

Chapter 12-4: Mutations

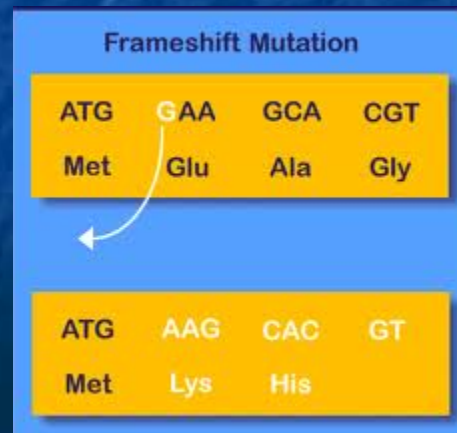
Essential Questions:

- What is the difference between ***gene mutations*** & ***chromosomal mutations***?
- For gene mutations;
 - What are ***point mutations***?
 - What is a ***frameshift mutation***?
- For chromosomal mutations
 - What are 4 types?

- Mutation: any change in a DNA sequence



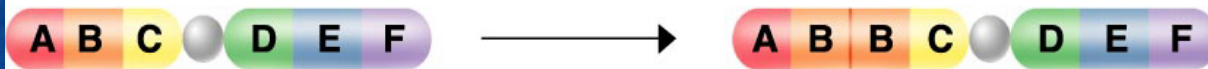
- Gene mutations: result from changes in a single gene
 - Point mutations – affect one nucleotide, occur at a single point in a DNA sequence
 - Substitution: usually change one amino acid in a protein
 - Frameshift mutations: changes “reading frame” of codons
 - *Deletion* & *insertion* are frameshift mutations



- Chromosomal mutations: involve changes in the number & structure of entire chromosomes



Deletion



Duplication



Inversion



Translocation