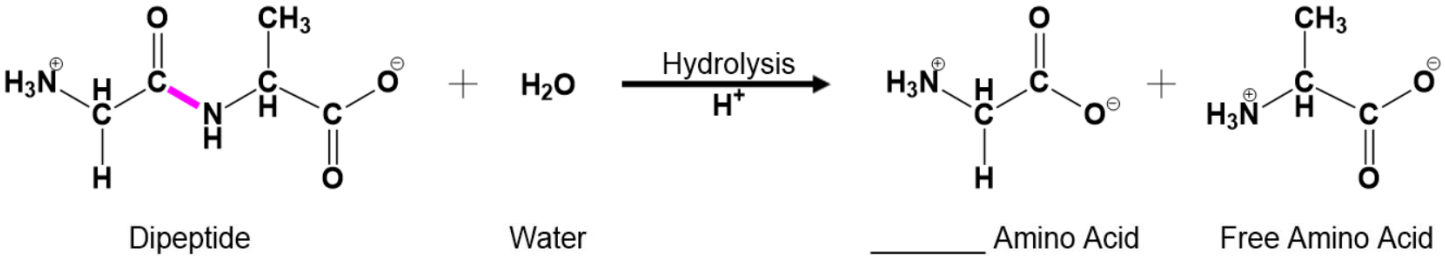
CONCEPT: AMINO ACID HYDROLYSIS

●Recall: _____ is a reaction in which bonds are *cleaved* with the treatment of *water*.

EXAMPLE: Hydrolysis of a Peptide Bond.



Dipeptide Water _____ Amino Acid Free Amino Acid

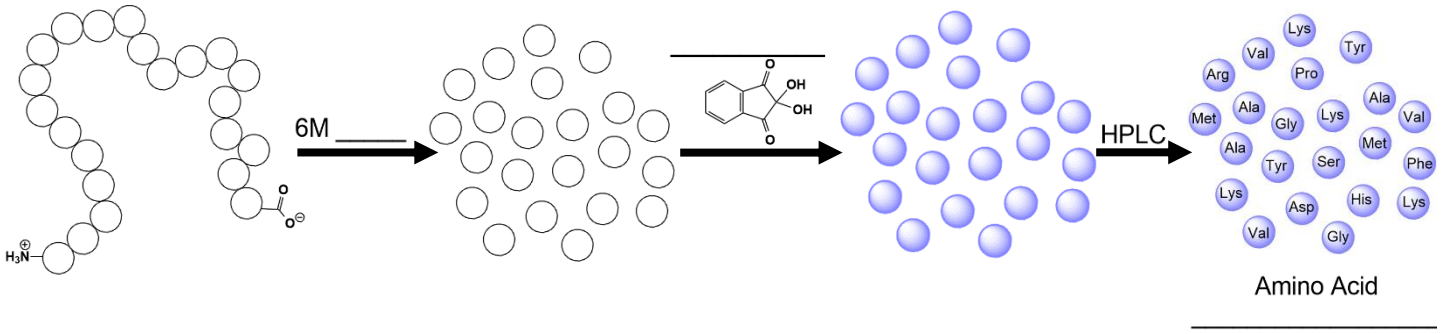
●*Complete acid hydrolysis* with *6M Hydrochloric Acid* (*HCl*) _____ cleaves *all* peptide bonds in a protein.

□ Releases all constituent amino acids from a protein so they are _____ amino acids.

□ *Ninhydrin* reacts with amino acids to produce a _____ for quantification via light absorbance.

□ Resulting free amino acids can be analyzed to determine protein _____, but not sequence.

EXAMPLE: Amino Acid Hydrolysis.



PRACTICE: What is the function of ninhydrin?

a) Cleavage of proteins into free amino acids.
b) Colorimetric agent to detect amino acids.
c) Agent to carboxymethylate cysteines.
d) Serves as the mobile phase in HPLC.

PRACTICE: Amino acid hydrolysis via 6M HCl cleaves all the amide/peptide bonds of a protein. What do you suppose happens to the amide bonds in the R-groups of Asn & Gln residues upon treatment with 6M HCl?