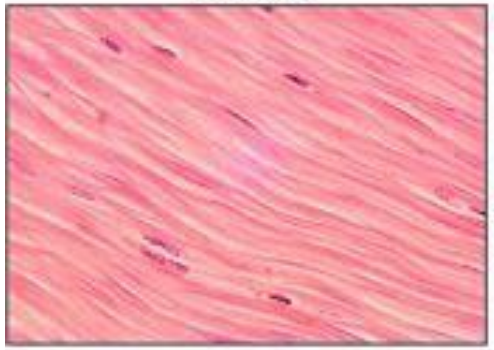
Medical Biology

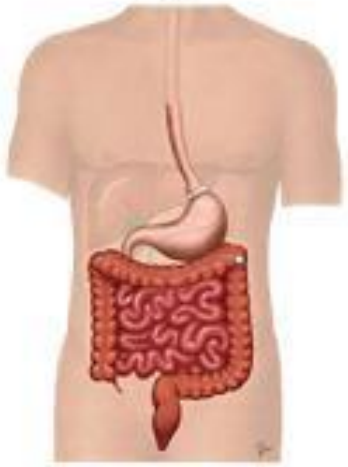
MUSCLE TISSUE

- Body movement
- contraction
- Mesoderm(except myoep.)

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

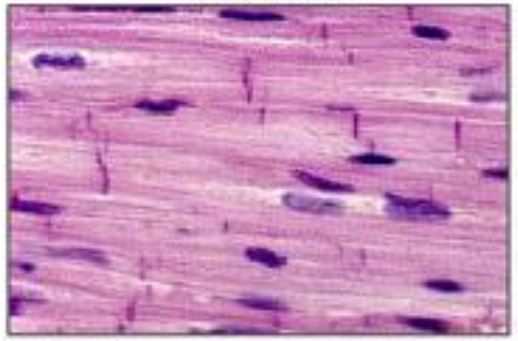
Smooth Muscle Tissue





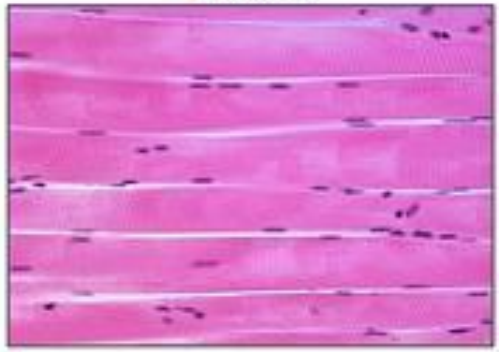
Involuntary Control

Cardiac Muscle Tissue



Involuntary Control

Skeletal Muscle Tissue

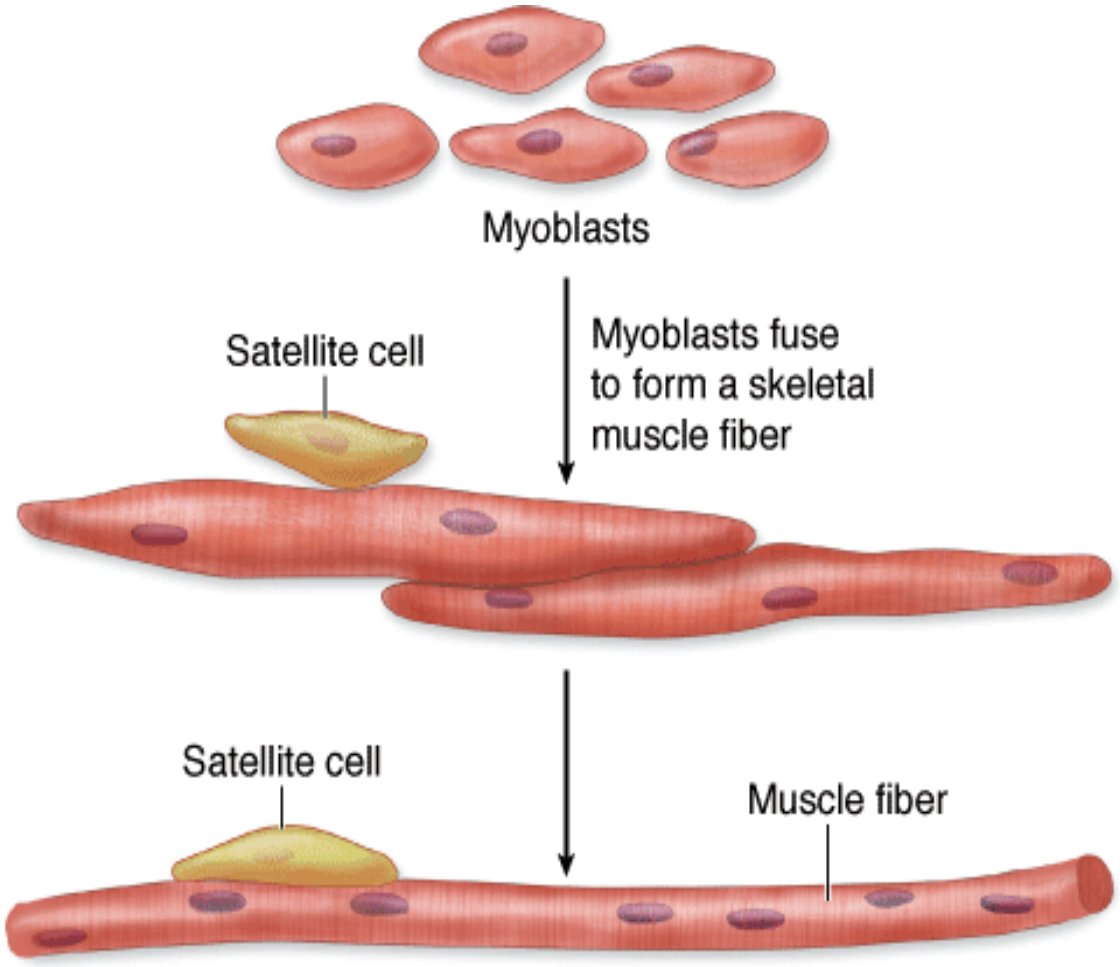


Voluntary Control

Skeletal Muscle

Mesodermal cells → myoblasts →
myotubes → myofibers
Syncytia
Satellite cells

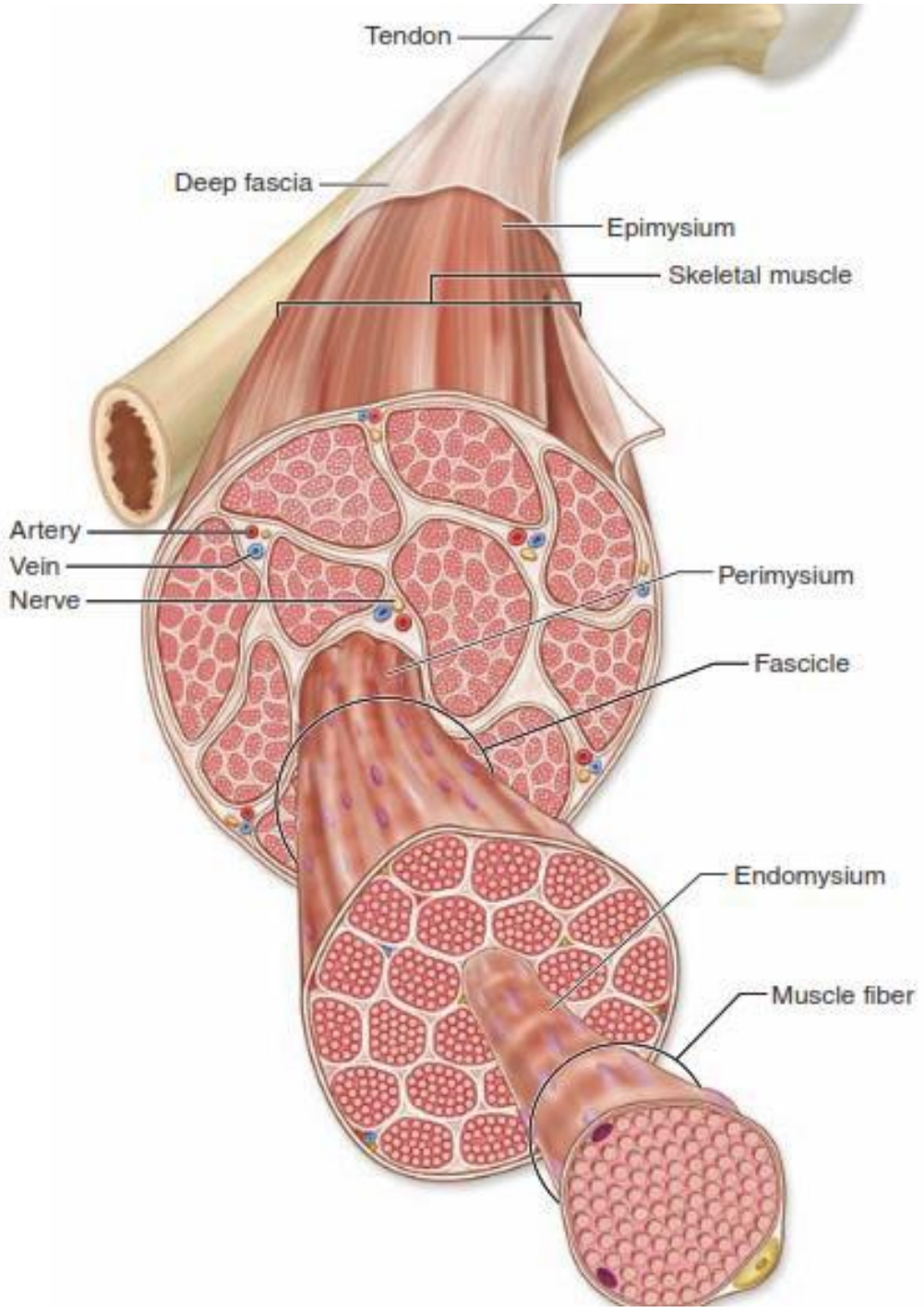
Some Myoblasts do not fuse ⇨ satelite cells in endomysium ⇩ regeneration of muscle



Skeletal Muscle

muscle	epimysium
⇩	
fascicle	perimysium
⇩	
Muscle fiber (Myocyte)	endomysium

Tendon of origin
Tendon of insertion
Aponeurosis



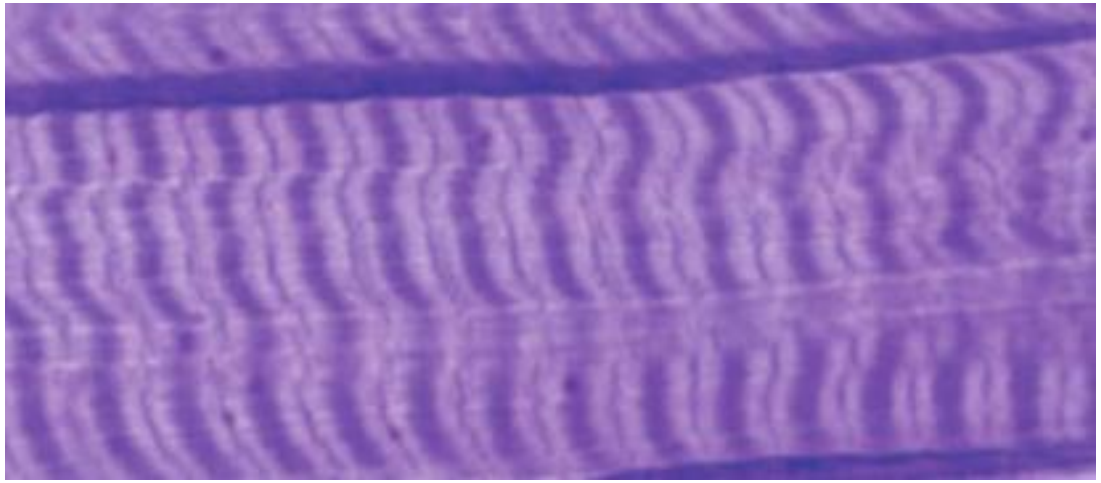
Muscle
fiber
(Myocyte)

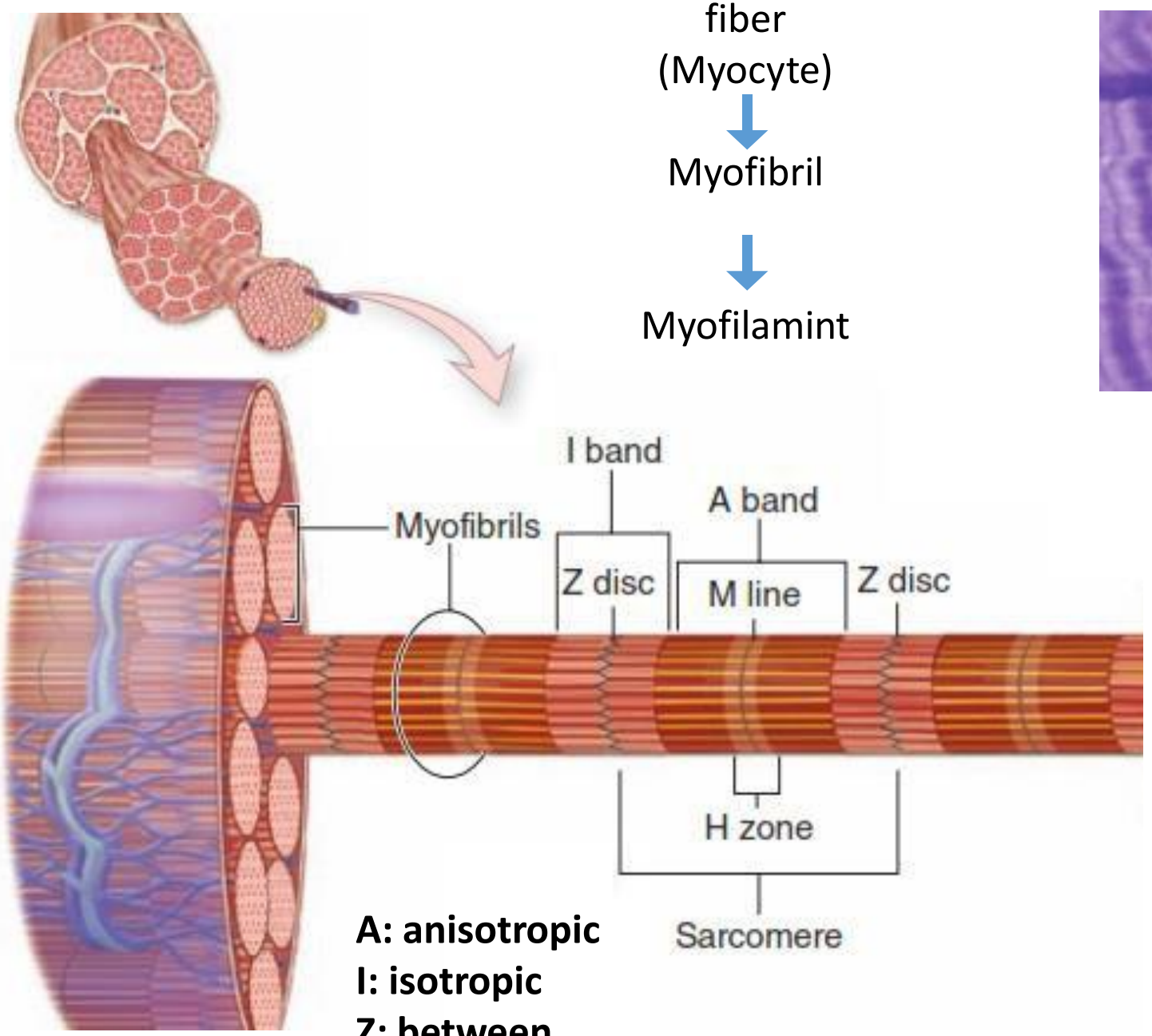
↓

Myofibril

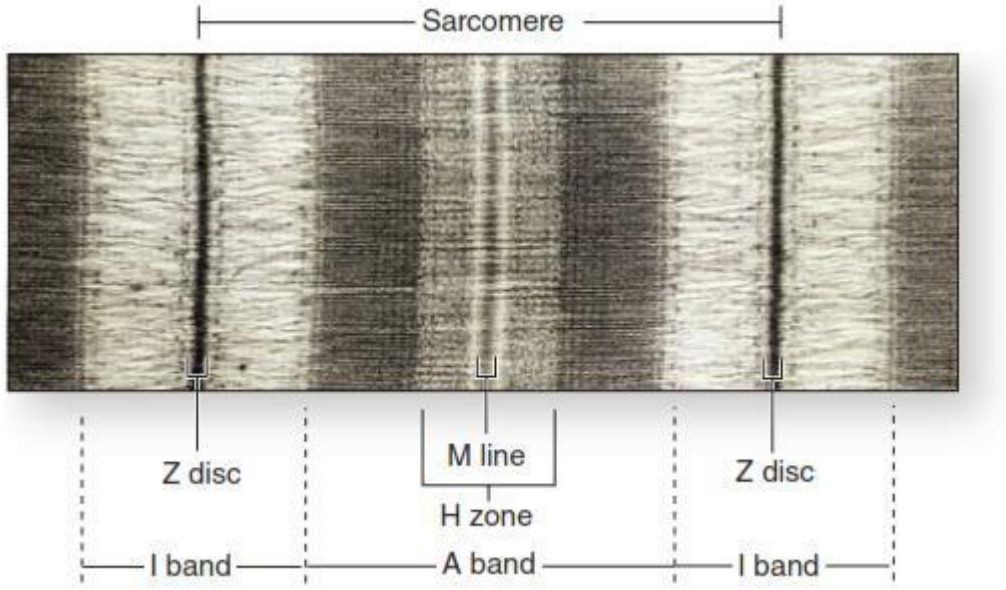
↓

Myofilamint



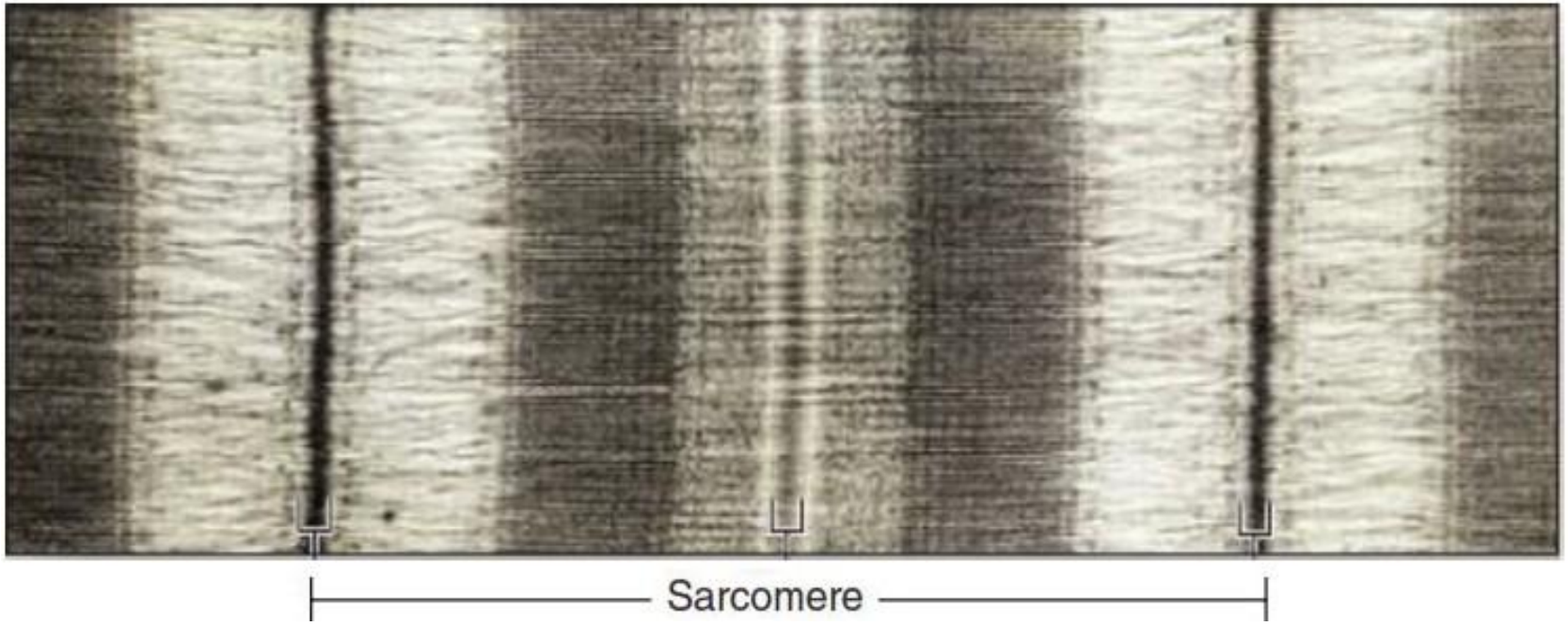


A: anisotropic
I: isotropic
Z: between

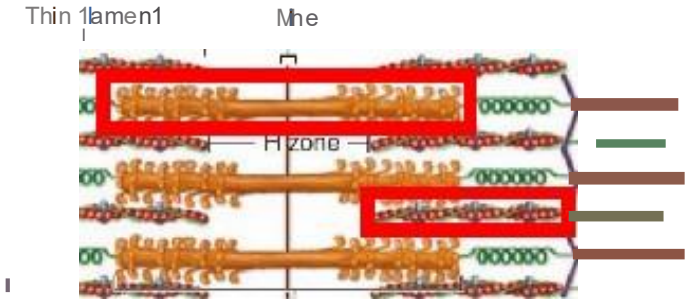


Sarcomere

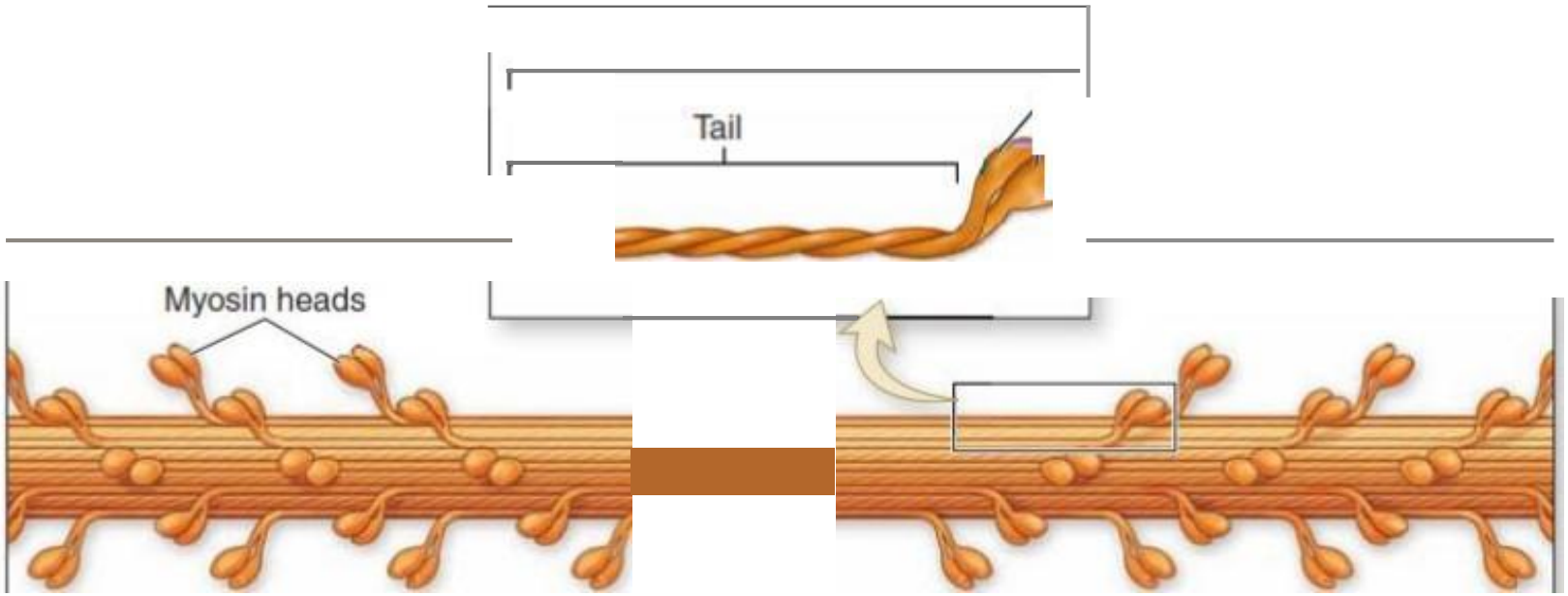
sarco-: flesh
-meros: parts



myofilamints



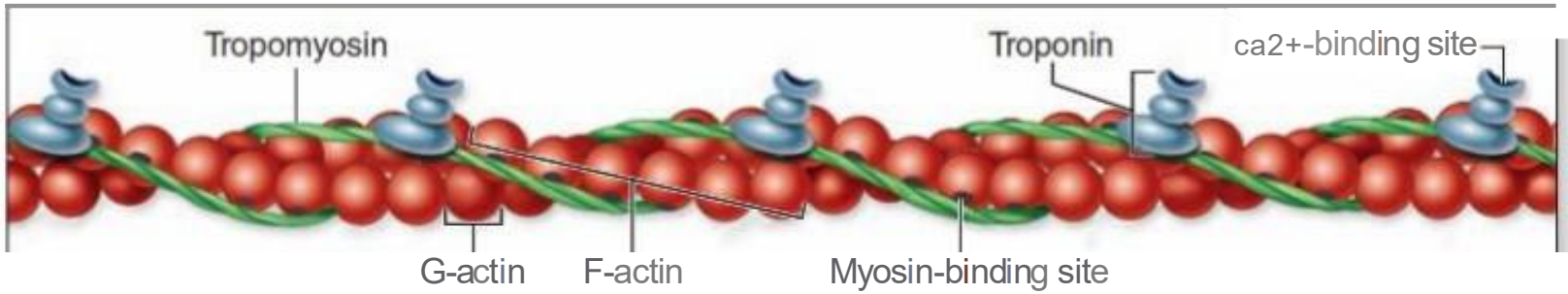
Myocin



a Thick filament

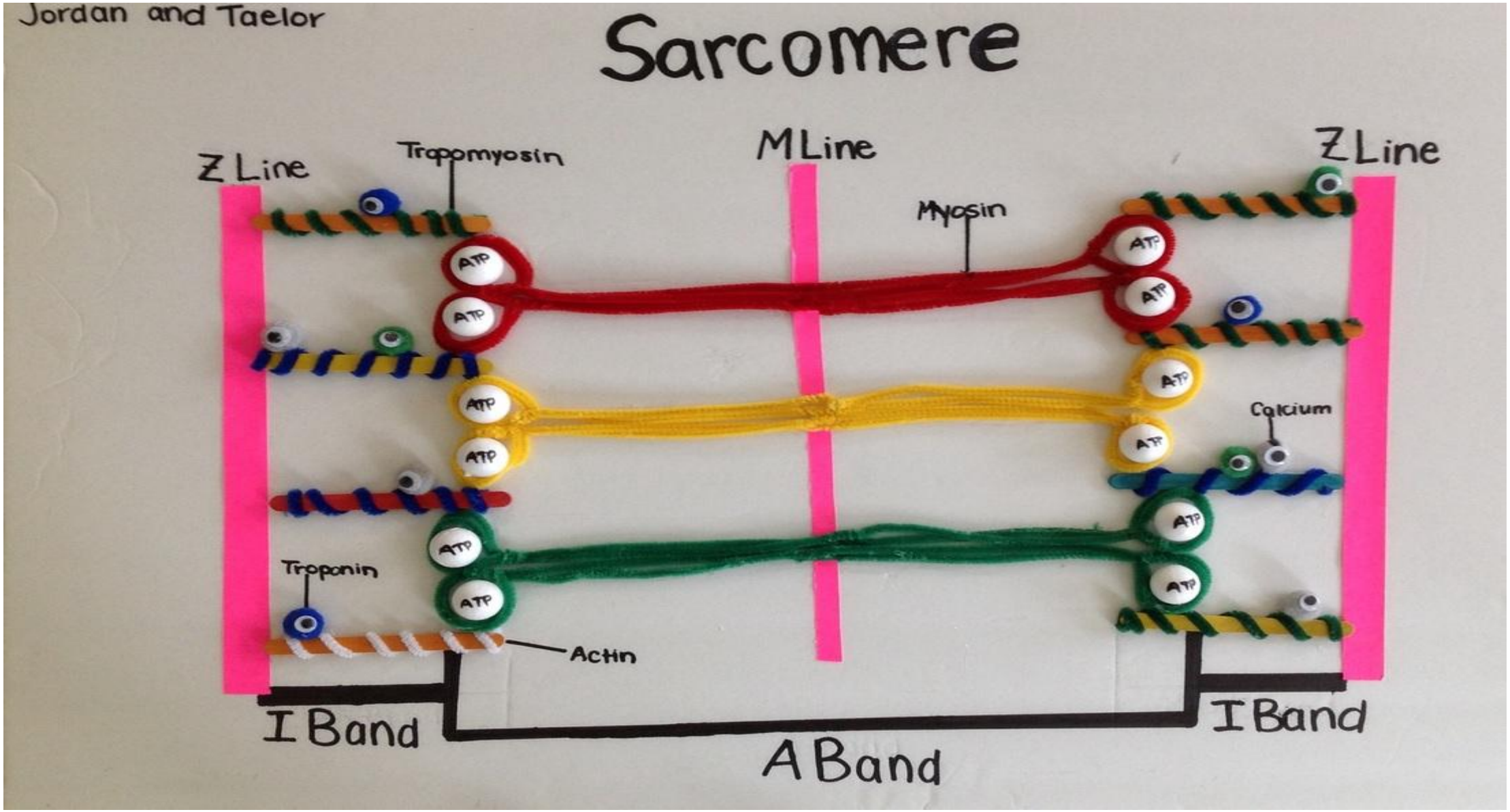
Actin

Tropomyosin
Troponin

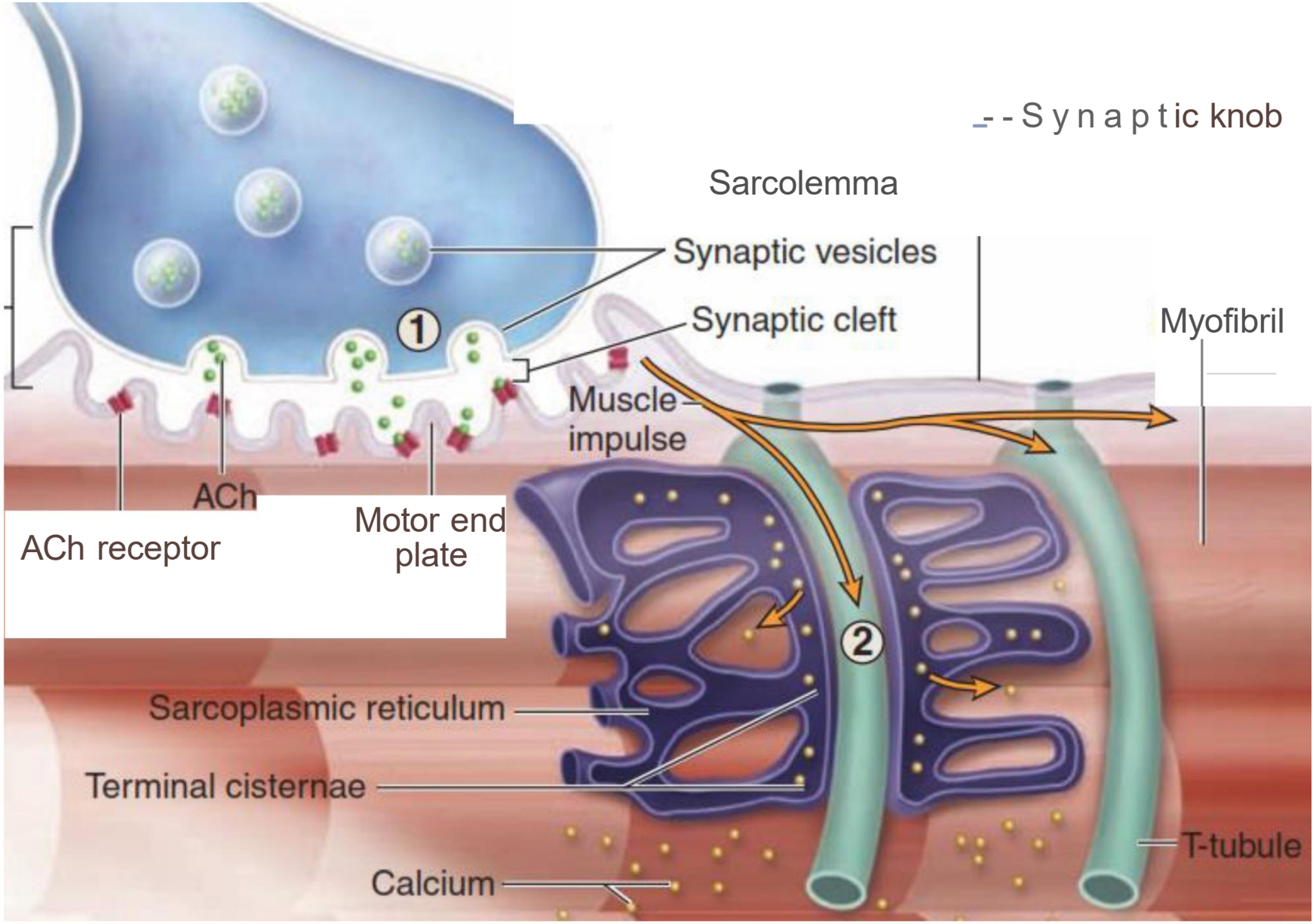


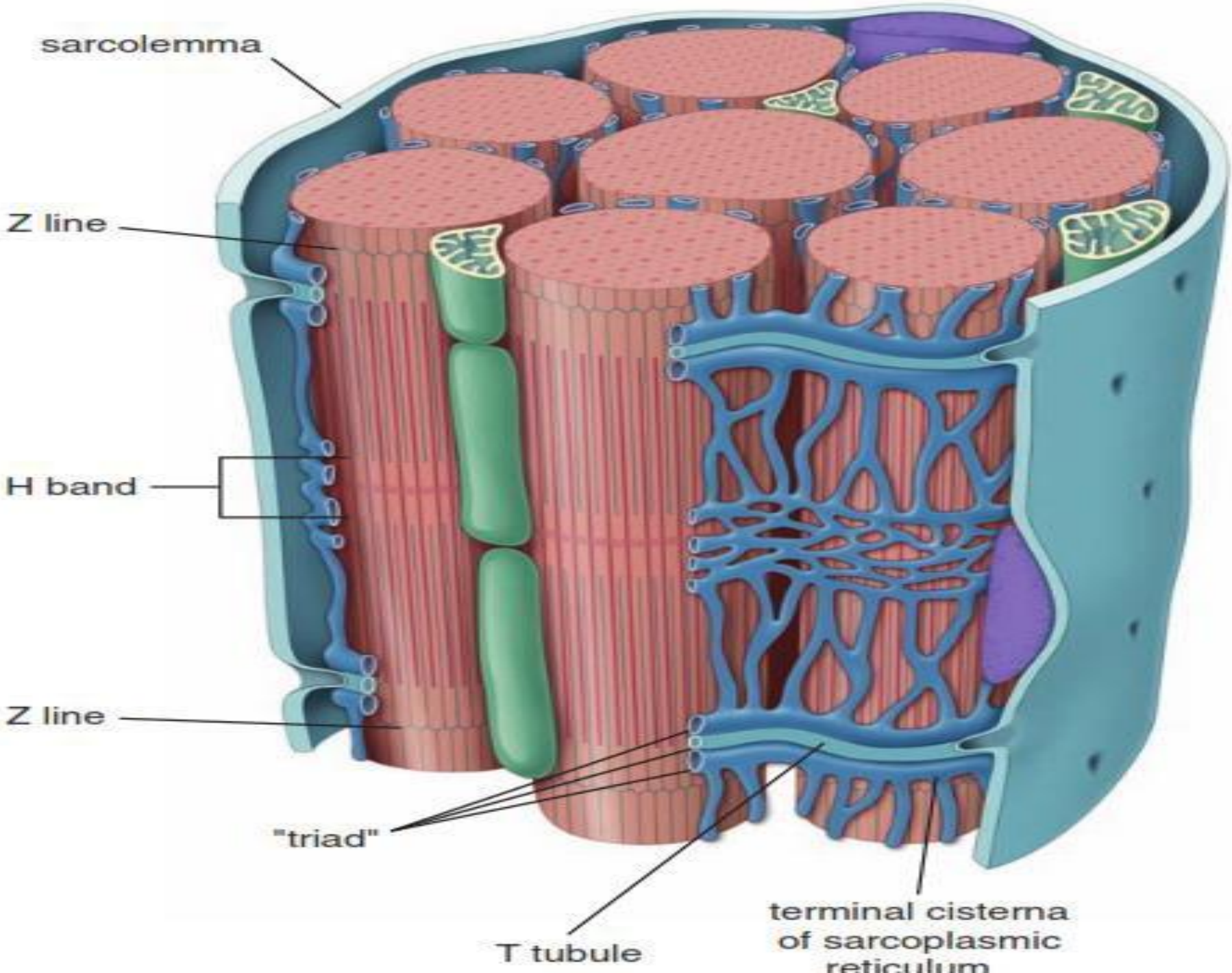
b Thin filament

Contraction mechanism



Sarcoplasmic reticulum & transverse tubule system T-system of tubules




sarcolemma
Z line
H band
Z line
"triad"
T tubule
terminal cisterna
of sarcoplasmic
reticulum

Other components of the sarcoplasm

- Glycogen
- Mitochondria
- Myoglobin
- Little RER
- lipofuscin

Muscle Contraction

in 60 seconds

Thank you