Guide Questions for Topic 8: Integrating Concepts through p53

1. What class of proteins does p53 belong to?
2. What class of proteins does MDM2 belong to?
3. What class of proteins does ATM belong to?
4. How does the protein PUMA affect cell behavior?
5. p53 activates expression of its target genes when _____.
6. How does MDM2 regulate p53 in healthy cells (i.e., in cells without significant DNA damage)?
7. What activates ATM activity in cells?
8. How does ATM activity affect p53?
9. How does p53 activity affect PUMA?
10. Which of the following sequences of events takes place in a cell when it accumulates DNA damage?
11. What does the term "thymine dimers" refer to?
12. During 10, we are going to discuss how phosphorylation of the protein IκB regulates its activity and gene expression. Shown below in **red font** is part of the sense strand sequence in the IκB gene. The nucleotides are grouped and spaced so you can distinguish the codons within the reading frame; and the codons are number (in **blue**). The stretch of amino acids below the sense sequence indicates the amino acids that each codon codes for in the IκB polypeptide.

	13	14	15	16	17	18	19	20	21	22	23	24	25
Sense sequence:	...CGC	CCC	TGC	CCC	GCC	TTC	CCC	GCC	CCG	GGG	AGC	CCG	CCC...
Amino acids:	…Arg-	Pro-	Ser-	Pro-	Ala-	Phe-	Pro-	Ala-	Pro-	Gly-	Ser-	Pro-	Pro…

Based on the information provided above, which of the following nucleotide changes would you predict to most likely interfere with IκB phosphorylation?