

Genetic Mutations POGIL Answer Key

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How many nucleotides are a part of a codon?

3

Does an mRNA sequence that codes for "stop" actually count as an amino acid?

no

What is the result of a substitution mutation?

ONE codon changes which causes ONE amino acid to be different from the normal amino acid sequence

What is an insertion mutation?

An additional nucleotide is inserted in the normal sequence, which lengthens the sequence

What is a deletion mutation?

An existing nucleotide is removed in the normal sequence, which shortens the sequence

Would all substitution mutations lead to a change in the amino acid sequence?

No because if the last letter in a codon changed, the same amino acid is expressed than if the last nucleotide had not been changed.

Would all insertion or deletion mutations lead to a change in the amino acid sequence?

Yes because any new nucleotide that is inserted / deleted shifts the nucleotides, changing the letters of multiple codons.

Would a substitution or insertion mutation pose more damage (or a greater benefit) to an organism?

Insertion because it has the potential to change a majority of the normal amino acid sequence, as the reading frame shifts.

Would a deletion mutation at the beginning of a DNA sequence or at the end pose more damage (or a greater benefit) to an organism?

The beginning because the codons following would all change, whereas a deletion mutation at the end would not affect the codons that were present before.

What is the range of changes in the amino acid sequence that can result from a substitution mutation?

Pogil Genetic Mutations Answer Key

Mark Steyvers



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