

MCM Practice Questions: Lecture Day 7

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Lecture 21: Transcription & Translation

1) Which of the following is a *true* statement about mRNA transcription?

- (A) Helps the cell attain unlimited protein synthesis
- (B) Creates multiple copies of dsDNA for translation
- (C) Prevents genomic DNA from cytoplasmic damage
- (D) Carried out by DNA polymerase

2) Choose the correct RNA polymerase and associated RNA pair.

- (A) RNA Pol I : mRNA
- (B) RNA Pol III : rRNA
- (C) RNA Pol II : tRNA
- (D) RNA Pol III : 5s rRNA

3) I am looking at the promoter region of a gene on human DNA for the consensus sequence. What is the name of the area I am looking for?

- (A) TATA Box
- (B) Pribnow Box
- (C) CAAT Box
- (D) Enhancer Element

4) Given the following mRNA sequence, what is the template strand?

5'- AUG UUC CAA AGC GCC GAC UAA -3'

- (A) 5'- ATG TTC CAA AGC GCC GAC TAA -3'
- (B) 3'- ATG TTC CAA AGC GCC GAC TAA -5'
- (C) 5'- TAC AAG GTT TCG CGG CTG ATT -3'
- (D) 3'- TAC AAG GTT TCG CGG CTG ATT -5'

5) You are studying a bacterium's transcription process. You notice an mRNA transcript that codes for multiple proteins in the organism's ethanol fermentation pathway. What is the promoter unit of this transcript called?

- (A) Cistron
- (B) Operon
- (C) Activator
- (D) Repressor

6) Which of the following is used to protect eukaryotic mRNA?

- (A) Poly (A) tail at 5' end
- (B) 3' cap
- (C) Exon Excision
- (D) Poly (A) tail at 3' end

7) What is one way Thalassemias cause anemia?

- (A) Low Beta-Globin synthesis
- (B) High Alpha-Globin synthesis
- (C) Excess HbF synthesis
- (D) Low Transporter function

8) Maverick is test flying a hypersonic aircraft at an altitude of 110,000 feet. At this altitude, UV radiation is present at a relatively higher dose than at mean sea level. When he lands, scientists check his DNA and notice damage but protein synthesis shows no issues. What kind of mutation did Maverick's DNA most likely suffer from?

- (A) Missense

- (B) Nonsense
- (C) Silent
- (D) Deletion
- (E) Frame Shift

9) Which of the following is *not* required for Eukaryotic translation?

- (A) tRNA
- (B) Amino Acids
- (C) 30s Ribosomal Subunit
- (D) 60s Ribosomal Subunit
- (E) ATP

10) You are at a gas station in Texas when you fatefully run into Anton Chigurh. He makes a bet with you: translate a phrase from spanish to english correctly or he will stop your cellular translation for good. His poison will inhibit your 60s Ribosomal subunit via its N-Glycosylase activity. What substance is he using?

- (A) Streptomycin
- (B) Tetracycline
- (C) Chloramphenicol
- (D) Ricin

11) How are misfolded proteins labeled for degradation?

- (A) Ubiquination
- (B) Phosphorylation
- (C) Polyubiquination
- (D) Methylation