

W MSC-3

TOPIC - Structure of skeletal muscleSarcomere -

The sarcomere is the basic unit of contraction, extending between two Z-lines.

Bands of Sarcomere

<u>Band</u>	<u>Description</u>
Z line →	Boundary of sarcomere, thin filament attach.
I-band →	Light band contain only actin
A band →	Dark band contain myosin
H-zone →	Light region in A-band with only myosin.
I-line →	Center of sarcomere, hold myosin filaments.

Myofilaments -

Myofilaments are two types -

(a) Thin filaments - (Actin)

Composed of

Actin, tropomyosin and Troponin

7 Regulatory protein control contraction.

Teacher's Signature : _____

(b) Thick filaments (Myosin):

- 7 Composed of myosin molecules
- Each myosin has -
Tail, Head with ATPase activity
Actin binding site

Sarcoplasmic Reticulum

- 7 Specialized smooth endoplasmic reticulum.
- 7 Store Calcium ions.
- 7 Releases Ca^{2+} during muscle contraction.

Transverse Tubules

- 7 Invagination of sarcolemma
- 7 Conduct action potential into muscle fibers
- 7 Ensure simultaneous contraction.

Neuromuscular Junction

- 7 Junction between motor neuron and muscle fibers
- 7 Motor end plate contains acetylcholine receptors
- 7 Initiates muscle contraction.

Cytoskeleton and Accessory proteins

- 7 Titin: - Connects myosin to Z disc
- 7 Nebulin - stabilizes actin
- 7 Dystrophin: - Connects actin to sarcolemma.
(Absence leads to muscular dystrophy)

Spinal cord (section)

