PRACTICE: OXIDATIVE PHOSPHORYLATION

16. Which of the following statements is true?

a. electron transfer in the inner mitochondrial membrane results in the release of protons on the outside
b. energy is gained by proton difference in the outer membrane
c. oxidative phosphorylation does not require a membrane
d. uncoupling agents fail to allow electron transport
e. energy is conserved by the outer membrane pH gradient

17. The proton motive force:

a. creates a pore in the inner mitochondrial membrane
b. generates ADP and Pi for ATPase
c. oxidizes NADH to NAD^+
d. causes a conformational change in the ATPase
e. reduces O2 to H2O

18. Which of the following about human mitochondria is true?

a. About 900 mitochondrial proteins are encoded in the nucleus, not the mitochondria.
b. Mitochondrial genes are inherited from both maternal and paternal sources.
c. rRNA and tRNA are imported form the cytoplasm for mitochondrial protein synthesis.
d. The mitochondrial genome encodes all mitochondrial proteins.
e. The mitochondrial genome is not subject to mutation.

19. The addition of 2,4-dinitrophenol (DNP) or FCCP to mitochondria carrying out oxidative phosphorylation inhibits ATP production. By what mechanism does this occur?

a. They block electron transport
b. They block the proton pump in complex I and III
c. They dissipate the proton gradient by transporting protons across the membrane
d. They block adenosine nucleotide translocase
e. They block phosphate translocase

20. What will happen to the P/O ratio of the mitochondria after the addition of 2,4-dinitrophenol (DNP) or FCCP?

a. The ratio will decrease
b. The ratio will increase
c. The ratio will be unchanged
d. The ratio will decrease only if large quantities are added
e. More information is needed to determine the answer