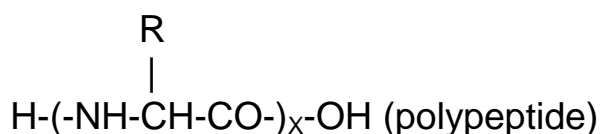
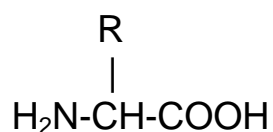
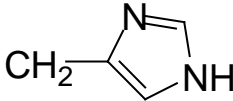
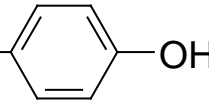


## Organic Functional Groups Found in Proteins



<u>Amino acid</u>	<u>Side-chain (R)</u>	<u>Acid/Base</u>
Asp (n=1), Glu (n=2)	$-(\text{CH}_2)_n-\text{COOH}$ (carboxyl)	Acid
Lys	$-(\text{CH}_2)_4-\text{NH}_2$ (amino)	Base
Arg	$-(\text{CH}_2)_3-\text{NH}-\text{C}(\text{NH}_2)=\text{NH}$ (guanidino)	Base
His	$\text{CH}_2-$  (imidazolino)	Base
Ser	$-\text{CH}_2-\text{OH}$ (hydroxyl)	Neutral (polar)
Thr	$-\text{CH}(\text{CH}_3)-\text{OH}$ (hydroxyl)	Neutral (polar)
Tyr	$\text{CH}_2-$  (phenolic hydroxyl)	Weak acid
Cys	$-\text{CH}_2-\text{SH}$ (sulfhydryl)	Weak acid
Met	$-(\text{CH}_2)_2-\text{SCH}_3$ (thioether)	Neutral (apolar)
Asn (n=1), Gln (n=2)	$-(\text{CH}_2)_n-\text{CONH}_2$ (amide)	Neutral (polar)

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