

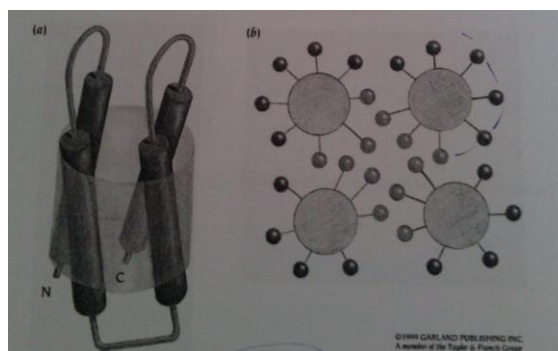
1-Write down a sequence that has (% sequence identity to INTERMEDIATE) but the highest possible to the BLOSUM 62 Matrix ?

	A	R	N	D	C	Q	E	G	H	I	L	K	M	F	P	S	T	W	Y	Z
A	4	-1	-2	-2	0	-1	-1	0	-2	-1	-1	-1	4	-2	-1	1	0	-3	-2	-2
R	-1	2	0	-2	-3	1	0	-2	0	-3	-2	2	4	-3	-2	-1	-1	-3	-2	-1
N	-2	0	6	1	-3	0	0	0	1	-2	-3	0	-2	-3	-2	1	0	-4	-2	-3
D	-3	-2	1	6	-3	0	2	-1	-1	-3	-4	-1	-2	-3	-1	0	-1	-4	-3	0
C	0	-3	-3	-3	0	-3	-4	-3	-3	-1	-1	-3	-1	-2	-3	-1	-1	-2	-2	-2
Q	-1	1	0	0	-3	2	2	-2	0	-3	-2	1	0	-3	-1	0	-1	-2	-1	2
E	-1	0	0	2	-1	2	3	-2	0	-3	-3	1	-2	-3	-1	0	-1	-3	-2	3
G	0	-2	0	-1	-3	-2	-2	6	-2	-4	-4	-2	-3	-3	-2	0	-1	-2	-3	-2
H	-2	0	1	-1	-3	0	0	-2	8	-3	-3	-1	-2	-1	-2	-1	-2	-2	1	3
I	-1	-3	-3	-3	-1	-2	-3	-4	-3	4	2	-3	1	0	-3	-2	-2	-3	-2	-1
L	-1	-2	-3	-4	-1	-2	-3	-4	-3	2	4	-2	2	0	-3	-2	-1	-2	-1	-1
K	-1	2	0	-1		1	1	-2	-1	-1	-2	3	4	-3	-4	0	-1	-3	-2	-1
M	-1	-1	-2	-3	-1	0	-2	-3	-2	1	2	-1	3	0	-2	-1	-1	-1	-1	2
F	-2	-3	-3	-3	-2	-3	-3	-3	-1	0	0	-3	0	0	-4	-2	-2	1	3	-2
P	-1	-2	-2	-1	-3	-1	-1	-2	-2	-3	-3	-1	-2	-4	7	-1	-1	-4	3	-1
S	1	-1	1	0	-1	0	0	0	-1	-2	-1	0	-1	-2	-4	4	1	-3	-2	3
T	0	-1	0	-1	-1	-1	-1	-2	-2	-4	-1	-4	-1	-4	-4	1	3	-2	-2	2
W	-3	-3	-4	-4	-2	-2	-3	-2	-2	-3	-2	-3	-1	1	-4	-3	-2	11	2	-1
Y	-2	-2	-2	-3	-2	-1	-2	-3	2	-1	-1	-2	-1	3	-3	-2	-2	2	7	-1
Z	0	-3	-3	-3	-1	-2	-2	-3	-3	3	1	-2	1	-1	-2	-2	0	-3	-1	-2

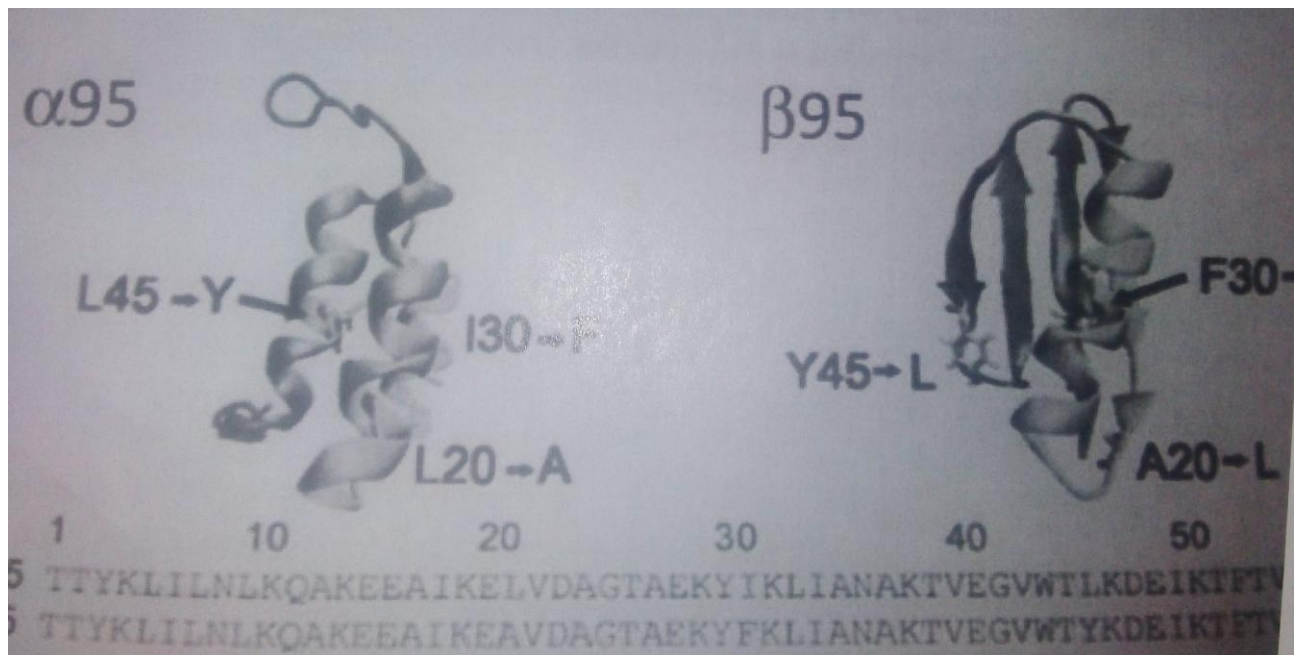
2-Using the Matrix in figure 1 , manually the following sequence alignment, using a gap penalty of 12 ?

I	N	F	-	R	M	A	T	I	C	S	E
I	N	T	E	R	M	A	D	I	A	T	E

3-Using the sketch of a four-helix bundle in figure 1 , describe what pattern the amino acid sequence can often be observed for alpha helices?



4-Figure 1 Shows the Structure of two proteins for which the structure was determined experimentally. The sequence alignment of two protein is also given. Comment on this picture in relation to your answer to question b?



Unterpunkt b lautet ; Mention two methods that we can use to construct a model if no experimental structure is available . Why do they work