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 -> myofilbril

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

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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, mare 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

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