

Atom



Molecule



Cell



Tissue

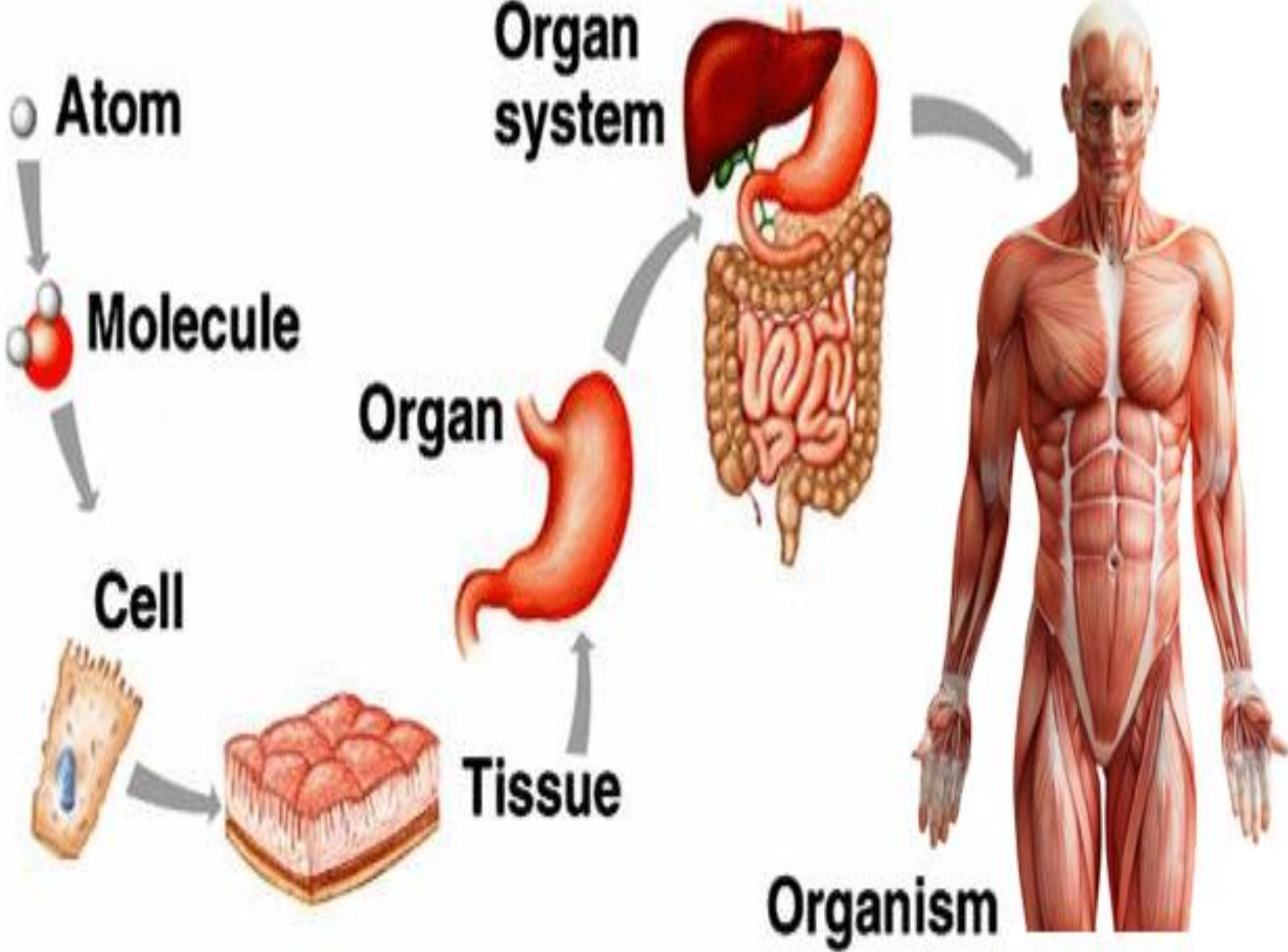
Organ

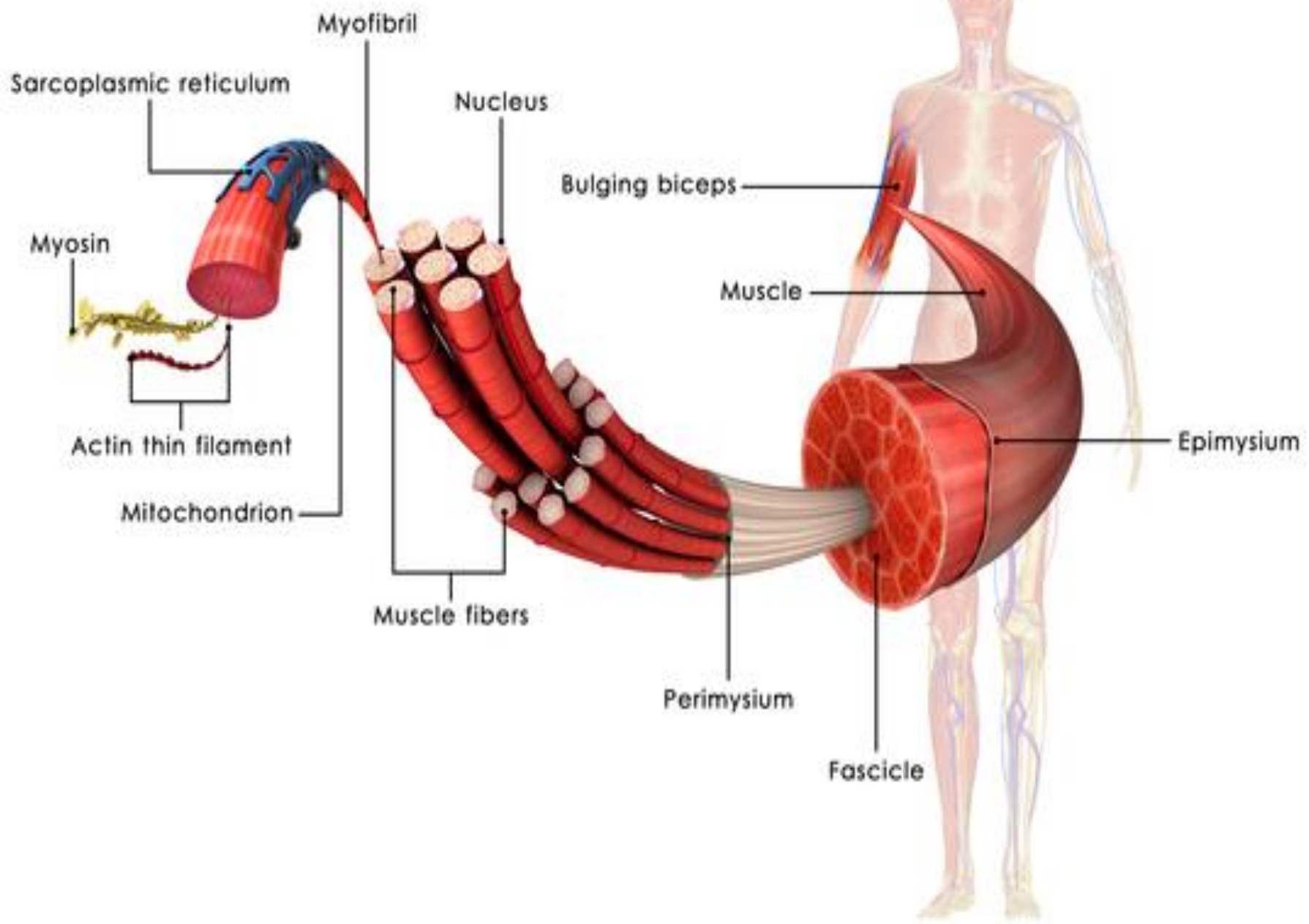


Organ system

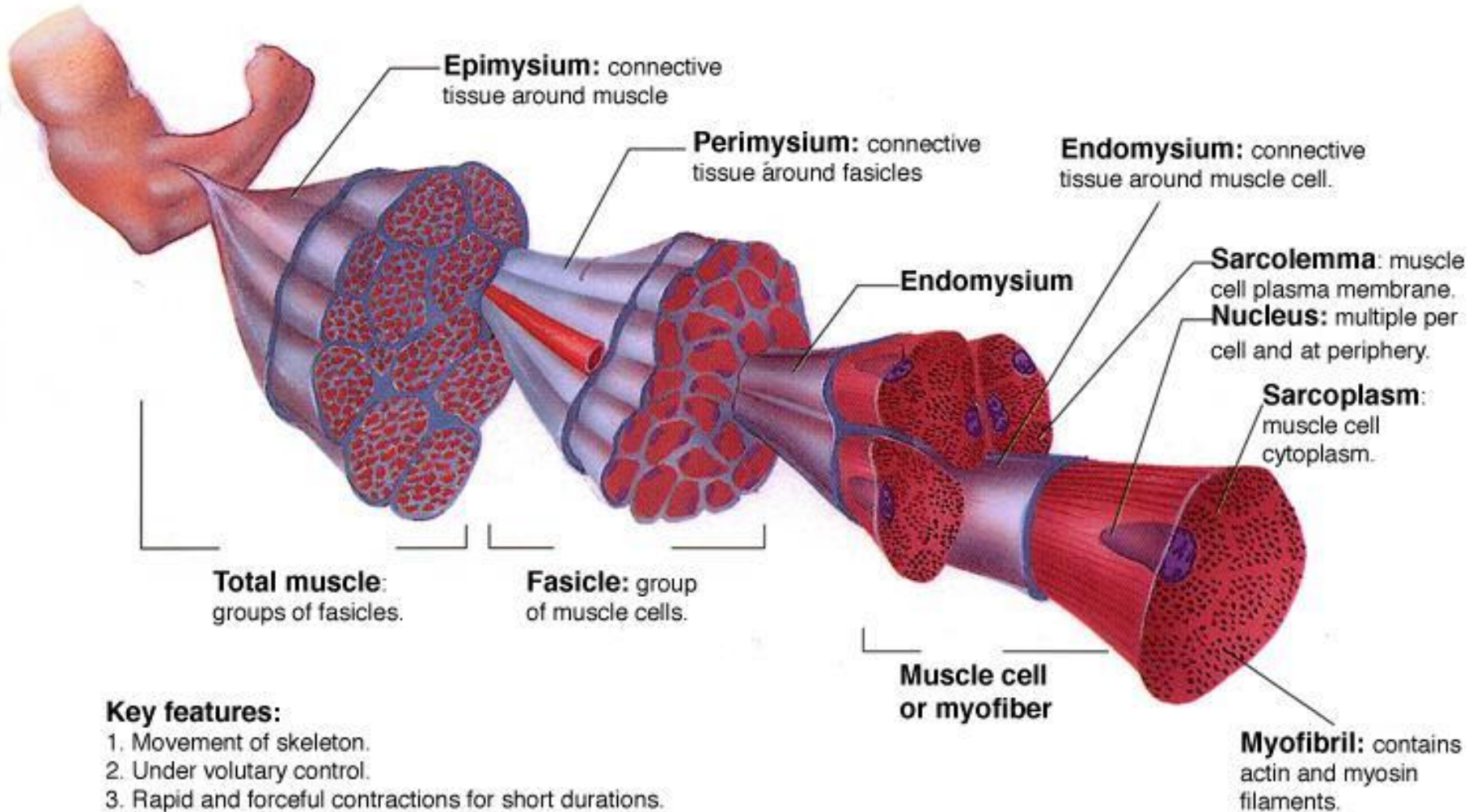


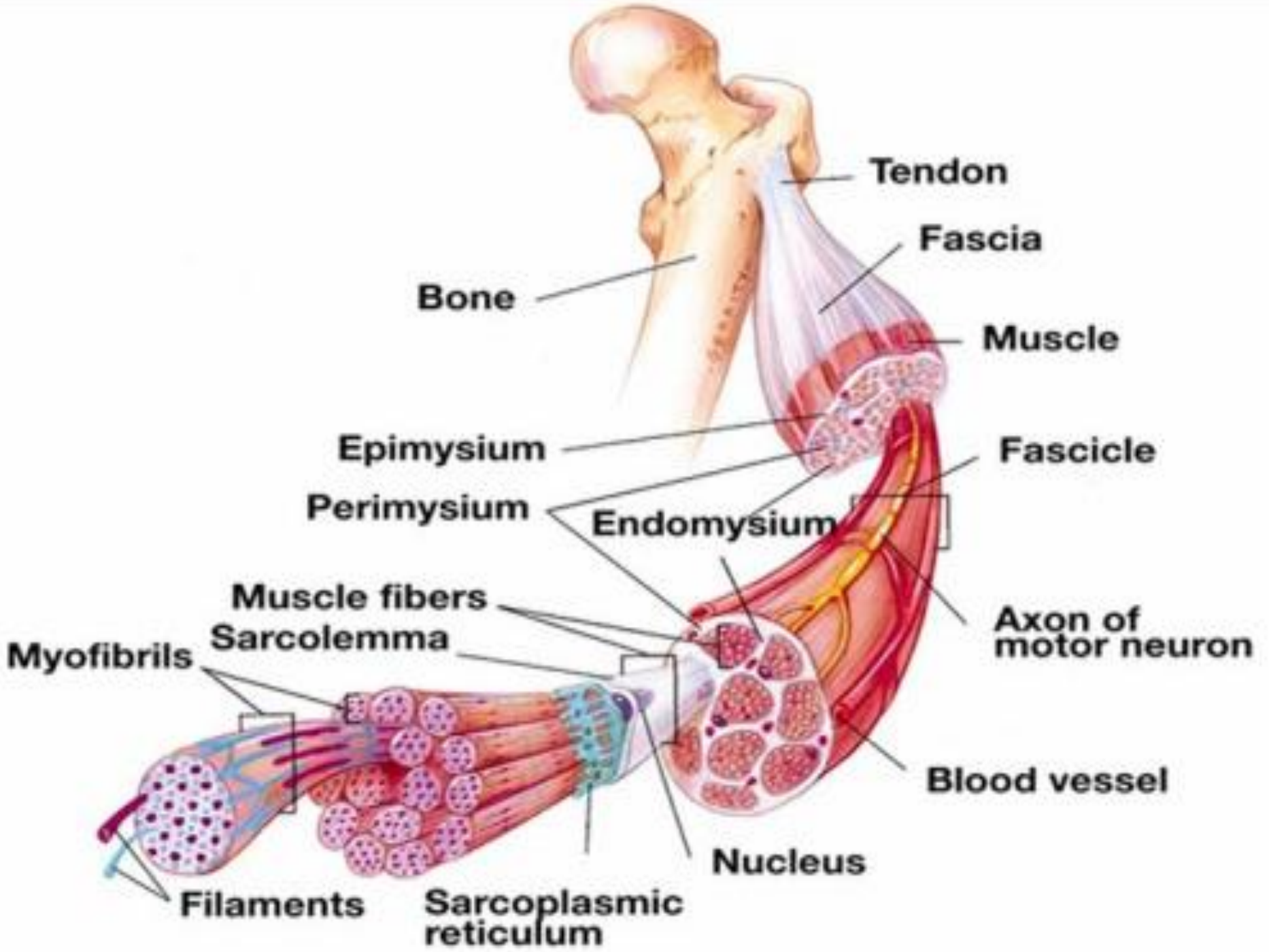
Organism



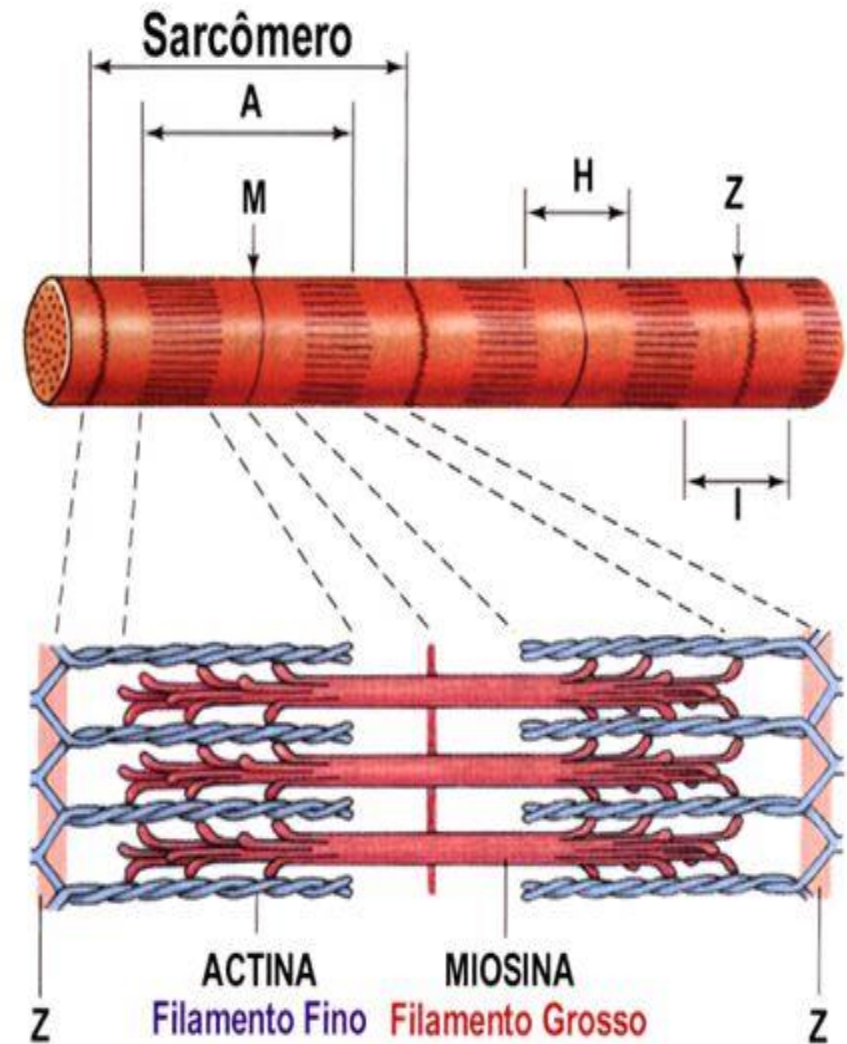


Skeletal Muscle

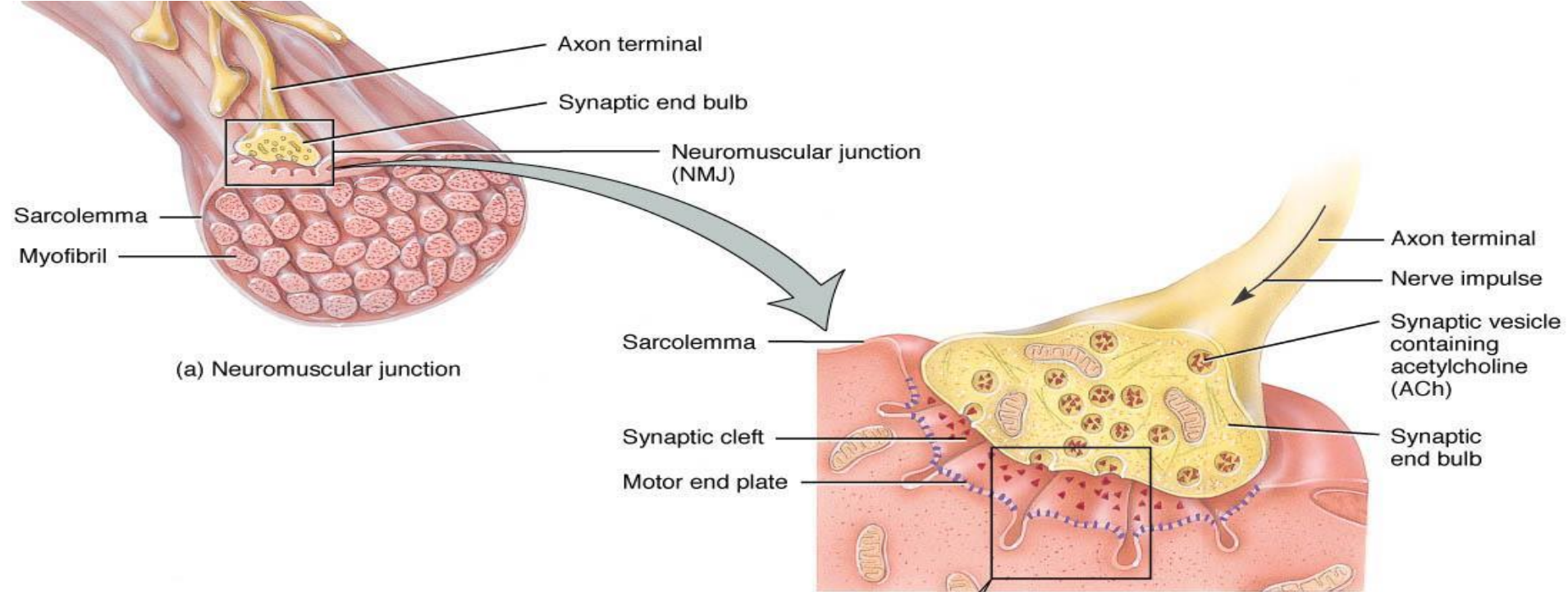




SARCÔMERO: unidade contrátil da fibra muscular

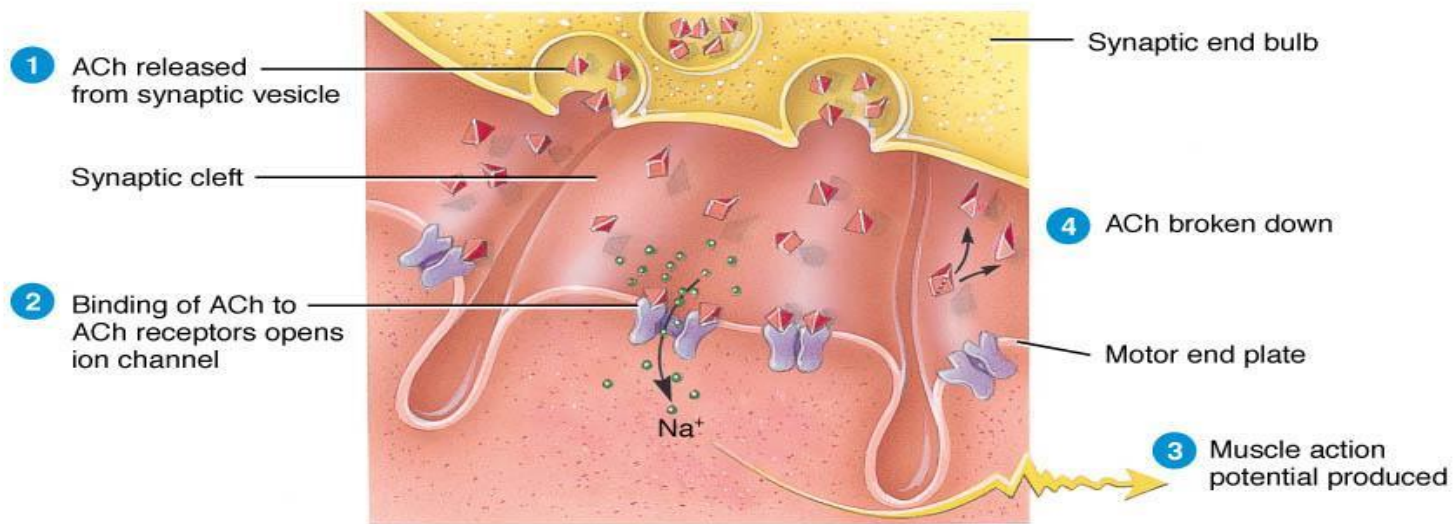


Os filamentos finos deslizam-se sobre os grossos na presença de Ca.

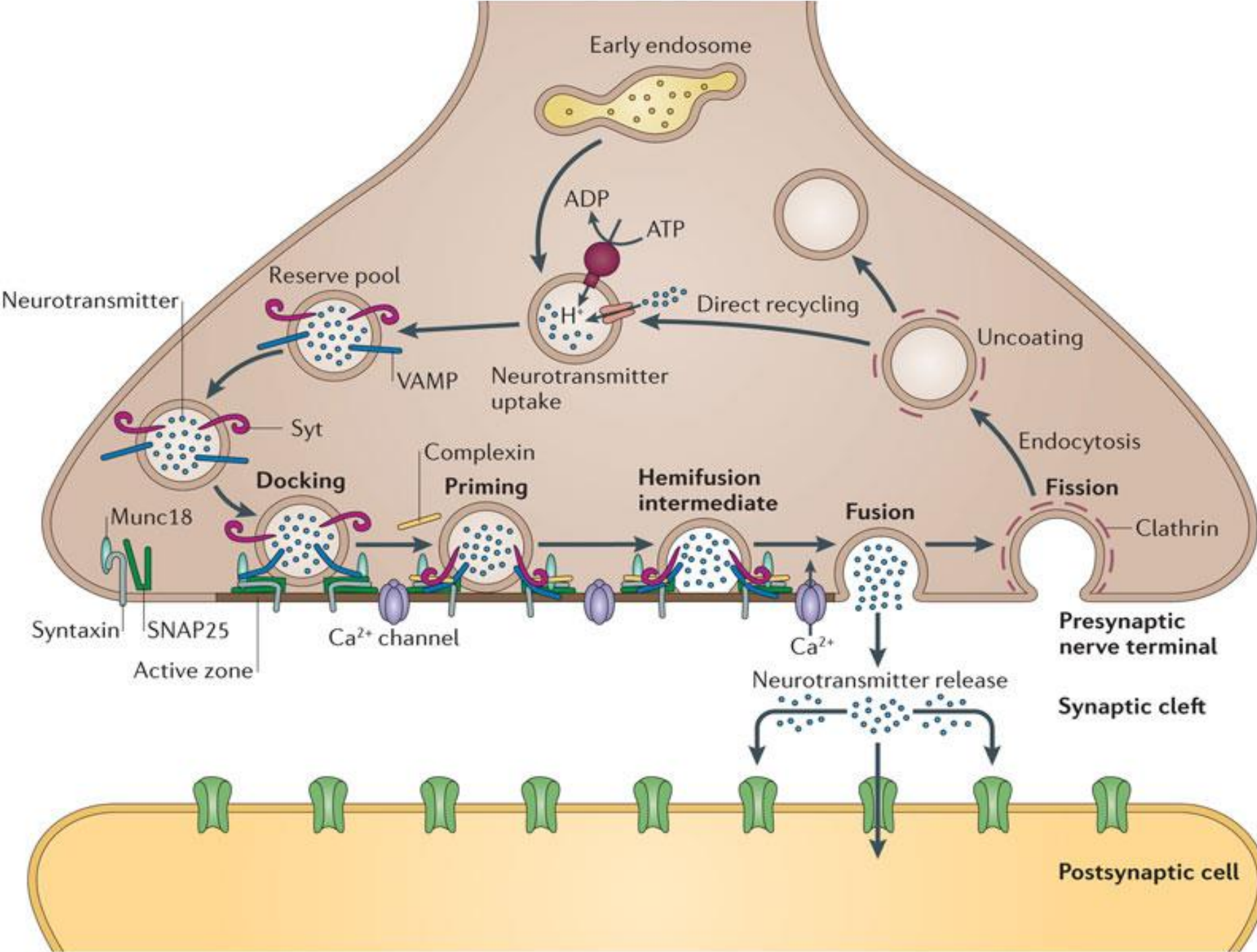


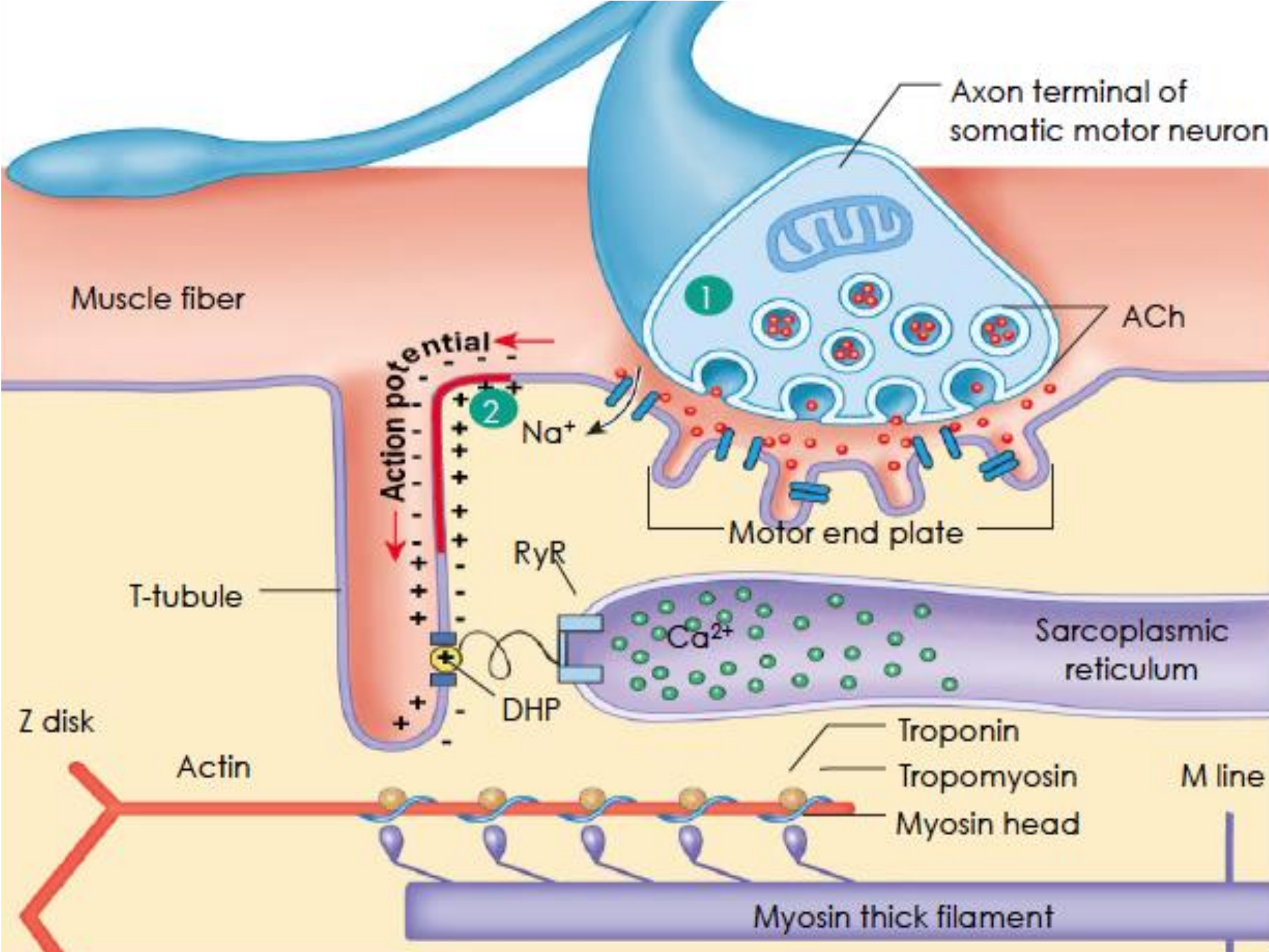
(a) Neuromuscular junction

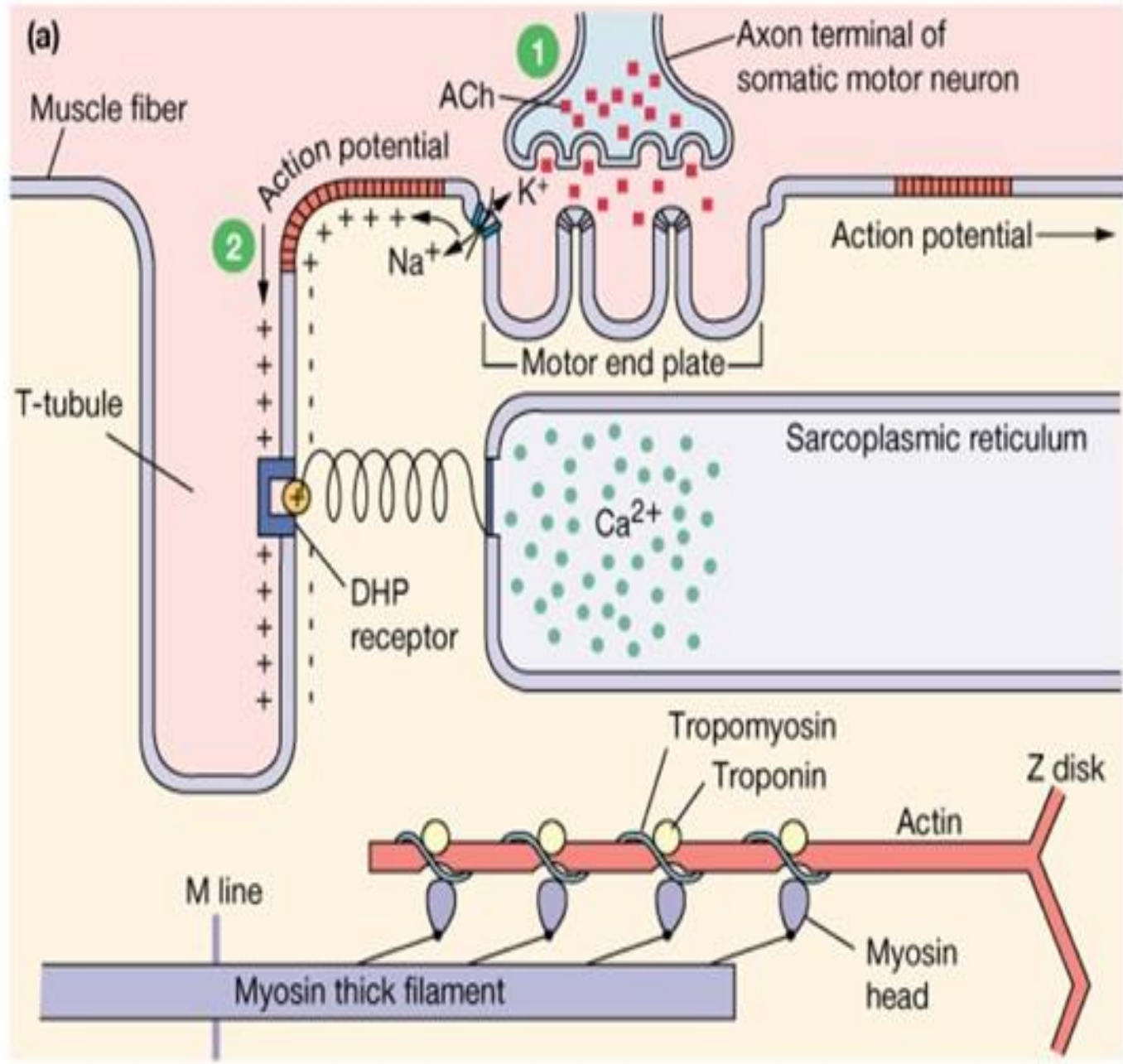
(b) Enlarged view of the neuromuscular junction



(c) Binding of acetylcholine to ACh receptors in the motor end plate

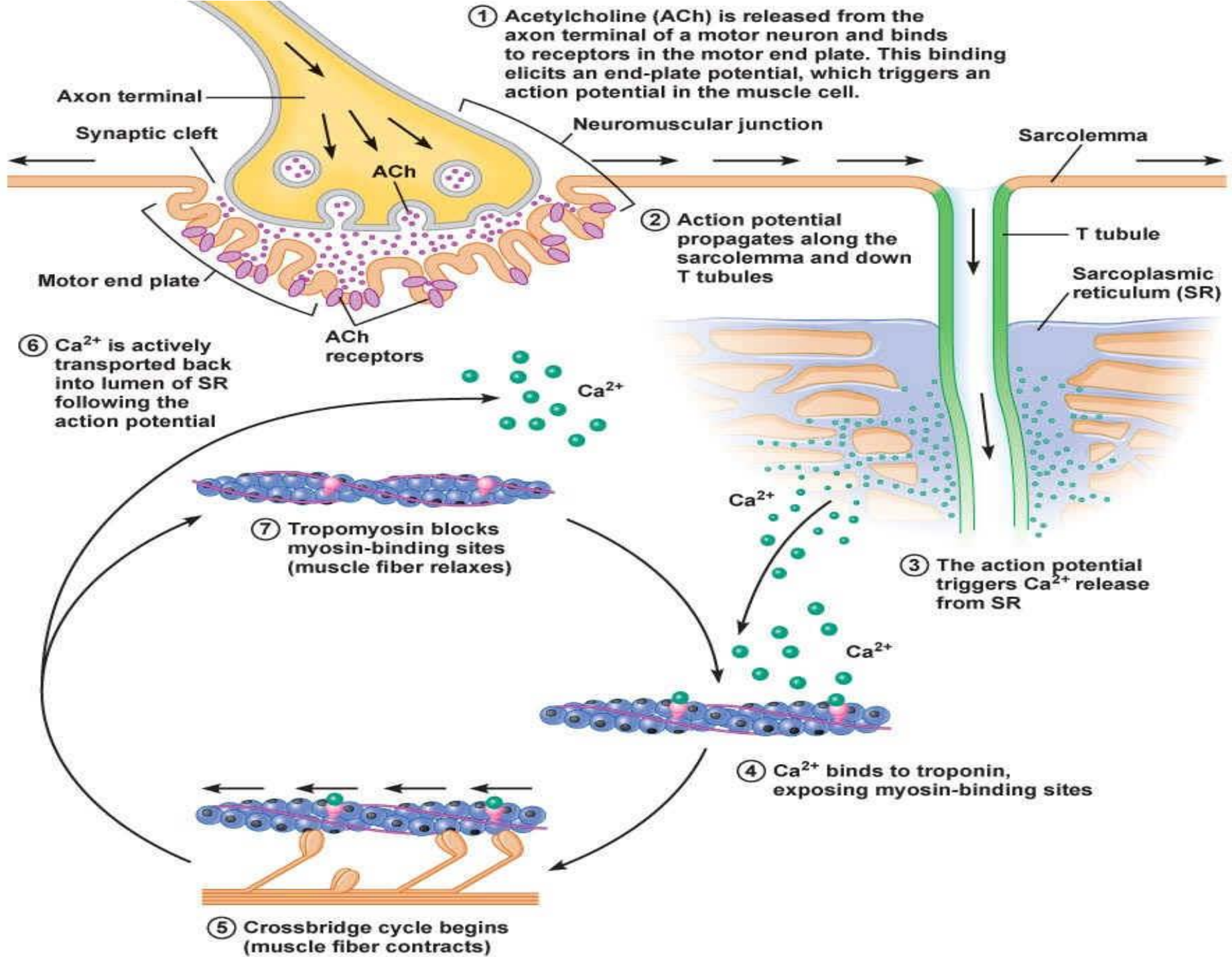


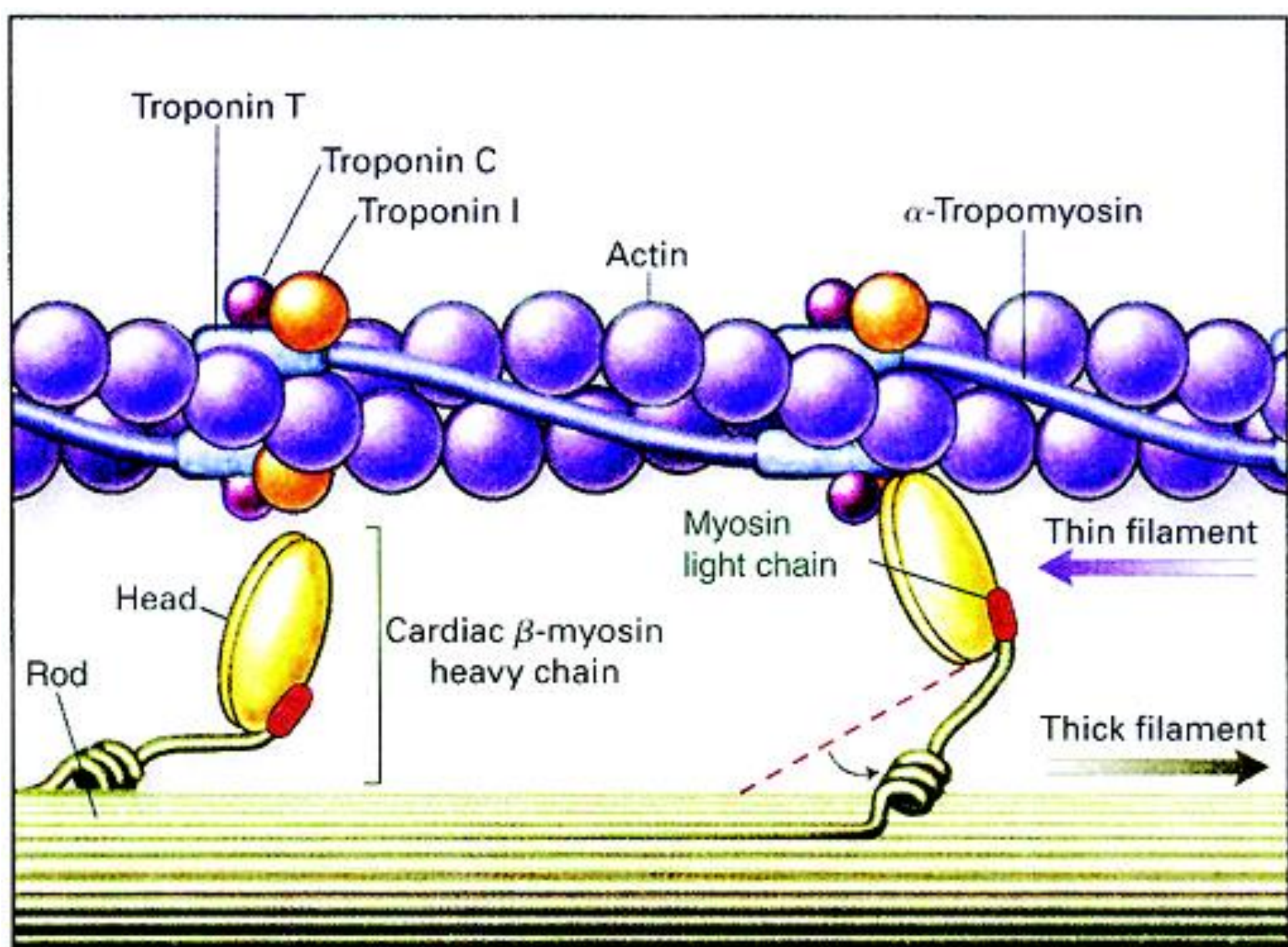




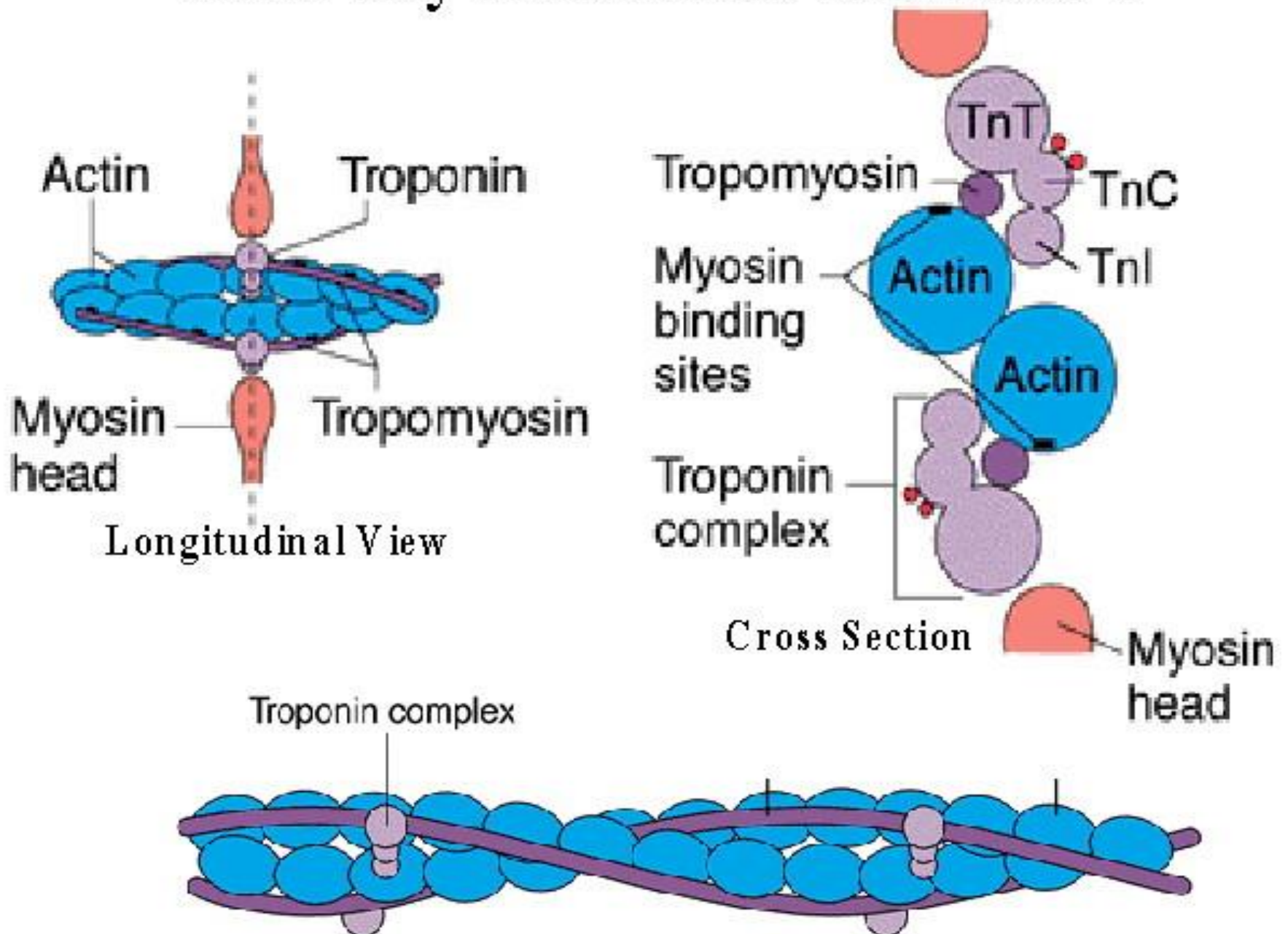
1 Somatic motor neuron releases ACh at neuromuscular junction.

2 Net entry of Na⁺ through ACh receptor-channel initiates a muscle action potential.

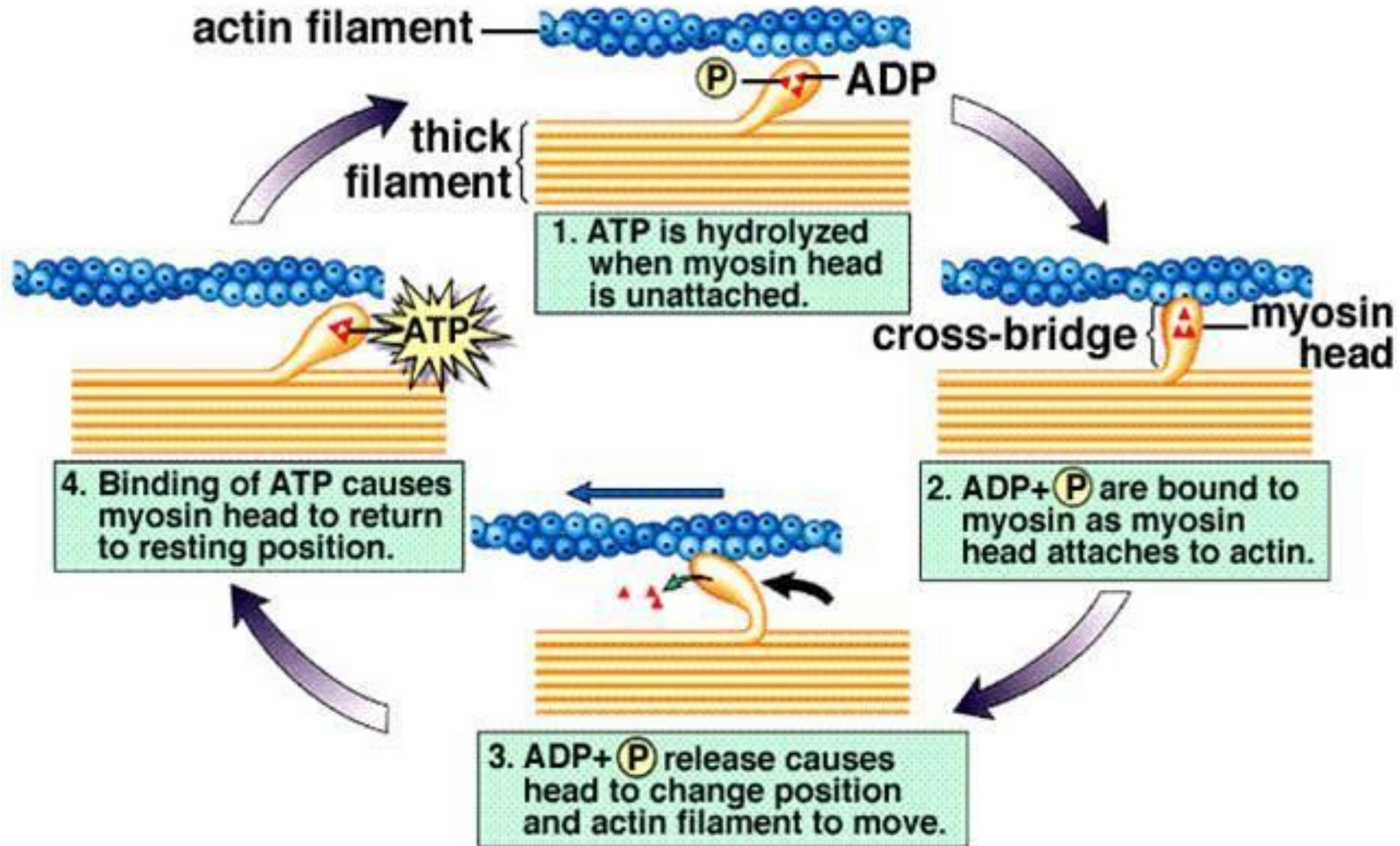




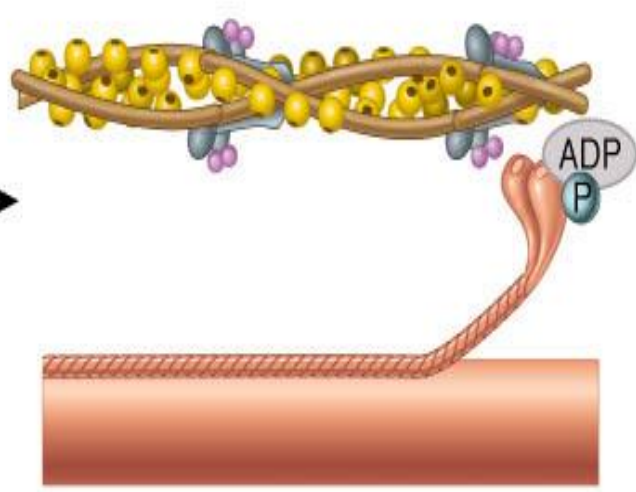
Thin Myofilament Structure



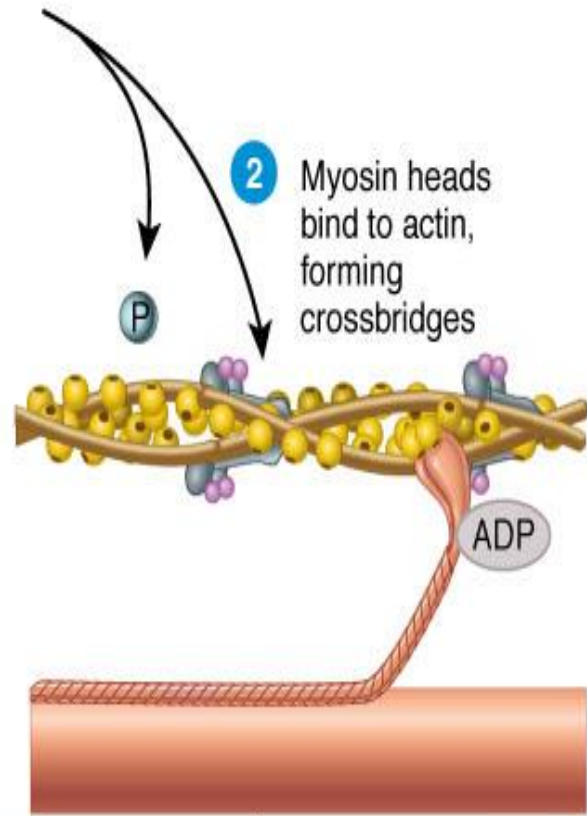
Role of Calcium and Myosin (2)



1 Myosin heads split ATP and become reoriented and energized

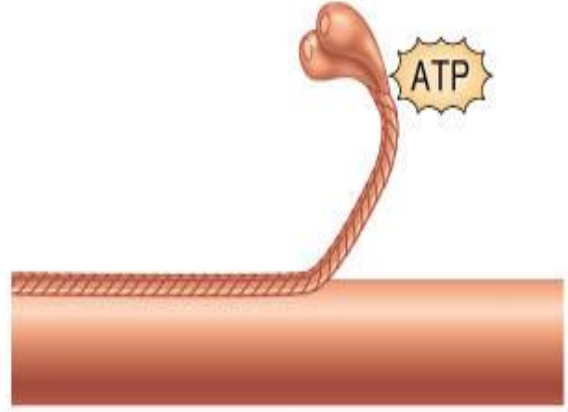


2 Myosin heads bind to actin, forming crossbridges

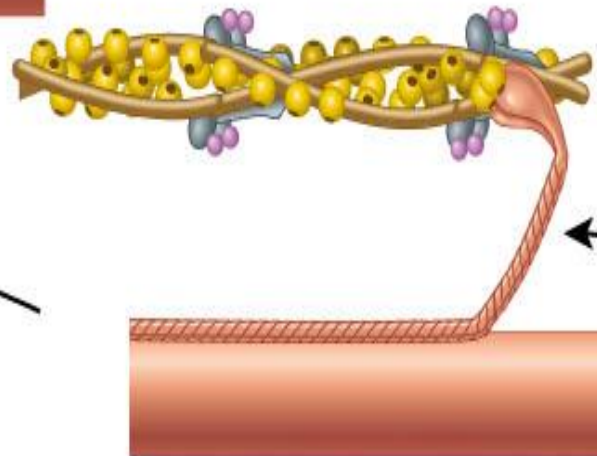


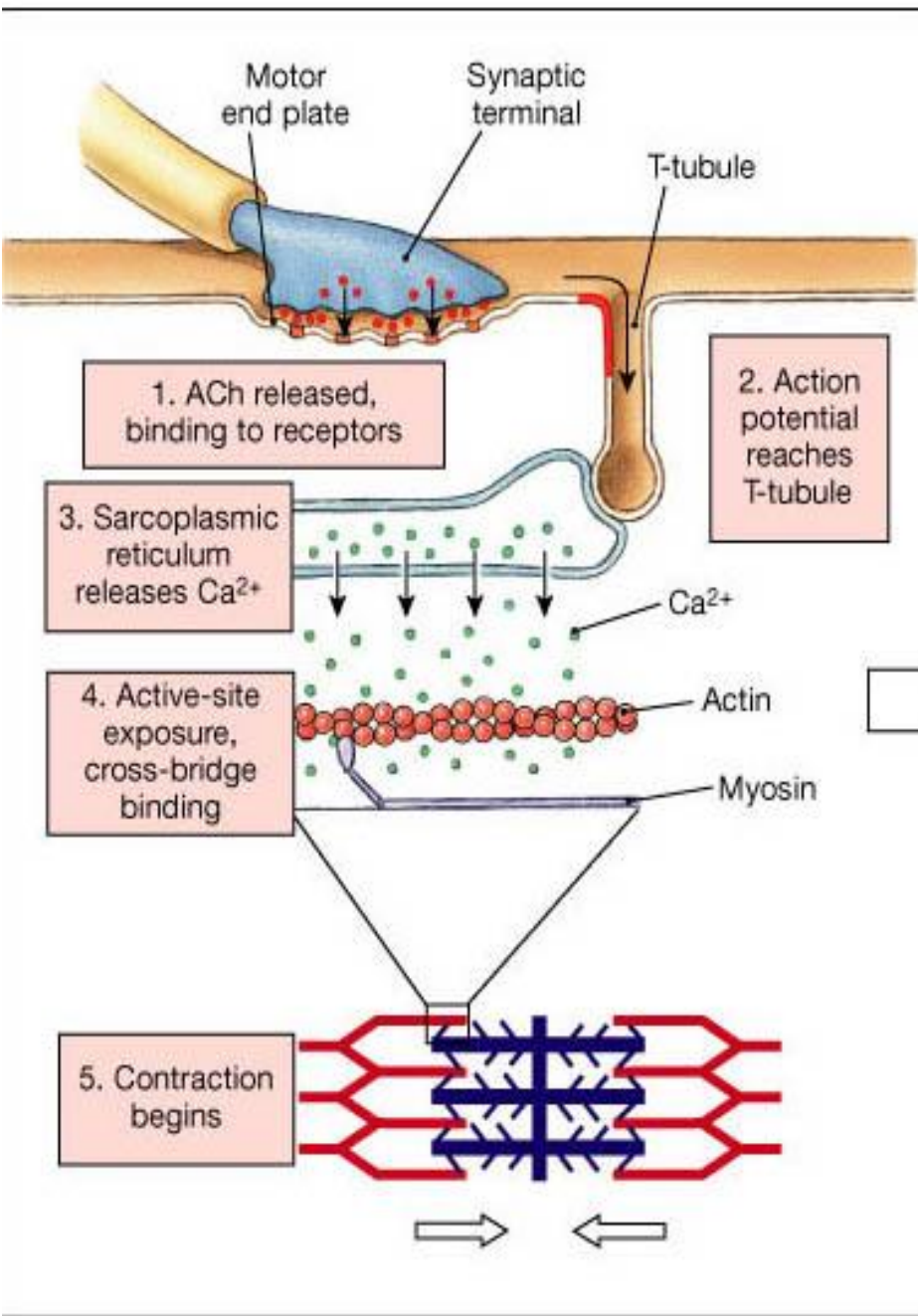
Contraction cycle continues if ATP is available and Ca^{2+} level in the sarcoplasm is high

4 As myosin heads bind ATP, the crossbridges detach from actin

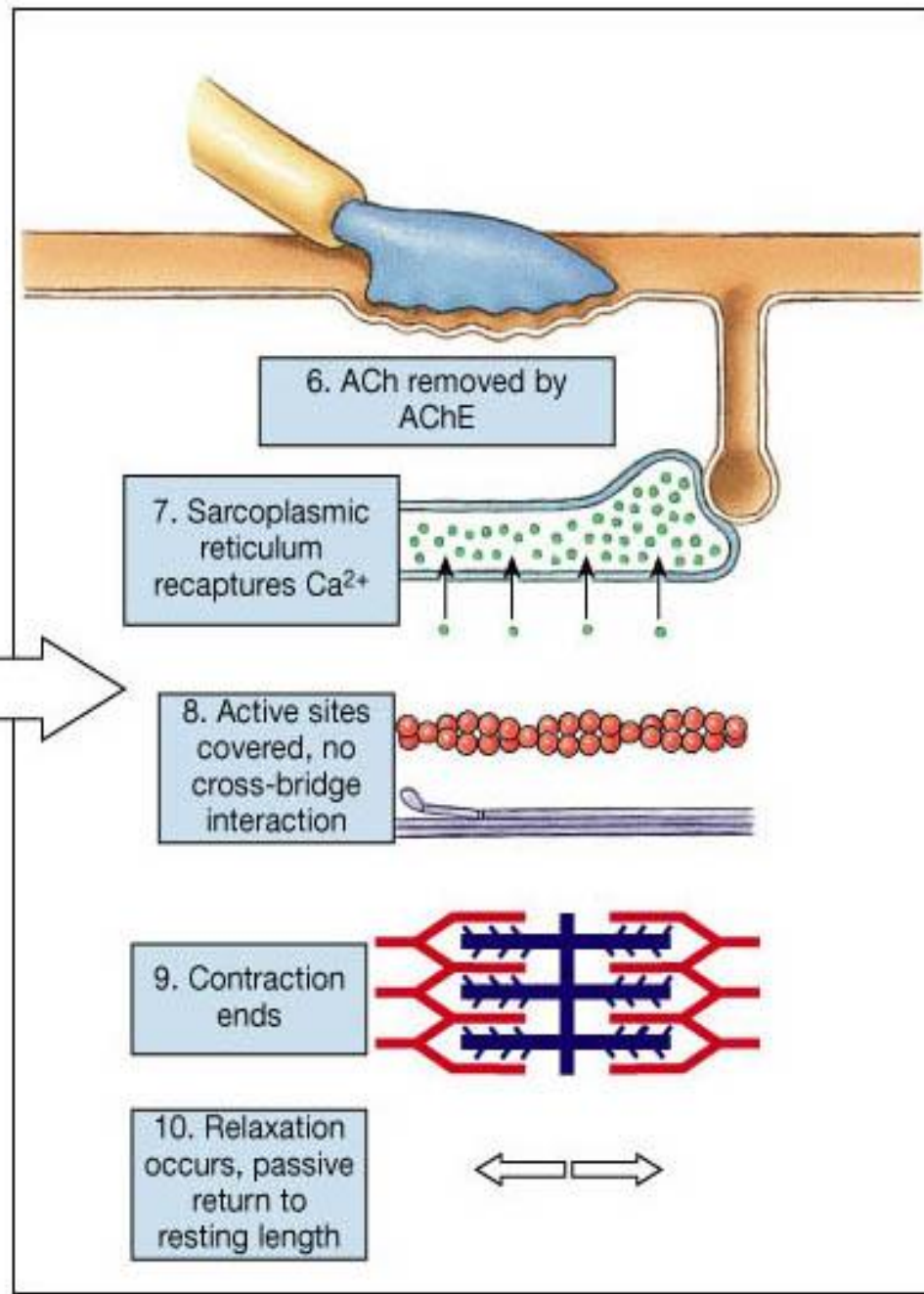


3 Myosin heads rotate toward center of the sarcomere (power stroke)





Steps in the initiation of a contraction



Steps that end the contraction

