1. Which of the following statements is TRUE regarding prokaryotes and eukaryotes?
    a. Both have regions in the cell where their DNA is packaged with proteins, but in eukaryotes these regions are enclosed by membranes.
    b. Prokaryotes have a cell wall, but eukaryotes do not.
    c. Eukaryotes have ribosomes but archaea and bacteria do not.
    d. Only eukaryotic cells are capable of photosynthesis.

2. Imagine that you are a researcher interested in studying the localization and interactions amongst a particular group of proteins that are believed to be involved in the development of nerves in humans. You need to choose a model organism for your experiments. Which of the following statements would be the MOST helpful in making your decision?
    a. Despite being a prokaryote, yeast cells can be grown in liquid culture and therefore would allow you to perform your protein experiments quickly.
    b. Nematode worms grow quickly and have a transparent body that would allow fluorescently tagged proteins to be visualized during nervous system development.
    c. Model plant organisms that are tetraploid or octaploid would be better models for studying the complexity and size of the transcriptome in human cells.
    d. Asgard species would be the best model organism because they are an archaean that is easy to grow in the lab and have more in common with humans than other unicellular organisms.

3. Which of the following BEST describes the molecule depicted below?

