproic acid	6	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>4</sub> COOH	1.08	-1.5
Caprylic acid	8	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>6</sub> COOH	0.07	16
Capric acid	10	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>8</sub> COOH	0.015	32
Lauric acid	12	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>10</sub> COOH	0.006	48
Myristic acid	14	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>12</sub> COOH	0.002	57
Palmitic acid	16	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>14</sub> COOH	0.0007	63
Stearic acid	18	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>16</sub> COOH	0.0003	70
Arachidic acid	20	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>18</sub> COOH	—	77
<b>Unsaturated acids*</b>				
Palmitoleic acid	16	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>3</sub> CH=CH(CH <sub>2</sub> ) <sub>7</sub> COOH	—	0.5
Oleic acid	18	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>7</sub> CH=CH(CH <sub>2</sub> ) <sub>7</sub> COOH	—	13
Linoleic acid	18	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>4</sub> CH=CHCH <sub>2</sub> CH=CH(CH <sub>2</sub> ) <sub>7</sub> COOH	—	-5
Linolenic acid	18	CH <sub>3</sub> CH <sub>2</sub> CH=CHCH <sub>2</sub> CH=CHCH <sub>2</sub> CH=CH(CH <sub>2</sub> ) <sub>7</sub> COOH	—	-11
Arachidonic acid	20	CH <sub>3</sub> (CH <sub>2</sub> ) <sub>4</sub> (CH=CHCH <sub>2</sub> ) <sub>4</sub> CH <sub>2</sub> CH <sub>2</sub> COOH	—	-50



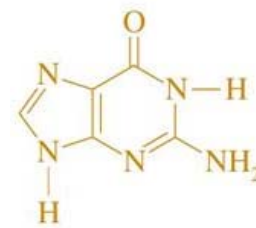
**Table 29.1 Common Amino Acids Derived from Proteins**

Name	Abbreviation	Formula
Alanine	Ala	$\text{CH}_3\text{CH}(\text{NH}_2)\text{COOH}$
Arginine	Arg	$\text{NH}_2-\text{C}(\text{NH})-\text{NH}-\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Asparagine	Asn	$\text{NH}_2\text{C}(\text{O})-\text{CH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Aspartic acid	Asp	$\text{HOOCCH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Cysteine	Cys	$\text{HSCH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Glutamic acid	Glu	$\text{HOOCCH}_2\text{CH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Glutamine	Gln	$\text{NH}_2\text{C}(\text{O})\text{CH}_2\text{CH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Glycine	Gly	$\text{HCH}(\text{NH}_2)\text{COOH}$
Histidine	His	$\text{HC}(\text{N})=\text{CH}-\text{C}(\text{N})=\text{CH}-\text{CH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Isoleucine*	Ile	$\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)-\text{CH}(\text{NH}_2)\text{COOH}$
Leucine*	Leu	$(\text{CH}_3)_2\text{CHCH}_2-\text{CH}(\text{NH}_2)\text{COOH}$
Lysine*	Lys	$\text{NH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Methionine*	Met	$\text{CH}_3\text{SCH}_2\text{CH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Phenylalanine*	Phe	$\text{C}_6\text{H}_5-\text{CH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Proline	Pro	$\text{C}_4\text{H}_7\text{NO}_2$ (cyclic secondary amine)
Serine	Ser	$\text{HOCH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Threonine*	Thr	$\text{CH}_3\text{CH}(\text{OH})-\text{CH}(\text{NH}_2)\text{COOH}$
Tryptophan*	Trp	$\text{C}_8\text{H}_7\text{N}_2\text{O}_2$ (indole ring system)
Tyrosine	Tyr	$\text{HO}-\text{C}_6\text{H}_4-\text{CH}_2\text{CH}(\text{NH}_2)\text{COOH}$
Valine*	Val	$(\text{CH}_3)_2\text{CHCH}(\text{NH}_2)\text{COOH}$

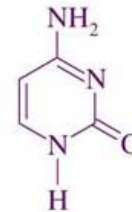
\*Amino acids essential in human nutrition



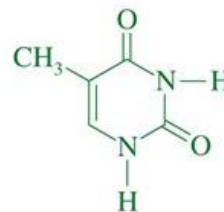
adenine  
(6-aminopurine)



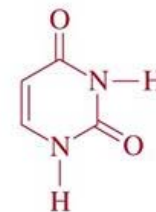
guanine  
(2-amino-6-oxypurine)



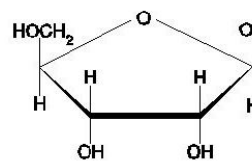
cytosine  
(2-oxy-4-aminopyrimidine)



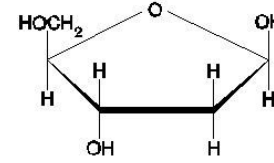
thymine  
(2,4-dioxy-5-methylpyrimidine)



uracil  
(2,4-dioxypyrimidine)



**Ribose**



**Deoxyribose**