

DNA and Mutations



YouTube Video

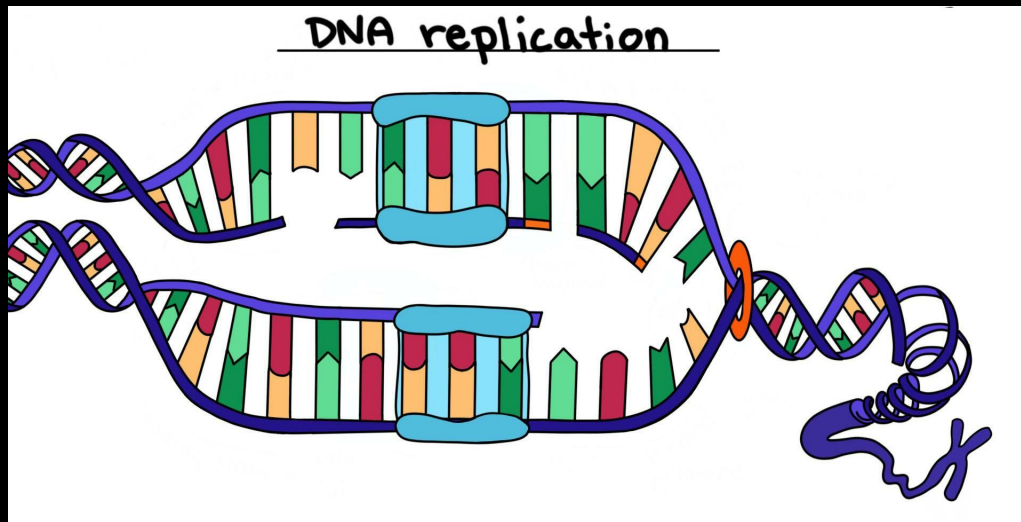


Mutation

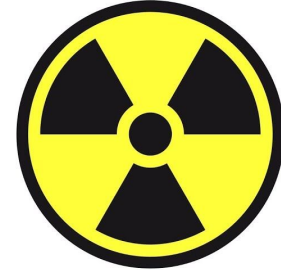


Mutation - any change in the DNA

Mutation



RADIATION!



Caused by errors in DNA replication or by mutagens

Mutation



Mutations can be harmful, neutral or beneficial

Mutation



Mutations change the meaning of genes

Types of Mutations

Point mutations

Frameshift mutations

Chromosomal mutations

Types of Mutations

DNA THE DOG BIT THE CAT



Substitution Mutation

DNA THE DOG BIT THE CAT
THE DOG BIT THE CAR

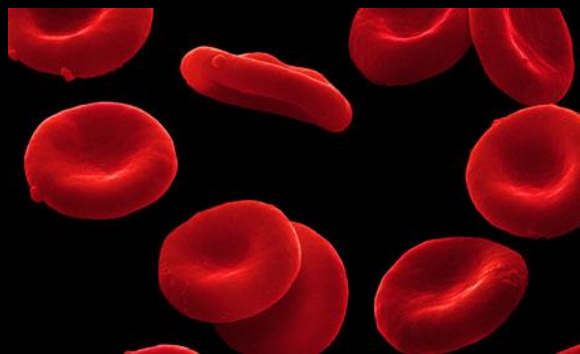
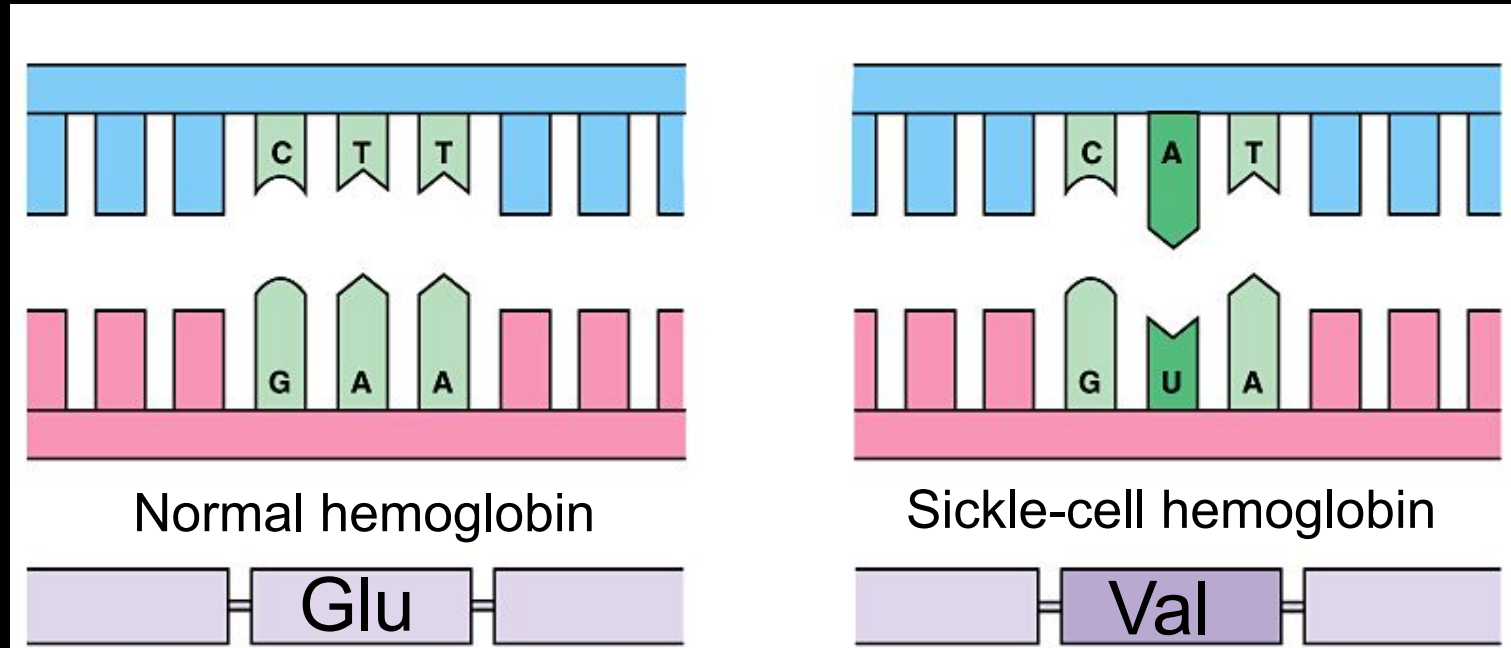


Substitution - Replace just one letter T → R

Substitution Mutation

Normal hemoglobin DNA

Mutant hemoglobin DNA



Deletion Mutation

DNA

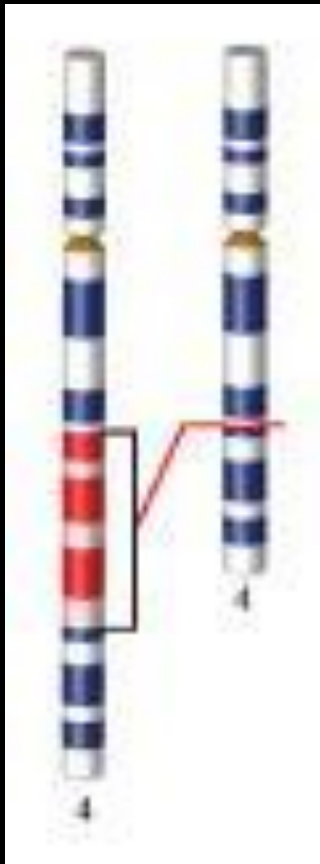
THE DOG BIT THE CAT
THE DOG BIT HEC AT

- Delete just one letter (T)
- Reading frame shifts



Deletion Mutation

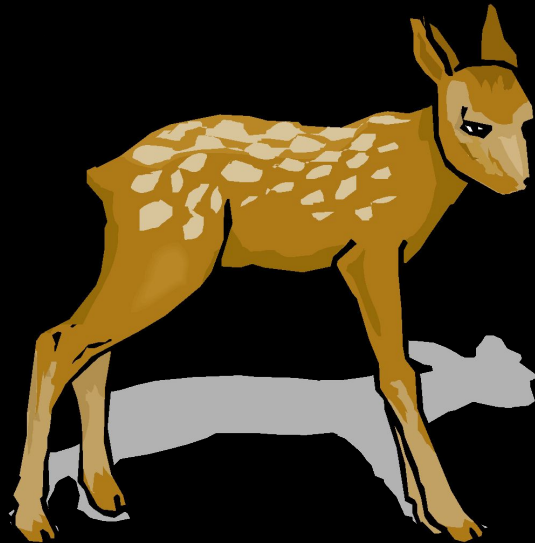
Hemophilia - inability to form blood clots



Insertion Mutation

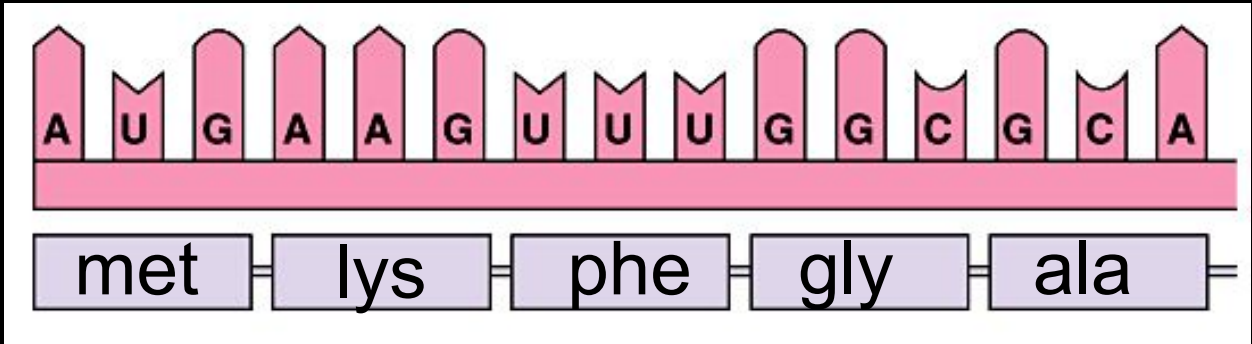
DNA

THE DOG BIT THE CAT
THE DOE GBI TTH ECA T

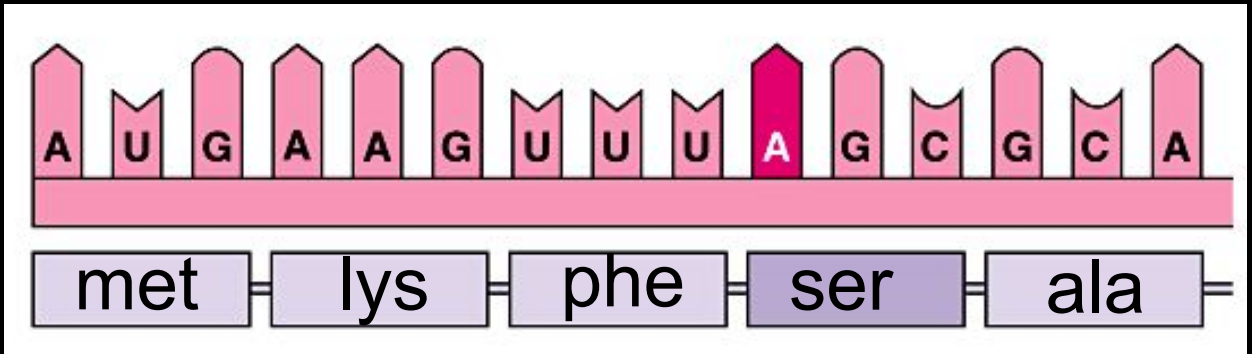


- Add just one letter (E)
- Reading frame shifts

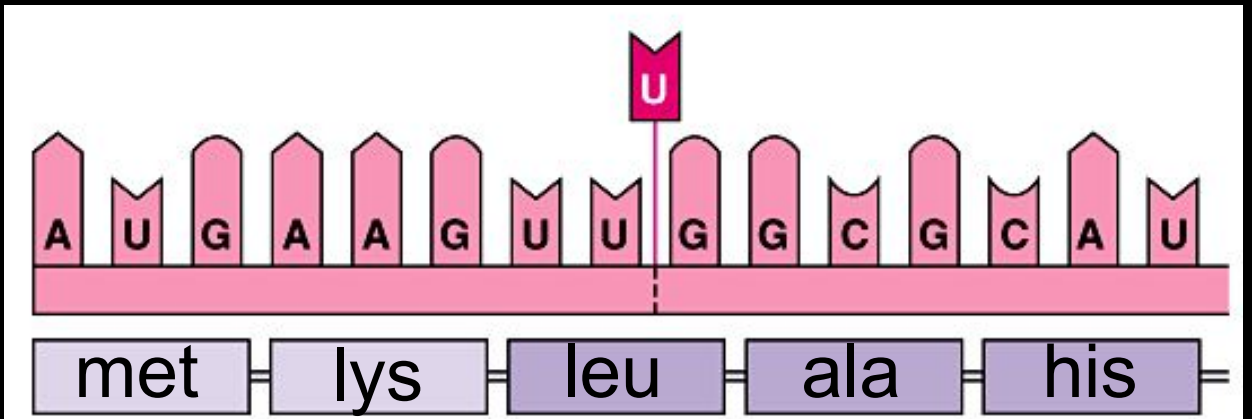
Normal Gene



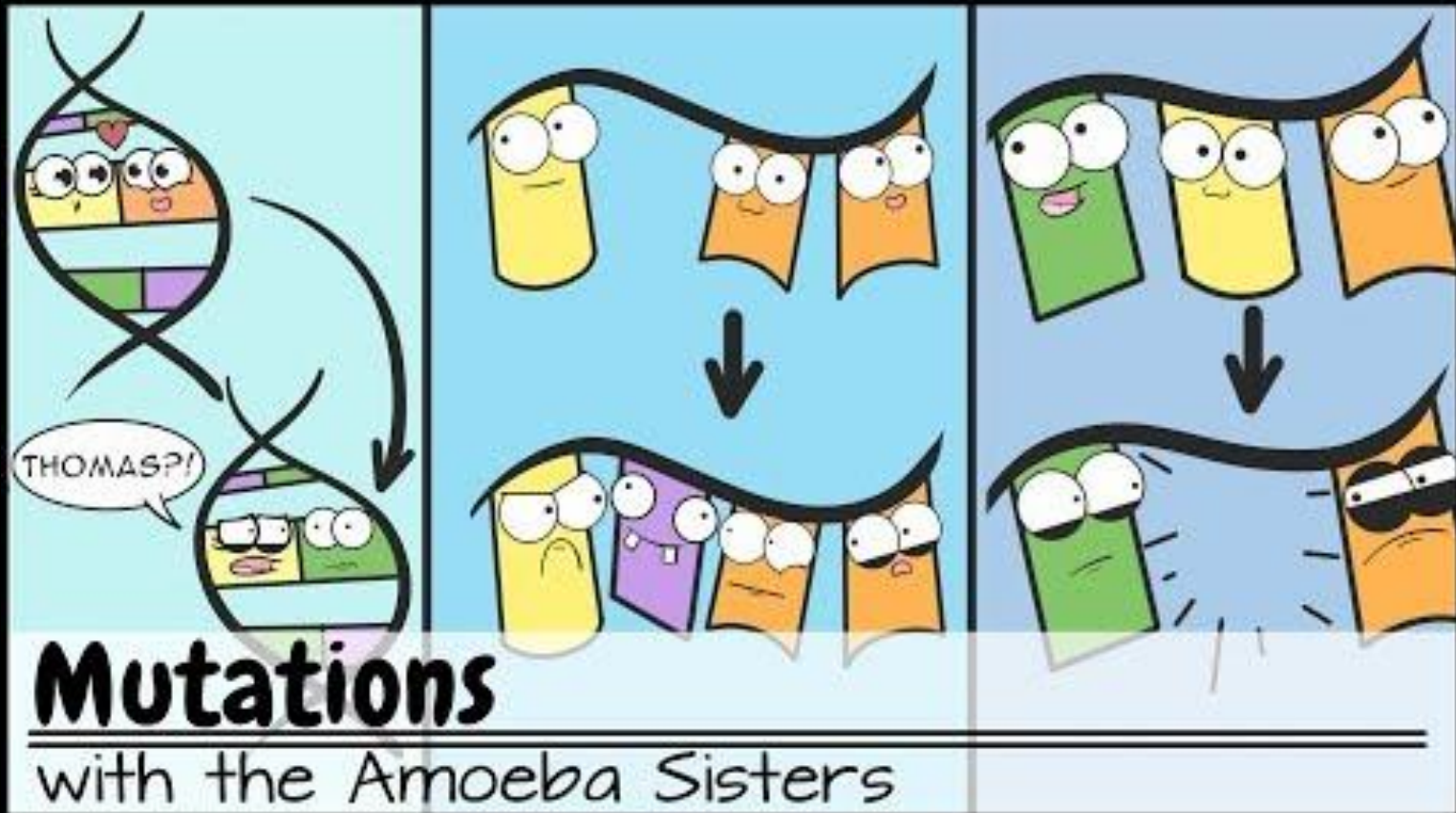
Base Substitution



Base Deletion



YouTube Video



Stop Here

