Zayd Hammoudeh

CS123A – Bioinformatics

Hands On Exercise #5 – In Disease

1. Adenine
2. The sequence is:

Met V H L T P E E K

1. Thymine
2. The sequence is:

Met V H L T P V E K

1. The seventh amino acid changed from E to V.

Mutant Gene #2

Met V H L T P G R S L P L L P C G A R Stop

1. This sequence terminates prematurely (i.e. its truncated).
2. It is the location of the gene on the chromosome.
3. The order of the genes in the beta globin cluster:

5’ – epsilon – gamma-G – gamma-A – delta – beta – 3’

1. Yes.
2. The heading is: “mRNA Secondary Structure of 3’ and 5’ UTRs”.
3. The 5’ UTR is 50 bases long while the 3’ UTR is 132 bases long.
4. They are other parts of the hemoglobin molecule.
5. They are functionally related.

7. The red line indicates the location of the gene on chromosome 11.

8. The order of the genes is: 5'-epsilon -- gamma-G -- gamma-A -- delta -- beta--3'.

9. Yes.

10. **mRNA Secondary Structure of 3' and 5' UTRs**

**11. 5’ UTR is 50 bases while the 3’ UTR is 132 bases.**

14. There are three exons and two introns.

15. First two bases are GU

16. The last two bases are AG.

17. More introns.

18. Synonymous SNP are colored green.

19. Non-synonymous SNPs are colored red.

20. Its non-synonymous because it is colored red.

21. Its in an exon.

22. Its at the beginning.

23.