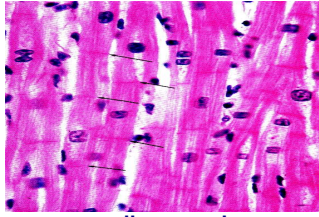


9.

Seminar: Structure, organization and function of muscular tissue.

Practical class: Muscle.



cardiac muscle

- smooth muscular tissue - the wall of jejunum (slide # 13),
- cross-striated muscle - tongue (slide # 20),
- cardiac muscle (slide # 23),
- intercalated discs (slide # 23W – demonstration slide)
- cross-striation in the muscle (slide # 22),
- intercalated disc (EM # 16 & 39),
- satellite cells (EM # 7),
- sarcoplasmic reticulum (EM # 40),
- sarcomere (EM # 75)
- dystrophin & utrophin (fig. # 84)



EM - 16

Intercalated discs connecting cardiac myocytes

Is - intercellular space

2, 3 - fragments of cardiac myocytes

M - M line

Mi - mitochondria



EM- 39

Intercalated discs from cardiac muscle incubated with lanthanum hydroxide.

There are 3 types of junctions within the disc.

1. Fasciae adherentes serving as anchoring sites for actin filaments;
2. Maculae adherentes (desmosomes) binding the cardiac myocytes together;
3. Gap junctions providing ionic continuity between adjacent cells.

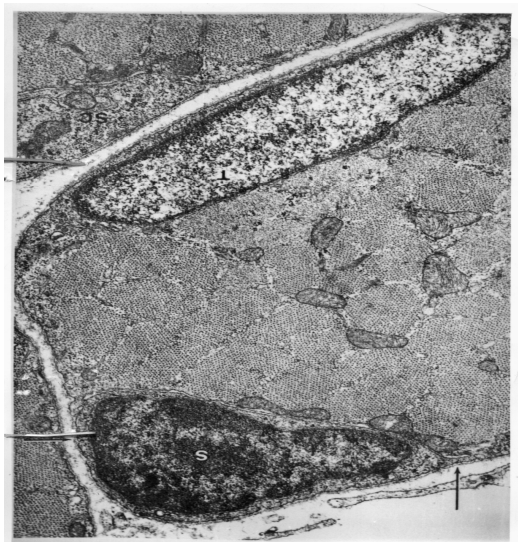
Lanthanum peroxide penetrates into intercellular space but not into gap junctions, which are visible as gray spots in the dark line formed by lanthanum marker.

C1, C2, C3 - fragments of cardiac myocytes

N1, N2 - Gap junctions

N1 - gap junction (nexus) in oblique cross-section

N2 - gap junction in transverse cross-section



EM- 7

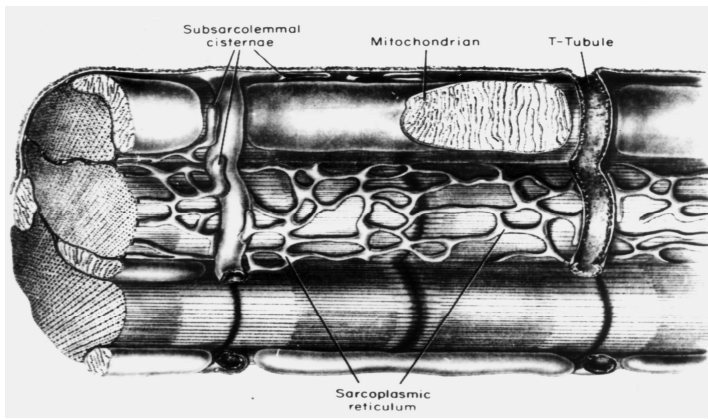
Satellite cell

Satellite cells are enclosed in the basement membrane of skeletal muscle fibers. Following injury they proliferate and fuse forming new skeletal muscle fibers.

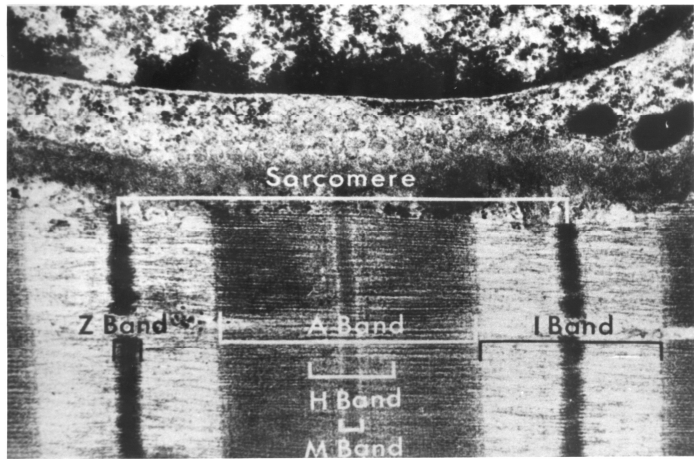
S - nucleus of satellite cell

T - nucleus of muscle cell

Sc - cytoplasm of satellite cell

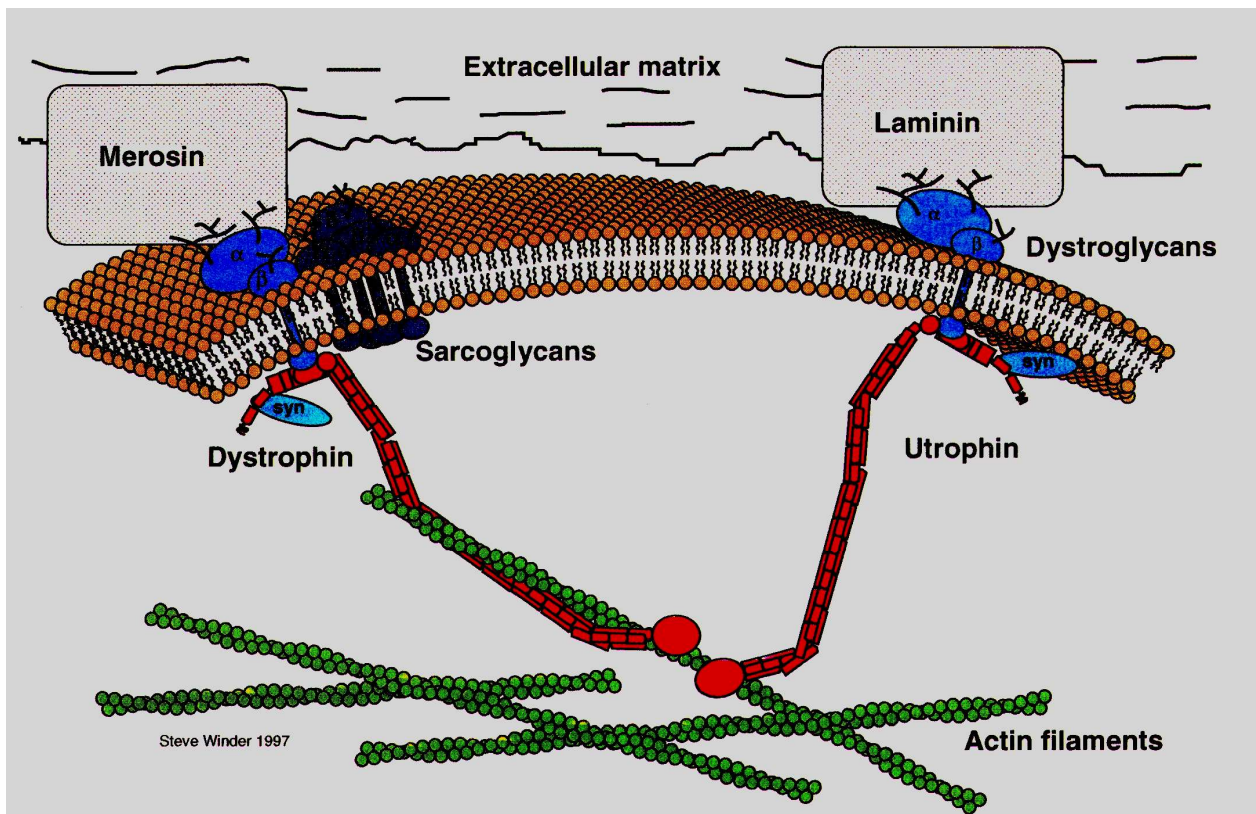


Schema no. 40



EM - 75

Fig. 84.



Schematic representation of the arrangement of dystrophin and utrophin, based on known interactions, in a hypothetical cell, showing the arrangement of dystrophin (left) as if it were in muscle cell and utrophin (right) as if it were in a non-muscle cell. α -cytoplasmic actin filaments are shown in green, utrophin in magenta, dystrophin in red, dystroglycans (α , β) and syntrophin (syn) in blue, sarcoglycans (α , β , γ , δ) in purple, hydrophilic lipid headgroups in yellow, and extracellular matrix components in black and white.