The Muscular System: Sliding Filament Theory

1. a. The thick filament is composed of what molecule?

   _____

   b. Flexing the head of this molecule provides what is known as the

   _____.

2. The myosin head contains binding sites for what two molecules?

   a.

   b.

3. Three molecules make up the thin filament.

   a. Which molecule has a binding site for myosin heads?

   _____

   b. Which molecule covers this binding site?

   _____

   c. Which molecule has a binding site for calcium ions?

   _____

4. What molecule must bind to the myosin head in order for it to disconnect with actin? _____

5. Hydrolysis of the molecule in question 4 returns the myosin molecule to the _____ confirmation.

6. Binding of the myosin heads sequentially prevents _____ of the thin filament.

7. Name three roles for ATP in the contraction of muscle.

   a.

   b.

   c.

8. What molecule is connected to the Z line? _____

9. Which of the following shorten during contraction? (may be more than one)

   a. Thin filament

b. Sarcomere

c. H zone

d. Thick filament

10. a. What is the name of the condition in which muscles become rigid after death? _____

b. What is this condition due to?