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Subject: Biology
Topic: IB HL Biology
Type: Topic Question

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BIOLOGY

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Key skills



****Question 1****

The nucleotide base sequence and the associated sequence of four amino acids can be seen below:

AGG ACA CCT GGA

Serine Tyrosine Glycine Proline

The table shows the mRNA codons and their associated amino acids.

		Second Letter					
		U	C	A	G		
First Letter	U	UUU } Phe	UCU } Ser	UAU } Tyr	UGU } Cys	Third Letter	U
		UUC } Phe	UCC } Ser	UAC } Tyr	UGC } Cys		C
		UUA } Leu	UCA } Ser	UAA – STOP	UGA – STOP		A
		UUG } Leu	UCG } Ser	UAG – STOP	GGU – Trp		G
	C	CUU } Leu	CCU } Pro	CAU } His	CGU } Arg		U
		CUC } Leu	CCC } Pro	CAC } His	CGC } Arg		C
		CUA } Leu	CCA } Pro	CAA } Gln	CGA } Arg		A
		CUG } Leu	CCG } Pro	CAG } Gln	CGG } Arg		G
	A	AUU } Ile	ACU } Thr	AAU } Asn	AGU } Ser		U
		AUC } Ile	ACC } Thr	AAC } Asn	AGC } Ser		C
		AUA } Ile	ACA } Thr	AAA } Lys	AGA } Arg		A
		AUG – Met	ACG } Thr	AAG } Lys	AGG } Arg		G
	G	GUU } Val	GCU } Ala	GAU } Asp	GGU } Gly		U
		GUC } Val	GCC } Ala	GAC } Asp	GGC } Gly		C
		GUA } Val	GCA } Ala	GAA } Glu	GGA } Gly		A
		GUG } Val	GCG } Ala	GAG } Glu	GGG } Gly		G

A single mutation occurred in the original base sequence of the DNA which resulted in only one amino acid from the sequence being produced.

Which of the following would represent the correct nucleotide base sequence which was found in the DNA after the mutation occurred?

- A. AGT ACA CCT GGA
- B. AGG ACT CCT GGA
- C. AGG ACC CCT GGA
- D. AGG ACA UGA GGA

[1 mark]



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