

Skeletal Muscle Quiz

Directions: Choose the best answer to the questions below

1. Which of the following is in the correct order from **large** to **small**?
 - a. muscle belly -> sarcomere -> myofibril
 - b. myofibril -> sarcomere -> thin and thick filaments
 - c. muscle belly -> thin and thick filaments -> sarcomere
 - d. thick and thin filaments -> sarcomere -> myofibril
2. What structure stores Ca^{2+} in the muscle fiber?
 - a. T Tubule
 - b. Myofibril
 - c. Sarcoplasmic reticulum
 - d. Troponin
 - e. Sarcomere
3. A _____ neuron releases the neurotransmitter that initiates skeletal muscle contraction.
 - a. Somatic Motor (efferent) neuron
 - b. Sympathetic neuron
 - c. Sensory neuron
 - d. Muscle neuron
 - e. Sarcoplasmic neuron
4. The neurotransmitter that excites the muscle fiber is _____.
 - a. GABA
 - b. Na^+
 - c. Ca^{2+}
 - d. Troponin
 - e. Ach
5. The extracellular receptor that binds the neurotransmitter on the muscle fiber is _____.
 - a. An adrenergic receptor
 - b. A beta receptor
 - c. A cholinergic
 - d. An alpha receptor
 - e. A tyrosine kinase

6. After the receptor is activated, _____ ion depolarizes the muscle fiber cell and travels through the _____.

- a. Ca^{2+} , Sarcoplasmic Reticulum
- b. Na^+ , T Tubules
- c. K^+ , Sarcomere
- d. Ca^{2+} , Sarcomere
- e. Na^+ , Sarcoplasmic Reticulum

7. _____ leaves the sarcoplasmic reticulum and binds to _____ in the sarcomere.

- a. Ca^{2+} , Troponin
- b. Na^+ , Tropomyosin
- c. K^+ , Myosin
- d. Ca^{2+} , Tropomyosin
- e. Na^+ , Troponin

8. _____ moves _____ off of the myosin binding sites on actin.

- a. Ca^{2+} , troponin
- b. Troponin, myosin
- c. Tropomyosin, troponin
- d. Myosin, troponin
- e. Troponin, tropomyosin

9. Thick Filament is made up of _____.

- a. Troponin
- b. Tropomyosin
- c. Actin
- d. Myosin
- e. ALL except d

10. Thin Filament is made up of _____.

- a. Troponin
- b. Tropomyosin
- c. Actin
- d. Myosin
- e. ALL except d

11. _____ Filament moves the _____ Filament

- a. Thin, Thick
- b. Thick, Thin

12. Once myosin binds to actin, _____ heads change shape and slide the _____. This is the sliding filament theory.

- a. actin, myosin
- b. troponin, myosin
- c. troponin, actin
- d. myosin, actin

13. _____ heads stay bound to actin until _____.

- a. troponin, more Ca^{2+} enters the cell
- b. myosin, more Ca^{2+} enters the cell
- c. tropomyosin, more Ach is released
- d. myosin, another ATP binds
- e. troponin, another depolarization event occurs

14. Each myosin head uses _____ to change shape.

- a. 1 Ca^{2+} ion
- b. 2 ADP molecules
- c. 2 ATP molecules
- d. 1 ATP molecule
- e. 1 Na^+ ion

15. Contraction of many sarcomeres results in shortening of the overall _____.

- a. Thick Filament
- b. Myofibril
- c. Motor Proteins
- d. Sarcoplasmic Reticulum
- e. Receptor

Please see the following page for answers .

ANSWER KEY

1. b

2. c

3. a

4. e

5. c

6. b

7. a

8. e

9. d

10. e

11. b

12. d

13. d

14. d

15. b