

Bio 111 Answer to iClicker Question 16A

Answer (A) is correct.

Bio 111 Answer to iClicker Question 16B

The best way to solve this problem is to characterize the side chains of the different amino acids & they see which is the most different from the original one, leucine.

<u>amino acid</u>	<u>size</u>	<u>'phobic/'philic</u>	<u>bonds it can make</u>
leucine	big	'phobic	'phobic interaction
isoleucine	big	'phobic	'phobic interaction
phenylalanine	big	'phobic	'phobic interaction
aspartic acid	medium	'philic	H-bond & ionic bond
valine	medium	'phobic	'phobic interaction

All of them are similar sizes, but the side chain of aspartic acid is 'philic, while the side chain of leucine is 'phobic. Since 'phobic \Rightarrow 'philic is a big change, (C) is the most correct answer.

Note that, in real life, any of the changes listed could have dramatic effects on protein structure, since the exact size & shape of an amino acid's side chain can sometimes be crucial. It is also possible that, in a certain protein, none of those changes could have any effect on the protein's structure, if amino acid #46 is not critical.