

## Point Mutations

**Silent** - no change in amino acid

ATGACCGACCCGAAAGGGACC

ATGACCGACCC**C**AAAGGGACC

stays as proline

**Missense** - one amino acid is changed to a different amino acid

ATG**C**CCGACCCGAAAGGGACC

codes for a different amino acid

**Nonsense**

ATGACCGACCCG**T**AAGGGACC

causes translation to stop

**Frame-shift**

ATGACCGA**G**CCGAAAGGGACC

causes a disruption in translation

