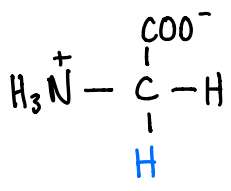
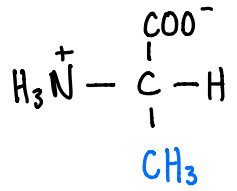


20 AMINO ACIDS

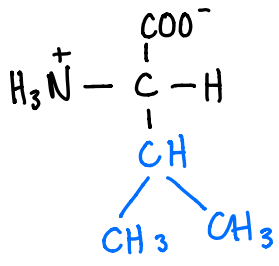
NONPOLAR, ALIPHATIC R GROUPS



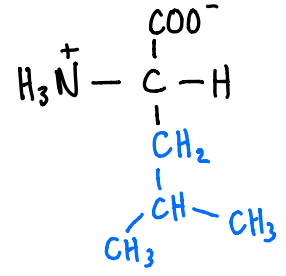
GLYCINE
GLY, G



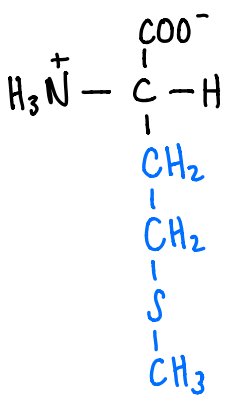
ALANINE
ALA, A



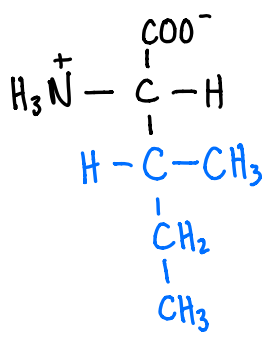
VALINE
VAL, V
*resembles a flipped V



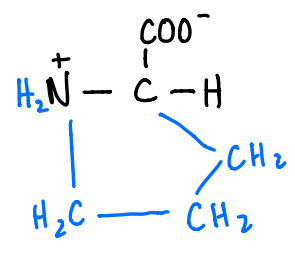
LEUCINE
LEU, L



METHIONINE
MET, M

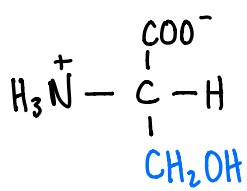


ISOLEUCINE
ILE, I

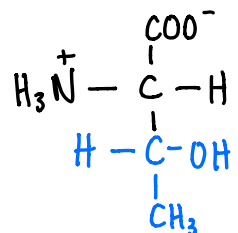


PROLINE
PRO, P
Proline = Pentagon shape

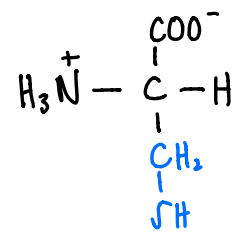
POLAR, UNCHARGED R GROUPS



SERINE
SER, S

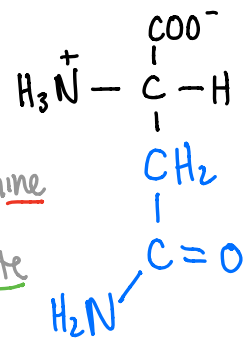


THREONINE
THR, T

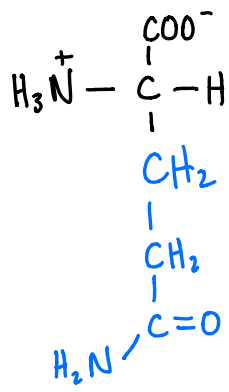


CYSTEINE
CYS, C

* asparagine & glutamine have NH₂ group, aspartate & glutamate have O⁻ group attached to carbonyl



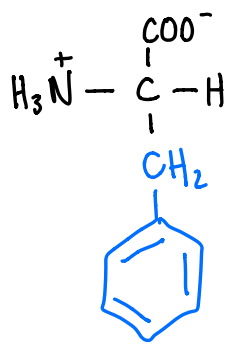
ASPARAGINE
ASN, N



GLUTAMINE
GLN, Q

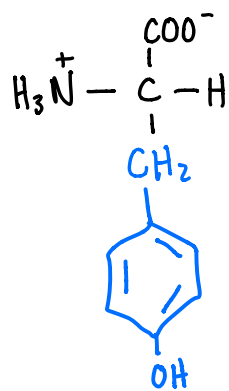
* G comes after A in the alphabet, so glutamine has 1 more CH₂ group than asparagine.

AROMATIC R GROUPS



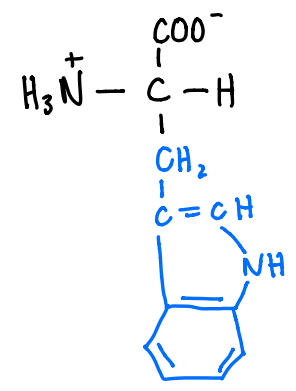
PHENYLALANINE
PHE, F

* "PH" sounds like "F"



TYROSINE
TYR, Y

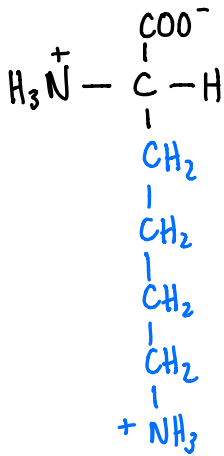
↩



TRYPTOPHAN
TRP, W

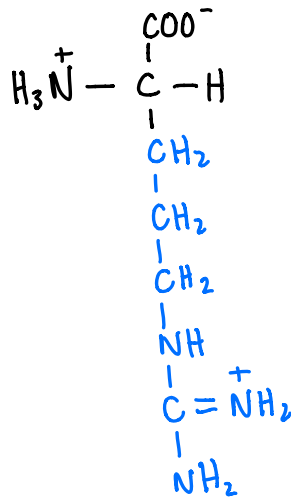
↪ "TWPTOPHAN"

POSITIVELY CHARGED R GROUPS



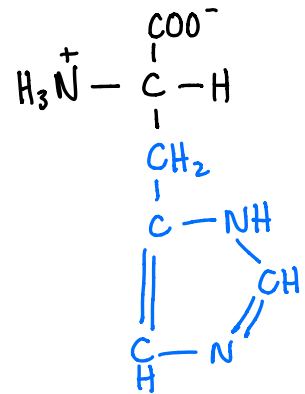
LYSINE

LYS, K



ARGININE

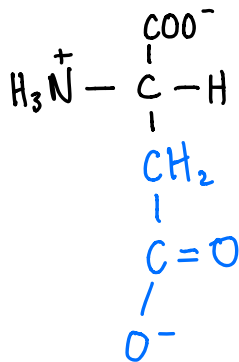
ARG, R



HISTIDINE

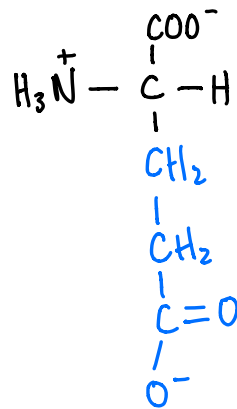
HIS, H

NEGATIVELY CHARGED R GROUPS



ASPARTATE

ASP, D



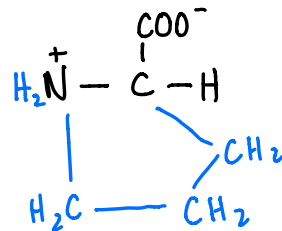
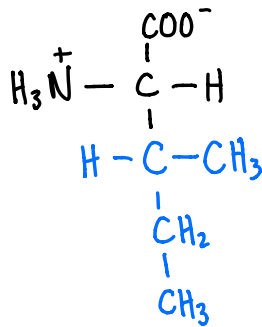
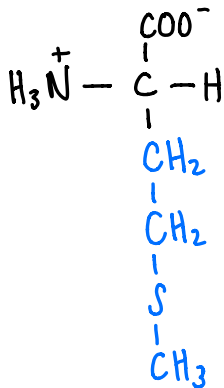
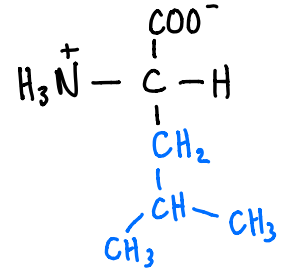
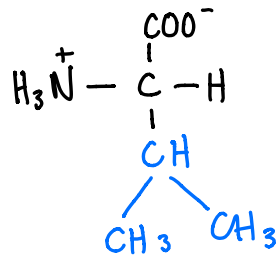
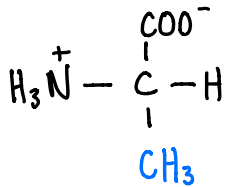
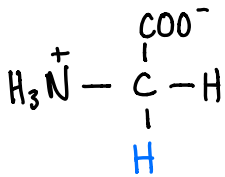
GLUTAMATE

GLU, E

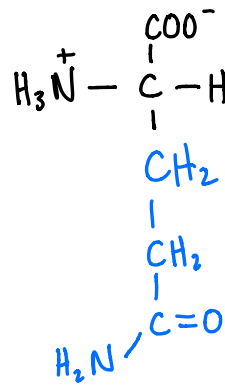
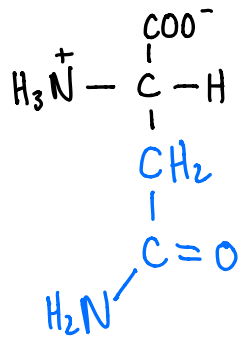
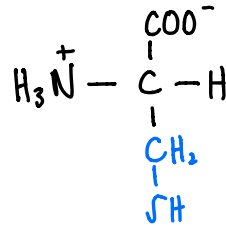
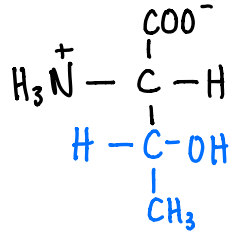
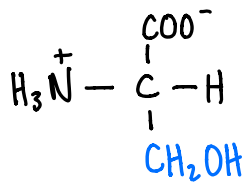
*spells "glue"

NAME THE AMINO ACIDS

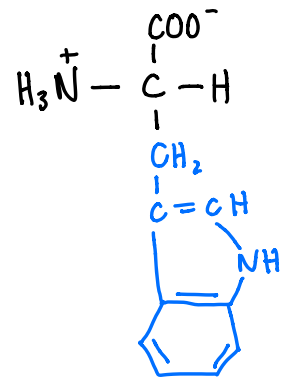
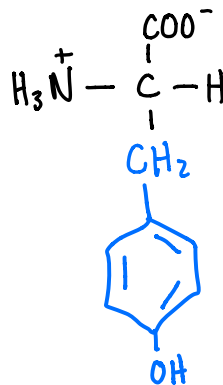
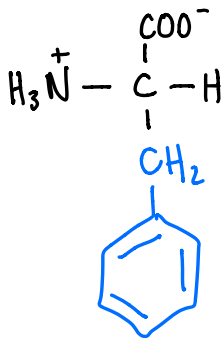
NONPOLAR, ALIPHATIC R GROUPS



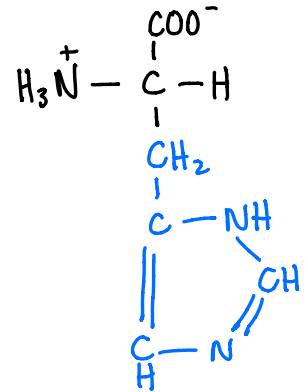
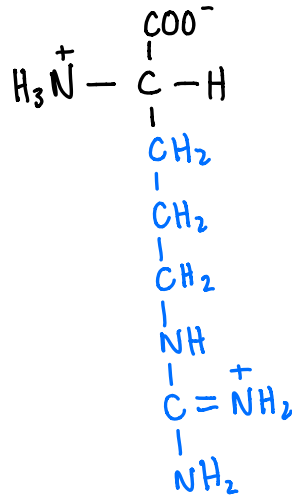
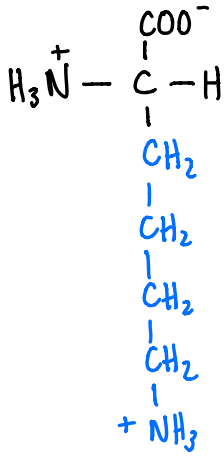
POLAR, UNCHARGED R GROUPS



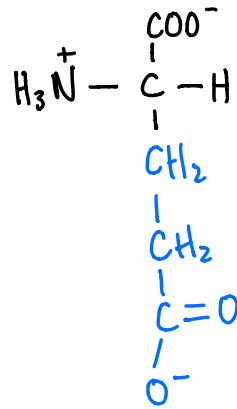
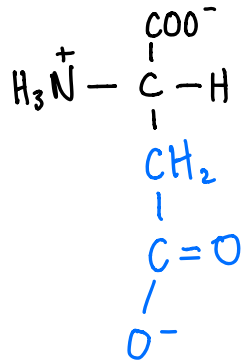
AROMATIC R GROUPS



POSITIVELY CHARGED R GROUPS

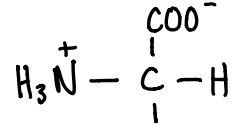
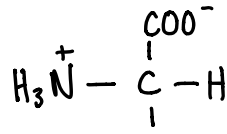
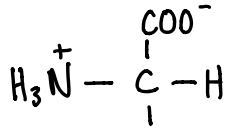
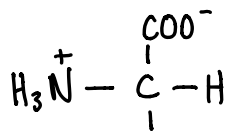


NEGATIVELY CHARGED R GROUPS



DRAW THE AMINO ACIDS

NONPOLAR, ALIPHATIC R GROUPS

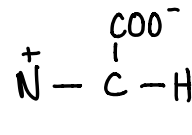
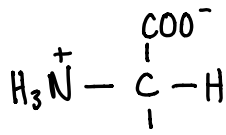
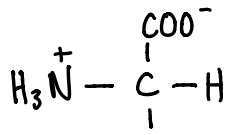


GLYCINE

ALANINE

VALINE

LEUCINE

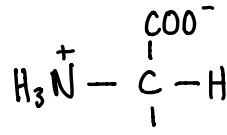
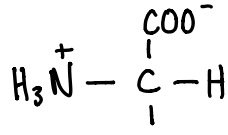
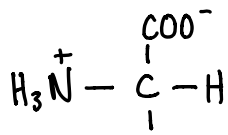


METHIONINE

ISOLEUCINE

PROLINE

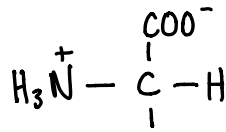
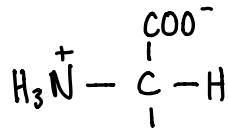
POLAR, UNCHARGED R GROUPS



SERINE

THREONINE

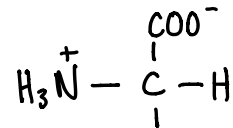
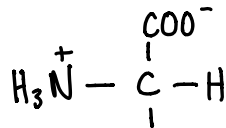
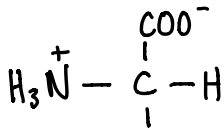
CYSTEINE



ASPARAGINE

GLUTAMINE

AROMATIC R GROUPS

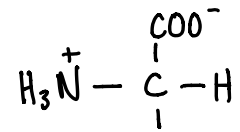
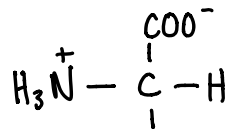
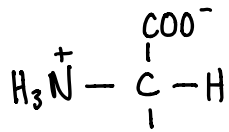


PHENYLALANINE

TYROSINE

TRYPTOPHAN

POSITIVELY CHARGED R GROUPS

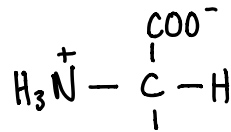
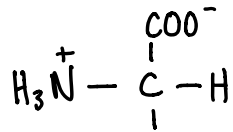


LYSINE

ARGININE

HISTIDINE

NEGATIVELY CHARGED R GROUPS



ASPARTATE

GLUTAMATE

