

Warm Up (11/28-11/29)

****Turn in hw on Google Classroom****

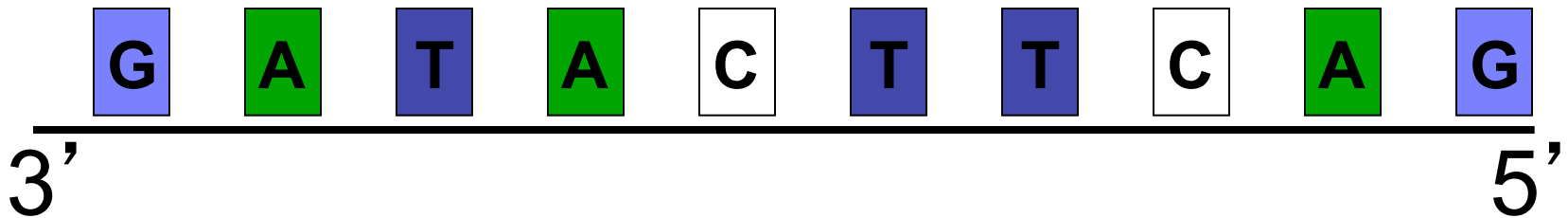
- 1) Where does transcription take place?
Where does translation take place?
- 2) Transcribe this DNA into mRNA:
TACCACGGGATT
- 3) Now, translate the mRNA into amino acids.
(see amino acid chart on website)

Agenda

- Warm up
- Review HW on Google Classroom
- 11.3 Notes: Genetic Changes
- Types of Mutations Mini-Lab
- Chapter 11 Quizlet Live
- **Homework: Study Guide (Due Mon/Tues)**

11.3 Genetic Changes

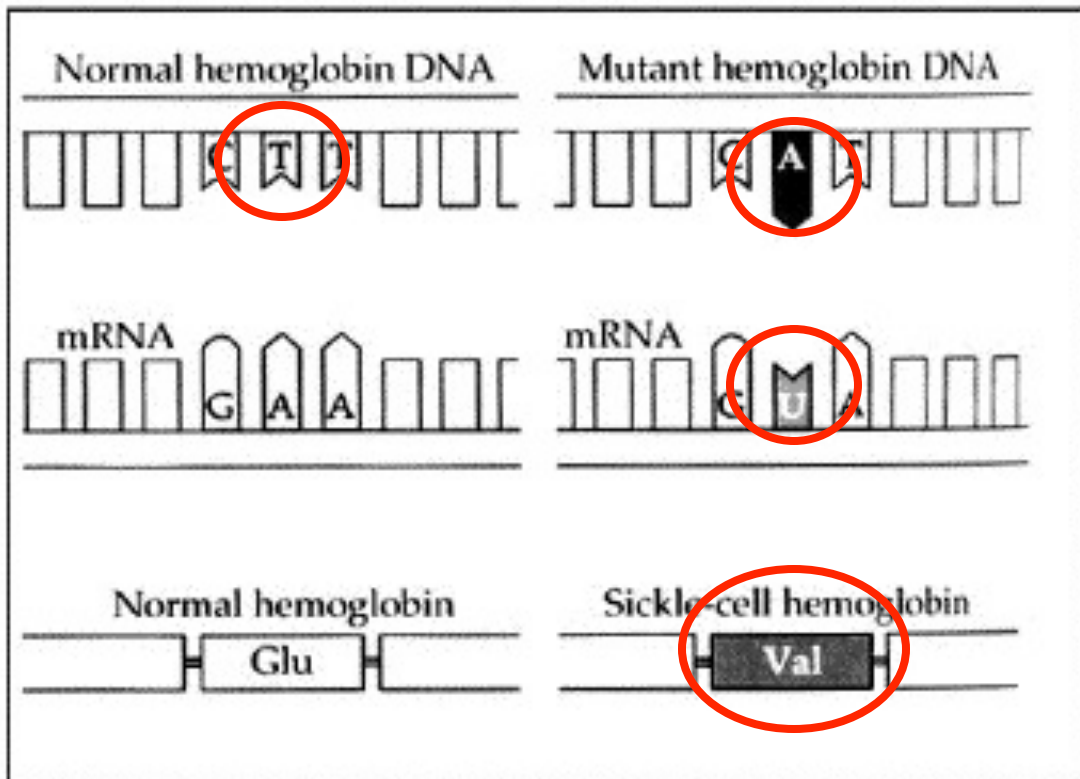
Genetic Mutation – a change or mistake in the DNA sequence that **may or may not** affect the protein the DNA codes for



Types of Mutations

- Substitution/ Point mutation: Can have effect or no effect at all on protein synthesis
- Frame shift mutations: Insertion or deletion of a nucleotide

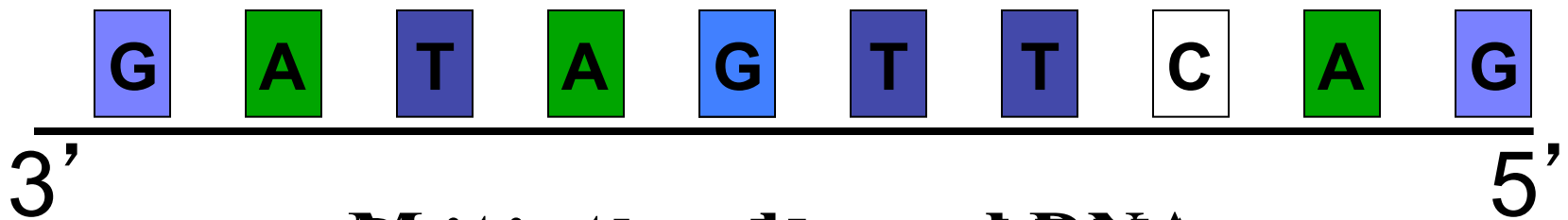
1. Substitution or Point Mutation



A replaces T in
What does
the DNA
substitution mean?
Which means?
there will be a
change in the
mRNA and
amino acid of the
protein

Substitution or Point Mutation is

When one or more bases are taken out and replaced with other base pairs

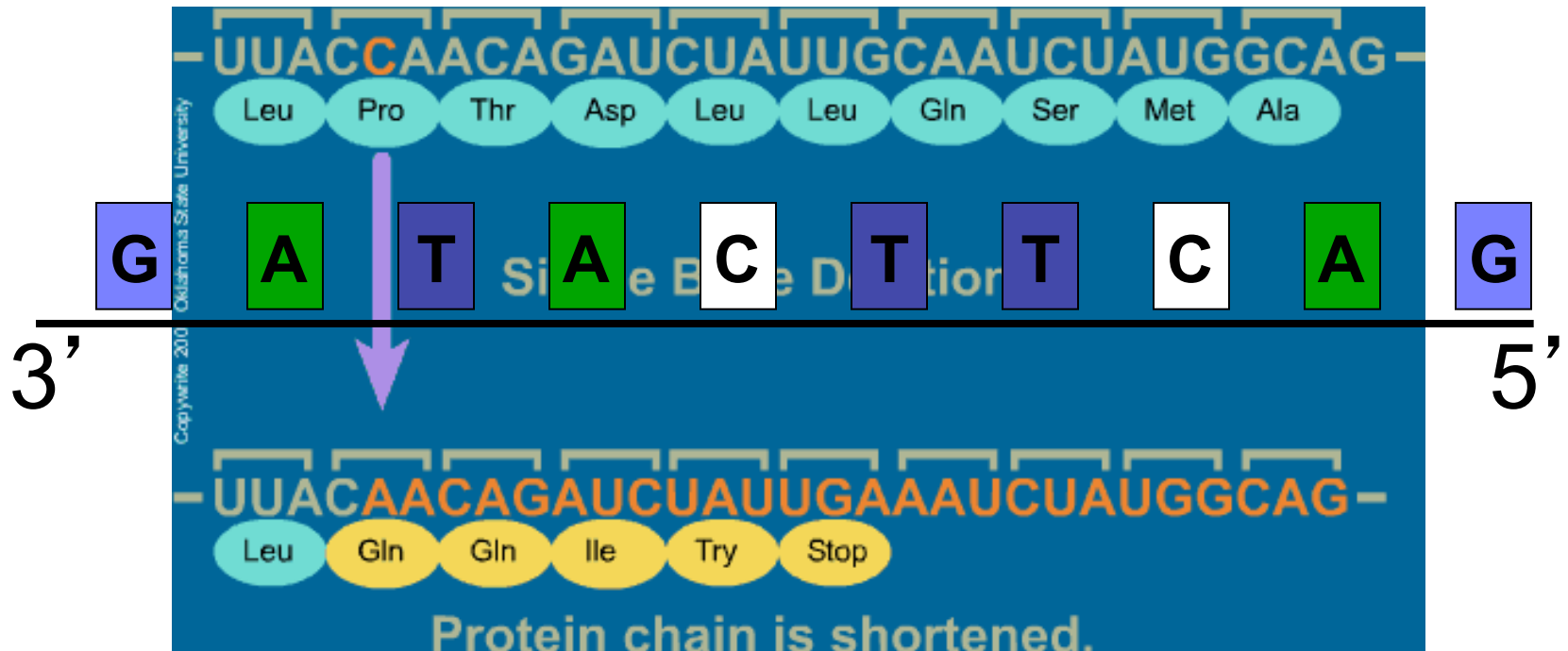


~~Original~~ or ~~Changed~~ DNA

which can change the mRNA and protein structure

2. Deletion Mutation

What does delete mean?
when one or more base pairs are taken out of the DNA sequence.



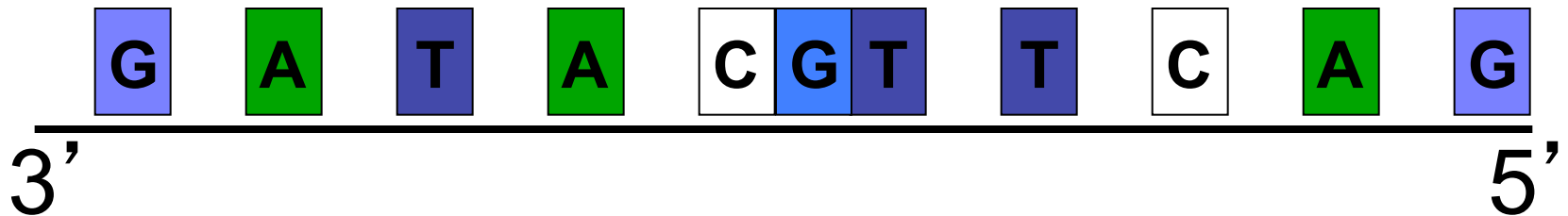
If one base pair is deleted you can see how the protein can be effected

Deletion

- Nuclear radiation, X- rays, UV light are dangerous mutagens because the energy they contain can break down or damage DNA.
- The breaking and reforming of DNA = deletion mutations

3. Insertion Mutation

What does insert^{is} mean?
when one or more base pairs are placed into a DNA sequence.



You can see how an insertion mutation can also change the mRNA as well as the protein that is made causing a mutation or difference in the organism.

What Causes Mutations?

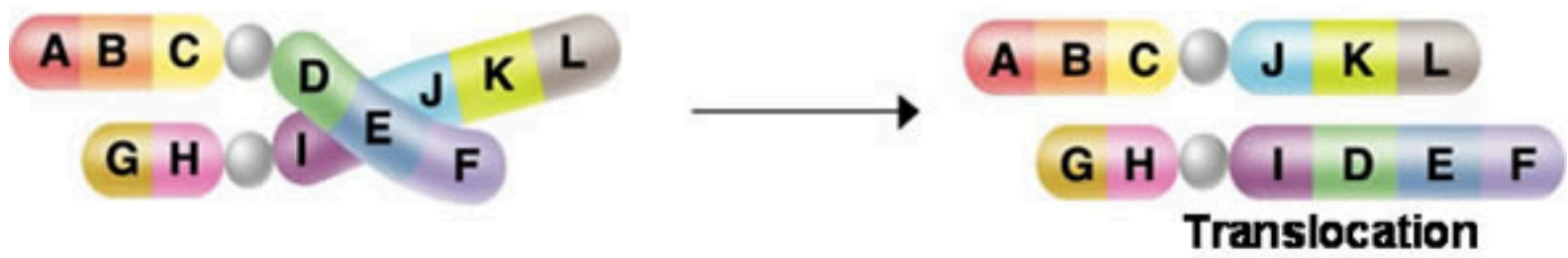
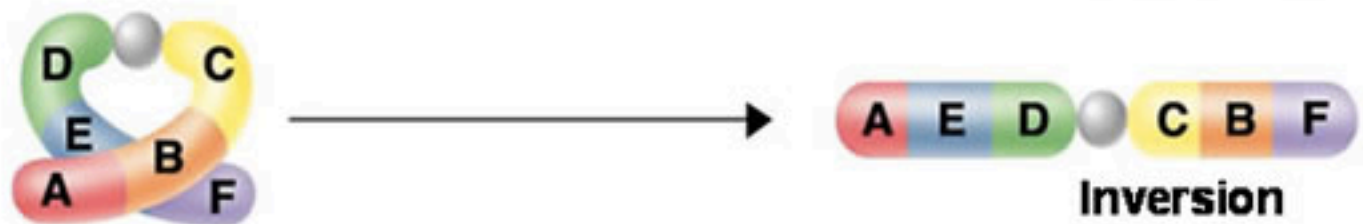
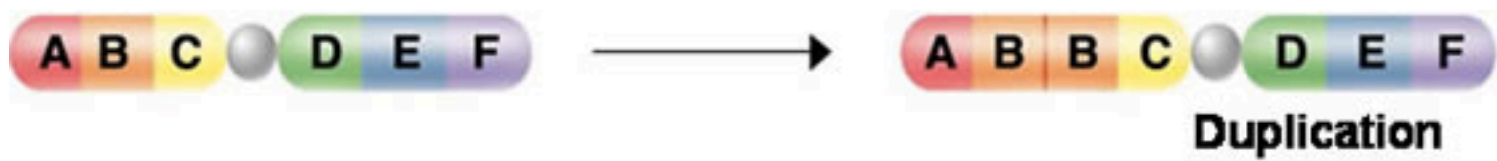
- Environmental agents that cause mutations are called **mutagens**.

mutagens are not always a bad thing! They are responsible for genetic diversity

- If the mutation can lead to cancer they are called **carcinogens**.

Mutations in Chromosomes

- Deletion: part of a chromosome is deleted
- Insertion: a gene is duplicated on a chromosome
- Inversion: part of a chromosome breaks off and reattaches backwards
- Translocation: part of a chromosome breaks off and is added to a different chromosome





Turner syndrome karyotype

