

Vocabulary

- Mutations
- Mutagens
- Gene Mutations
- Chromosomal Mutations
- Gametes
- Protein
- Point Mutation
- Substitution Mutation
- Insertion Mutation
- Deletion Mutation
- Frameshift Mutation
- Deletion Chromosome Mutation
- Duplication Chromosome Mutation
- Inversion Chromosome Mutation
- Translocation Chromosome Mutation
- Sickle Cell Anemia
- Polyploidy

Check Your Understanding

See if you can identify each of these changes in DNA and explain its effect on an organism. Use the mRNA codon chart below to help answer the questions in the table.

mRNA Codon Chart

		second base in codon				
		U	C	A	G	
U	UUU Phe	UCU Ser	UAU Tyr	UGU Cys	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	UGG 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	

Change in DNA	Type of mutation	How many amino acids are changed?
CCC → CCA		
AAA → AAU		
CCG-AAA-GGG → CCG-AAG-GG		
AAU-CCC → AAA-UCC-C		
UUU-GGC-AAA → UUG-GCA-AA		