

# 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



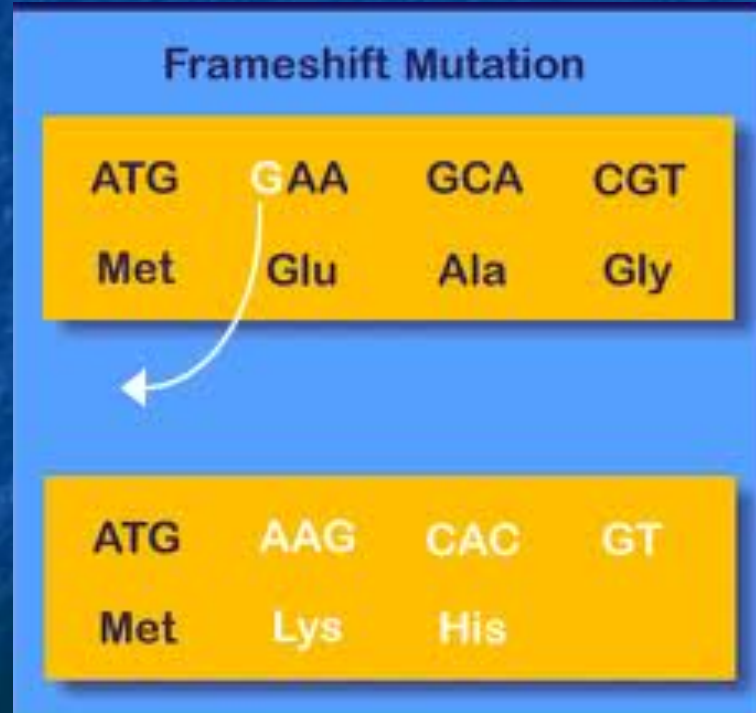
- Gene mutations

- Point mutations

- Substitution

- Frameshift

- *Deletion* & *insertion* are frameshift mutations





# ■ Chromosomal mutations

