JEOL
Mass Spectrometers

Exact Masses of Some Common Amino Acids

Disclaimer: These data are for informational use only. No guarantees are made for the accuracy of the data presented.

The 20 Common Naturally Occurring Amino Acids:

Code	Symbol	Name	Residue Composition*	Monoisotopic Residue Mass	Average Residue Mass
A	Ala	Alanine	C_3H_5NO	71.03711	71.0788
R	Arg	Arginine	$C_6H_{12}N_4O$	156.10111	156.18748
N	Asn	Asparagine	$C_4H_6N_2O_2$	114.04293	114.10384
D	Asp	Aspartic acid	$C_4H_5NO_3$	115.02694	115.0886
C	Cys	Cysteine	C_3H_5NOS	103.00919	103.1448
E	Glu	Glutamic acid	$C_5H_7NO_3$	129.04259	129.11548
Q	Gln	Glutamine	$C_5H_8N_2O_2$	128.05858	128.13072
G	Gly	Glycine	C_2H_3NO	57.02146	57.05192
H	His	Histidine	$C_6H_7N_3O$	137.05891	137.14108
I	Ile	Isoleucine	$C_6H_{11}NO$	113.08406	113.15944
L	Leu	Leucine	$C_6H_{11}NO$	113.08406	113.15944
K	Lys	Lysine	$C_6H_{12}N_2O$	128.09496	128.17408
M	Met	Methionine	C_5H_9NOS	131.04049	131.19856

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Code	Symbol	Name	Residue Composition*	Monoisotopic Residue Mass	Average Residue Mass
F	Phe	Phenylalanine	C_9H_9NO	147.06841	147.17656
P	Pro	Proline	C_5H_7NO	97.05276	97.11668
S	Ser	Serine	$C_3H_5NO_2$	87.03203	87.0782
T	Thr	Threonine	$C_4H_7NO_2$	101.04768	101.10508
W	Trp	Tryptophan	$C_{11}H_{10}N_2O$	186.07931	186.2132
Y	Tyr	Tyrosine	$C_9H_9NO_2$	163.06333	163.17596
V	Val	Valine	C_5H_9NO	99.06841	99.13256

** Add H_2O for composition of free amino acid*

Some Other Amino Acids:

Name	Residue Composition*	Monoisotopic Residue Mass	Average Residue Mass
Homoserine lactone	C_4H_5NO	83.03711	83.0898
Homoserine	$C_4H_7NO_2$	101.04768	101.10508
Pyroglutamic acid	$C_5H_5NO_2$	111.03203	111.1002
Carboxymethyl cysteine	$C_5H_7NO_3S$	161.01466	161.18148
Carbamidomethyl cysteine	$C_5H_8N_2O_2S$	160.03065	160.19672
Pyridylethyl cysteine	$C_{10}H_{12}N_{21}S$	208.06703	208.28408
Ornithine	$C_5H_{10}N_2O$	114.07931	114.1472
Sarcosine	C_3H_5NO	71.03711	71.0788

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