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Ribosomes

Exam — Cell Organelles

Pre-Med practice questions about ribosome structure, location, and function

6 items — Printable Exam

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1 **Which composition correctly describes a typical eukaryotic cytosolic ribosome?**

A 30S small subunit + 50S large subunit = 70S ribosome.

B 40S small subunit + 60S large subunit = 80S ribosome.

C 50S small subunit + 30S large subunit = 100S ribosome.

D 60S small subunit + 40S large subunit = 60S ribosome.

E Two identical 40S subunits forming an 80S ribosome.

2 **Which of the following proteins would most likely be synthesized on free ribosomes in the cytosol rather than on ribosomes bound to the rough ER?**

A A lysosomal hydrolase.

B A hormone that will be secreted from the cell.

C A plasma membrane receptor.

D An enzyme of the glycolytic pathway in the cytosol.

E A subunit of a voltage-gated Na^{+} channel in the plasma membrane.

3 **Where are eukaryotic ribosomal subunits assembled before they are exported to the cytosol?**

A On the cytosolic face of the rough ER.

B In the Golgi apparatus.

C In the nucleolus.

D In lysosomes.

E In mitochondria.

4 **An antibiotic selectively inhibits 70S ribosomes but has little effect on 80S ribosomes. Which cellular component in a human cell is most likely to be affected in addition to invading bacteria?**

A Cytosolic ribosomes.

B Rough endoplasmic reticulum.

C Mitochondrial ribosomes.

D Ribosomes in the nucleolus.

E Ribosomes attached to the plasma membrane.

5 **The gene for a secreted digestive enzyme is mutated so that the codons for its N-terminal signal peptide are deleted, but the rest of the coding sequence is unchanged. The mutant protein is still translated efficiently. Which outcome is most likely?**

A It is synthesized on free ribosomes and remains in the cytosol.

B It is synthesized on rough ER ribosomes and secreted normally.

C It is synthesized in the nucleus and accumulates in the nucleolus.

D It is inserted into the inner mitochondrial membrane.

E It is targeted automatically to lysosomes, because all misfolded proteins go there.

6 **In both prokaryotic and eukaryotic cells, the catalytic site for peptide bond formation during translation resides primarily in:**

A A protein enzyme associated with the large ribosomal subunit.

B A protein enzyme associated with the small ribosomal subunit.

C Ribosomal RNA of the large subunit, making the ribosome a ribozyme.

D The mRNA molecule being translated.

E The anticodon loop of tRNA.

Answer Key

#	Ans	Answer Text
1	B	40S small subunit + 60S large subunit = 80S ribosome.
2	D	An enzyme of the glycolytic pathway in the cytosol.
3	C	In the nucleolus.
4	C	Mitochondrial ribosomes.
5	A	It is synthesized on free ribosomes and remains in the cytosol.
6	C	Ribosomal RNA of the large subunit, making the ribosome a ribozyme.