03-231 Biochemistry SI
Thursday, September 8, 2005

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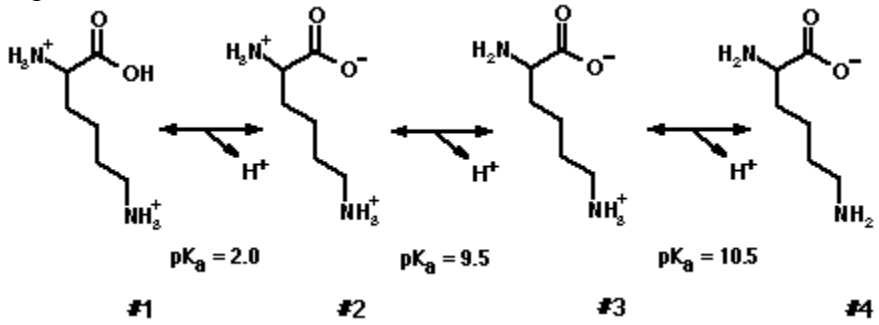
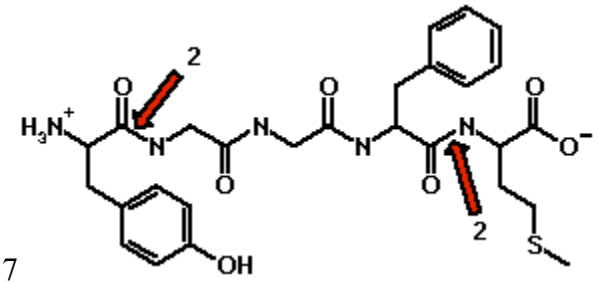
1. parts a. - c.



parts d. & e.

pH	Structure	Net Charge
1	#1	+2
4	#2	+1
10	#3	0
12	#4	-1

2. The chemical structure of Met-enkephalin at pH



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b) The net charge of the peptide at:
pH 1: +1 (N-terminus)

pH 7: 0

pH 12: -2 (C-terminus & Tyr side chain)

c) Indicate with numbered arrows the bonds that could be hydrolyzed (if any) by digestion with:

1. Trypsin: None; trypsin cleaves after basic residues, Lys^+ & Arg^+ (and His^+)
2. Chymotrypsin: Two; see diagram. Chymotrypsin cleaves after Phe, Trp, & Tyr.
3. CNBr (cyanogen bromide): None; CNBr cleaves after Met.

3. For the Structure shown:

_2_ a) Hydrophobic R-group.

_4_ b) Main chain H-bond acceptor.

_3_ c) Main chain H-bond donor.

_6_ d) Negatively charged functional group on a side chain.

_1_ e) Positively charged functional group on a side chain.

_5_ f) Uncharged polar functional group on a side chain.
("2" is also acceptable.)