

General Biology: Cells and Molecules
Homework Assignment #5

Below is my answer key for the homework problem.

Position	1	2	3	4	5	6	7	8	
Species 1:	Arg	Cys	GAP	Leu	Leu	Ser	Thr	Asn	Met
Species 2:	Arg	Cys	Phe	Leu	Leu	Ser	Thr	Asn	GAP
Species 3:	Arg	His	GAP	Leu	Leu	Ser	Thr	Asn	Met
Species 4:	Arg	Cys	GAP	Leu	Ser	Ser	Thr	Asn	Met
Species 5:	Arg	His	GAP	Leu	Leu	Ser	Gln	Asn	Met

Complete the following similarity matrix using these sequences:

		SPECIES						
		1	2	3	4	5		
SPECIES	1		1	1	1	2		
	2	7		2	2	3		
	3	7	6		2	1		
	4	7	6	6		3		
	5	6	5	7	5			
		SIMILARITIES						

Which species differ from Species 1 because of an amino acid insertion? Species 2 shows an insertion at position 3. There are no deletions.

Which species differ from Species 1 because of amino acid substitutions? Species 3, 4, and 5 all show amino acid substitutions.