

MEDICAL B I O L O G Y

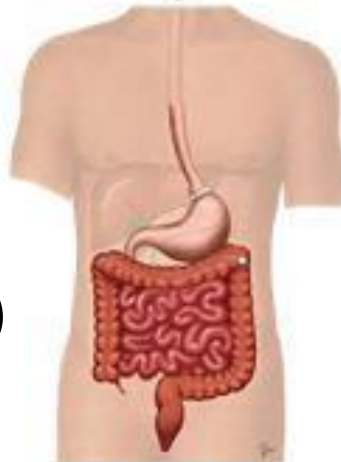
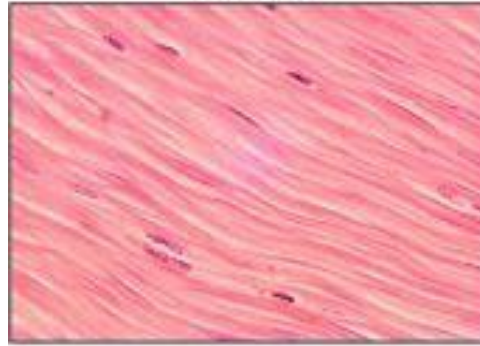
MUSCLE TISSUE

Prepared by Assist. Prof. Dr. Khalida I. Noel
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- Body movement
- contraction
- Mesoderm(except myoep.)

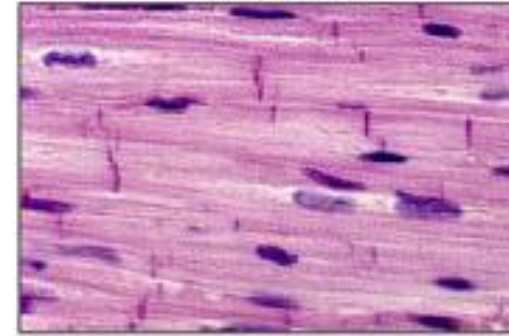
Muscle cell cytoplasm = sarcoplasm
Smooth ER = sarcoplasmic reticulum (SR)
Cell membrane = sarcolemma
muscle cells = myocytes

Smooth Muscle
Tissue



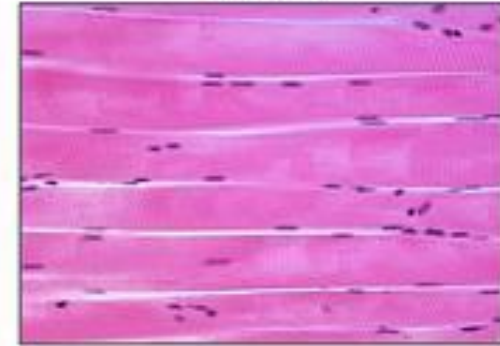
Involuntary
Control

Cardiac Muscle
Tissue



Involuntary
Control

Skeletal Muscle
Tissue



Voluntary
Control

Skeletal Muscle

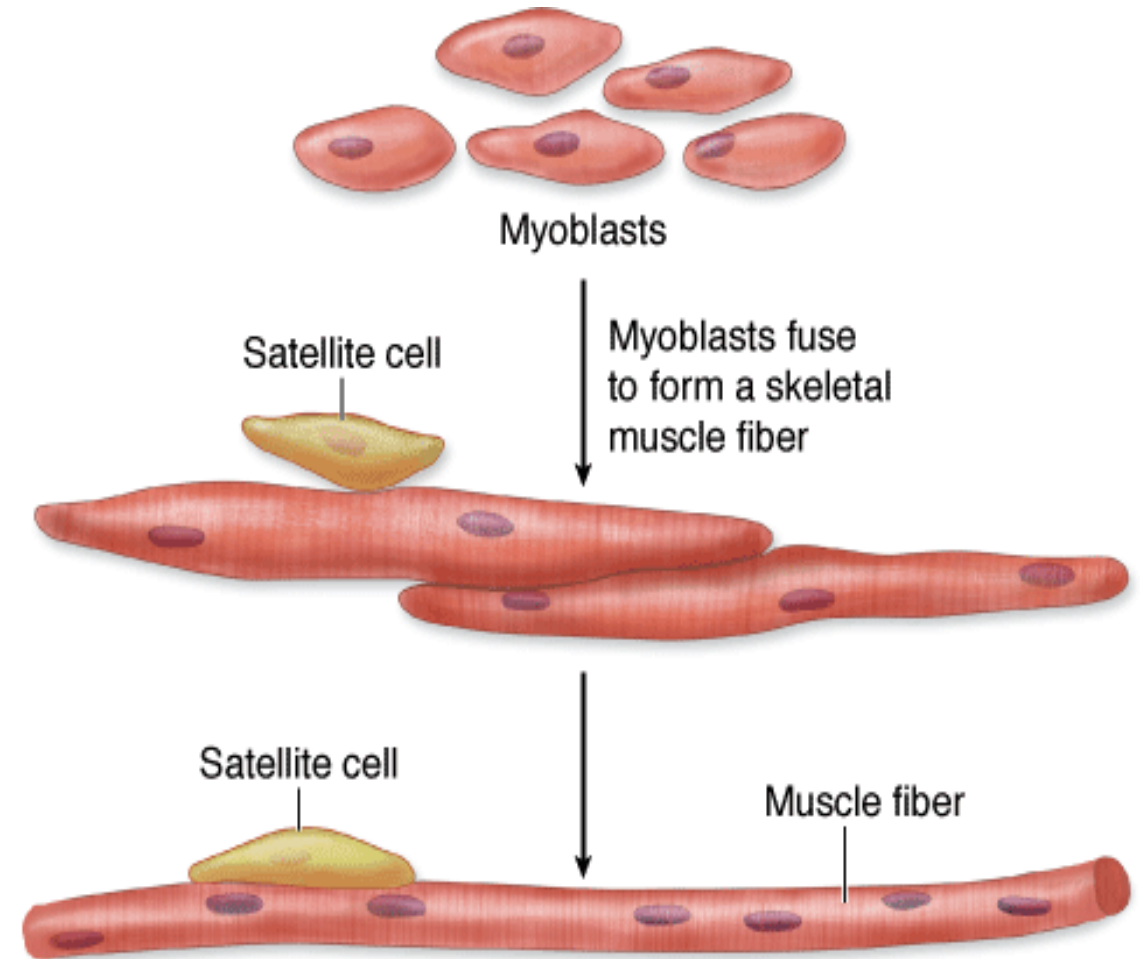
Mesodermal cells $\longrightarrow$ myoblasts $\longrightarrow$

myotubes $\longrightarrow$ myofibers

Syncytia

Satellite cells

Some Myoblasts do not fuse $\Rightarrow$ satellite cells in endomysium
 $\downarrow$
regeneration of muscle



Skeletal Muscle

muscle

epimysium



fascicle

perimysium



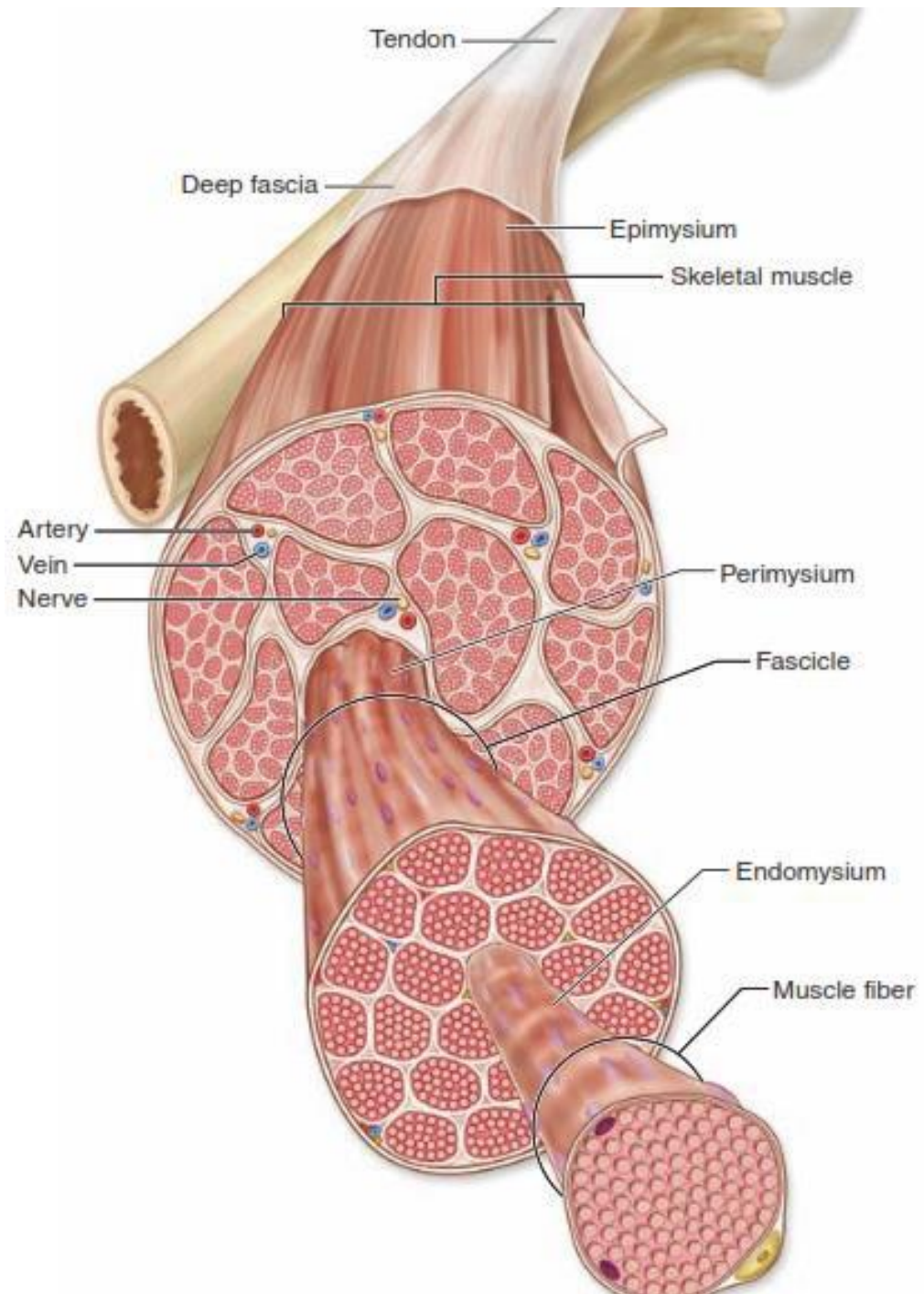
Muscle fiber
(Myocyte)

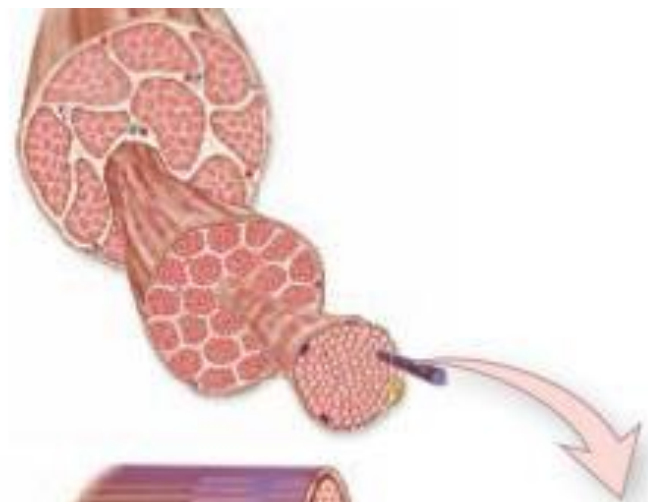
endomysium

Tendon of origin

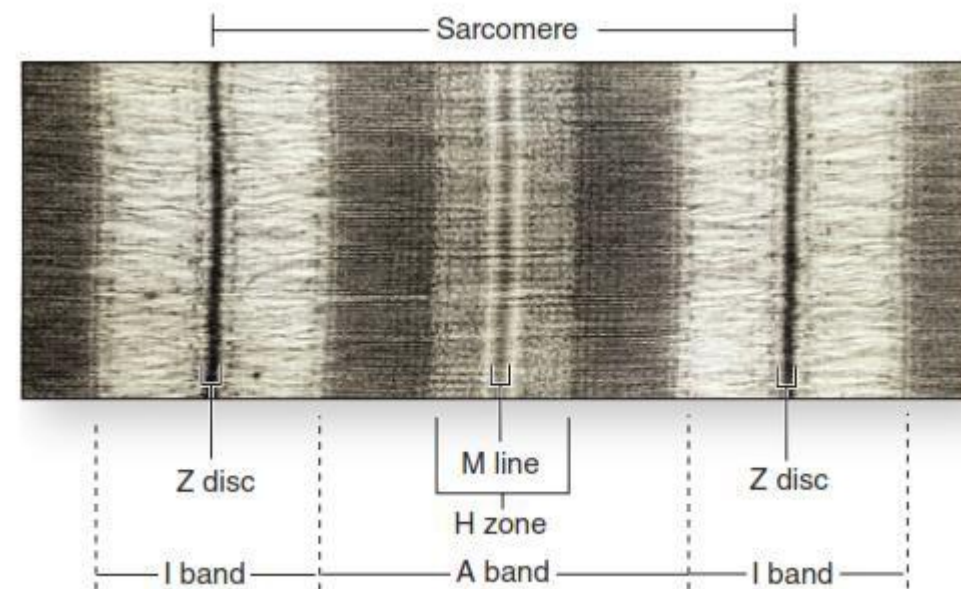
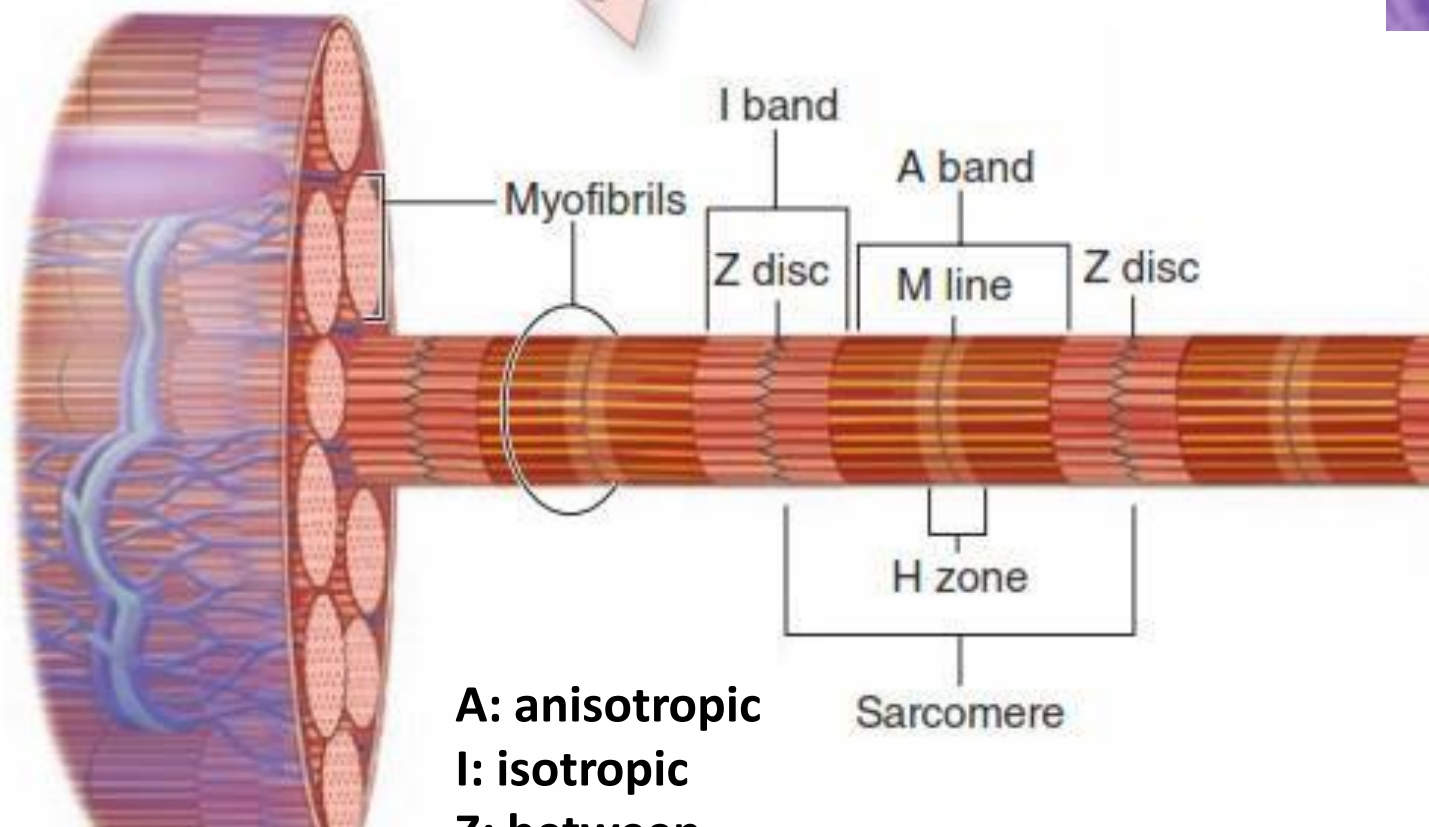
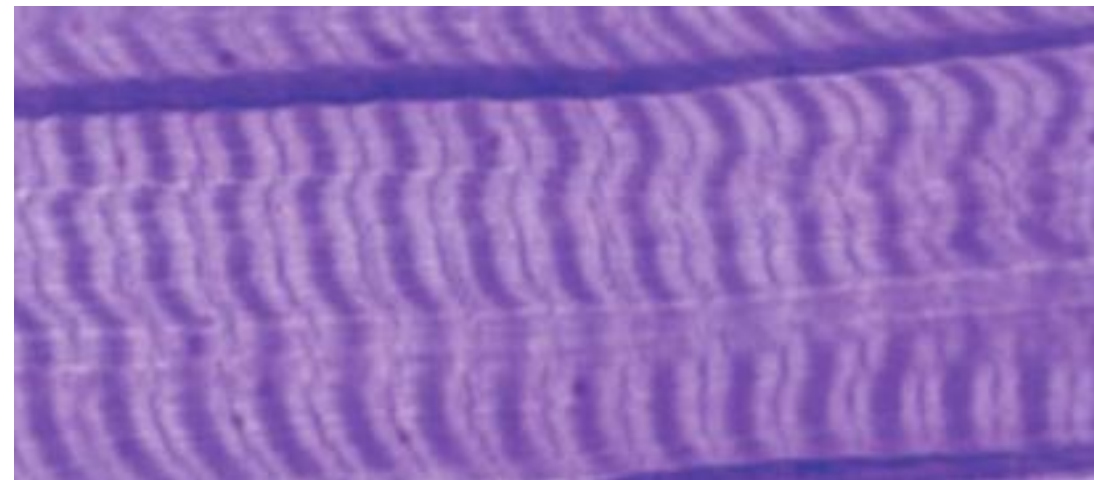
Tendon of insertion

Aponeurosis





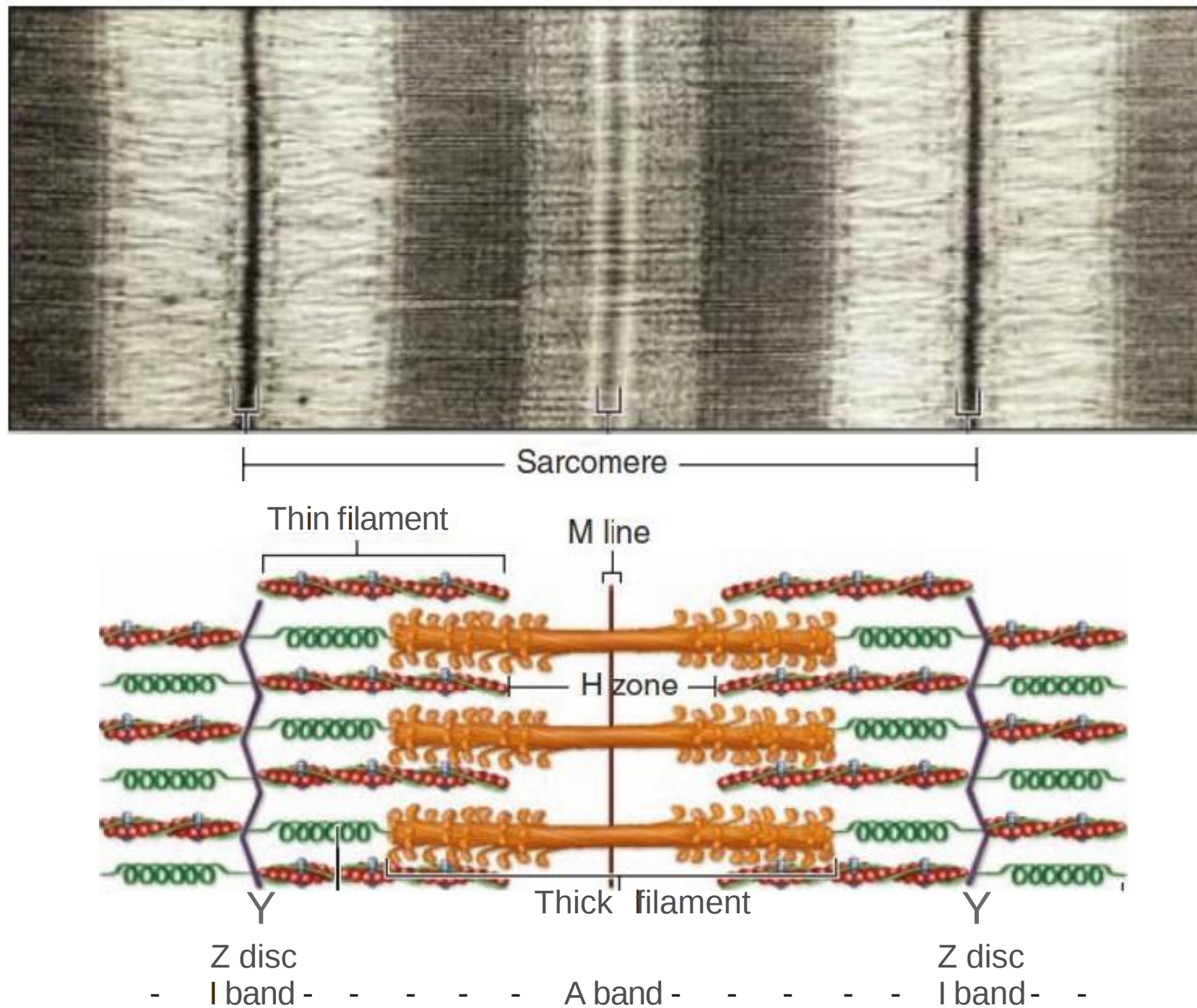
Muscle
fiber
(Myocyte)
↓
Myofibril
↓
Myofilament

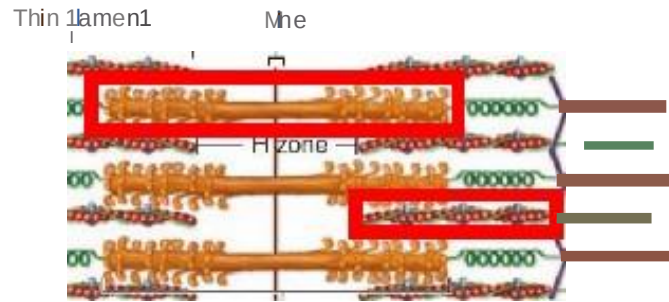


Sarcomere

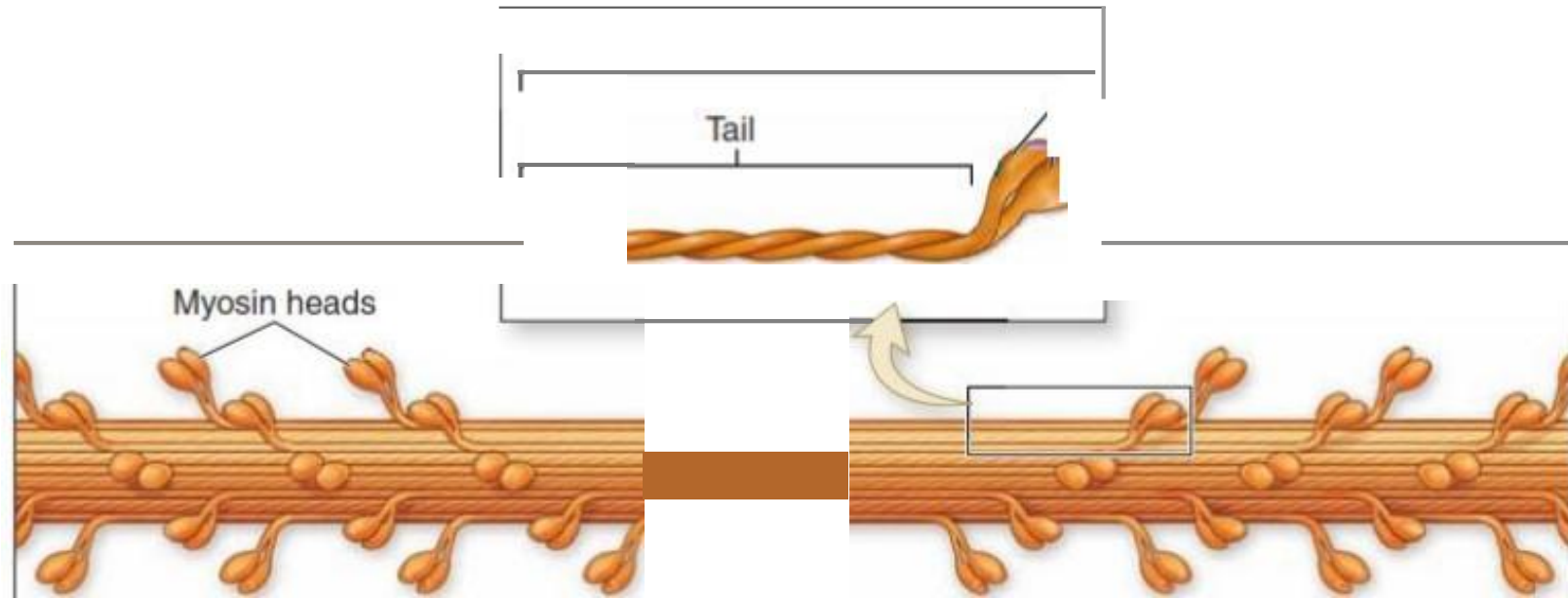
sarco-: flesh
-meros: parts

myofilaments



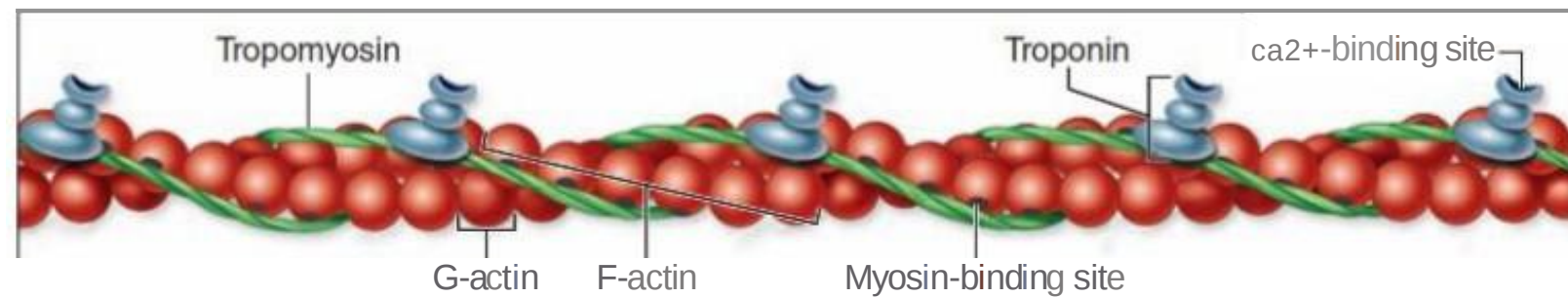


Myosin



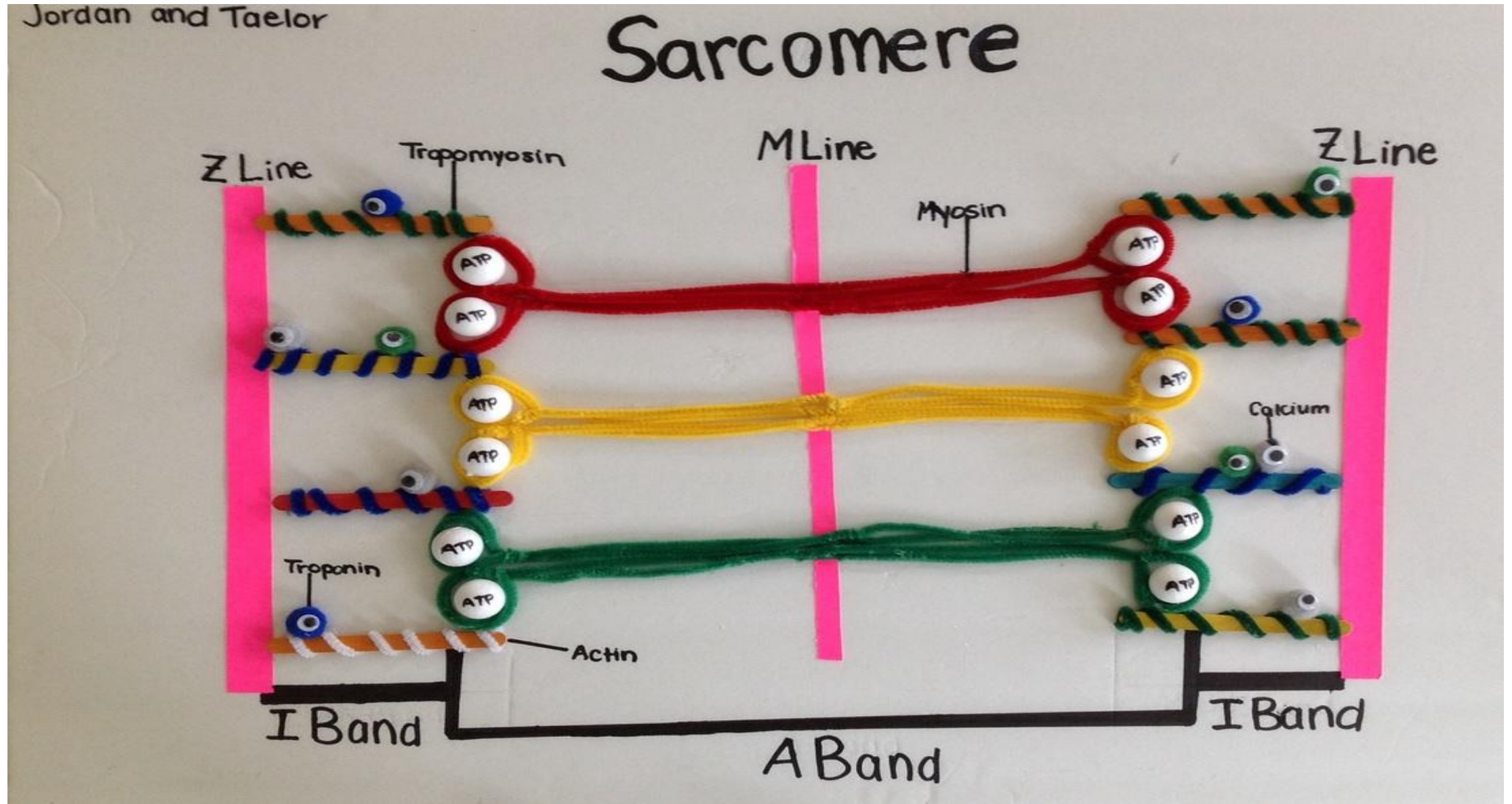
a Thick filament

Actin
Tropomyosin
Troponin



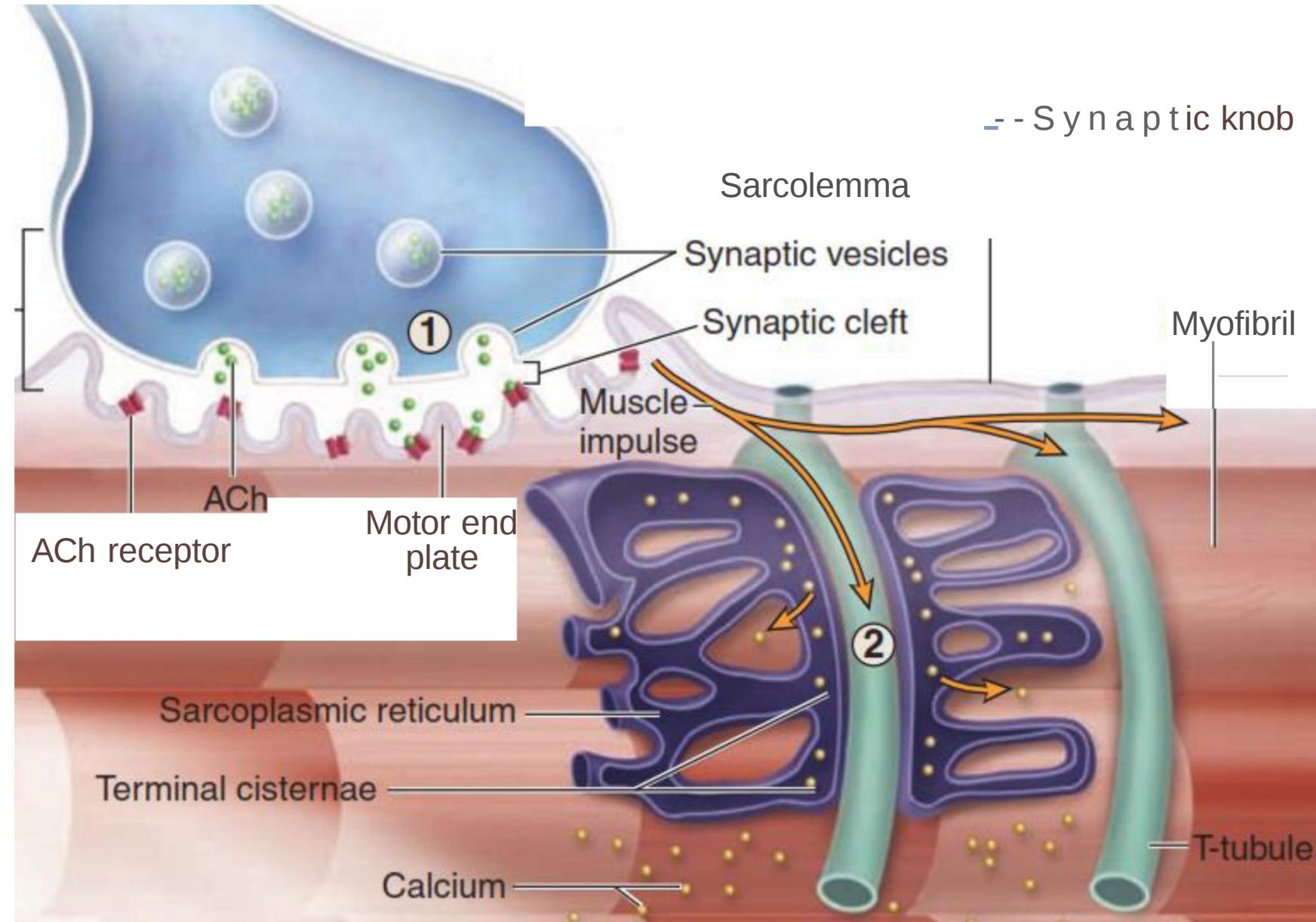
b Thin filament

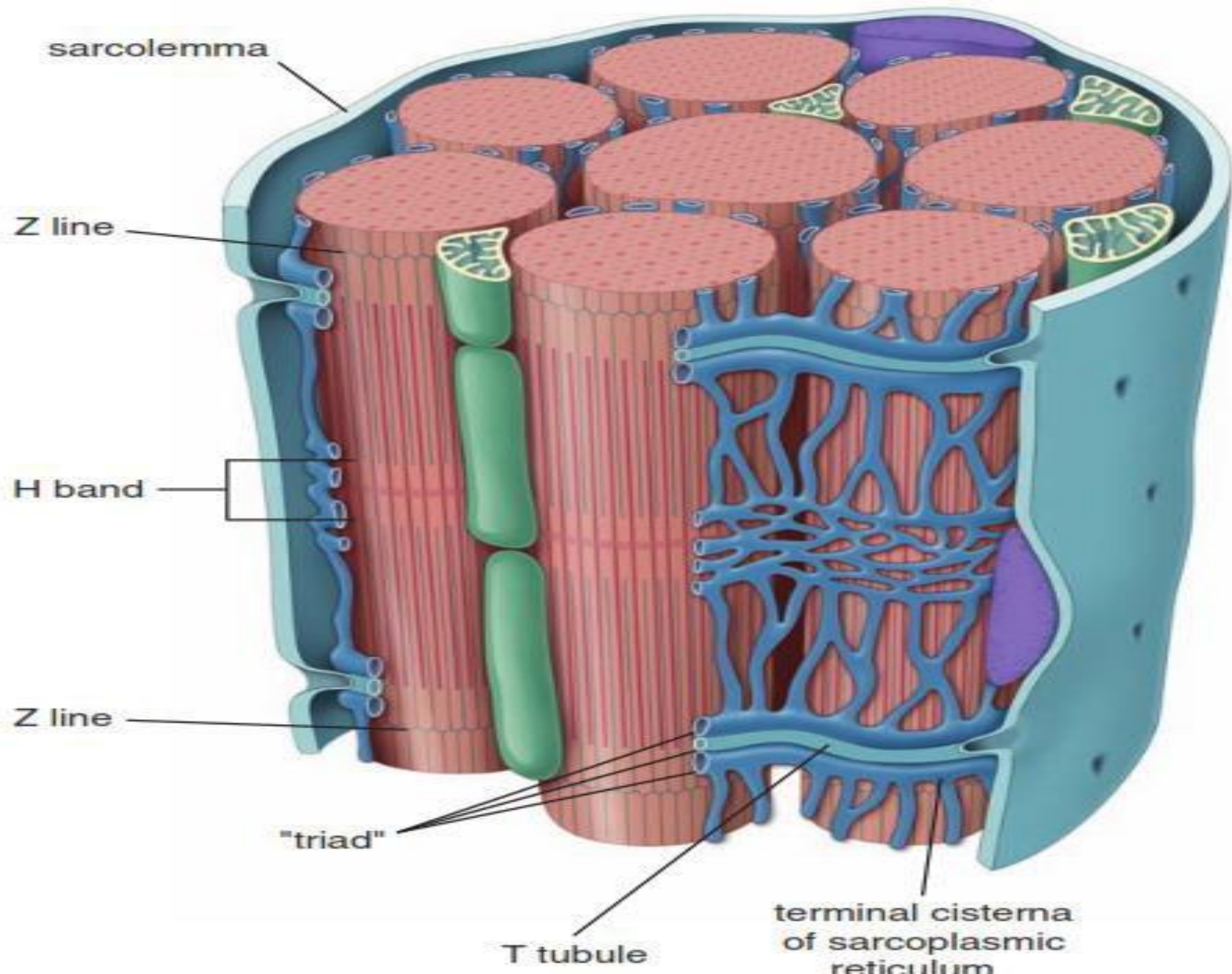
Contraction mechanism



Sarcoplasmic system of tubules

reticulum & transverse tubule system T-





Other components of the sarcoplasm

- ☐ **Glycogen**
- ☐ **Mitochondria**
- ☐ **Myoglobin**
- ☐ **Little RER**
- ☐ **lipofuscin**

Muscle Contraction



in 60 seconds

Thank you