BISC-577: Project # 4

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Contents

Question # 1

(A): mRNA are a family of RNA that upon translation result into a sequence of amino acids as spedicifed by the corresponding codons as a result of gene expression
(B): transfer RNAs(tRNA) serves as a carrier of the amino acids trranspoting them to the ribosomes. Amino-acid-codon matching happens via the presence of an anticodon and is specific.
(C): Introns are 'inter-genic' regions that do not code for proteins and hence are absent in the mature RNA as they are removed via splicing. Exons on the other hand are the 'coding' regions of DNA. Mature RNA consists primarily of exons.
(D): Alternative splicing which involves removal of non-coding regions also gives rise to the possibility of multiple proteins being translated from the same gene depending on which exons are included and which ones are excluded. RNA silencing is another such process that increases RNA variability.
(E): Coding region of RNA consists of exons that for a protein. 5' UTRs and 3' UTRs which are also part of exon are upstream of initiation codon and downstream of the termination codon and both act as post transcriptional regulators. UTRs are not translated into proteins.

Question # 2

Question # 3

Human HCC1954 breast cancer cell line under trastuzumab treatment: http://www.ncbi.nlm.nih.gov/sra/SRX470402[accn]
Human HCC1954 breast cancer cell http://www.ncbi.nlm.nih.gov/sra/SRX470401[accn]

Question # 4

Question # 5

Question # 6

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