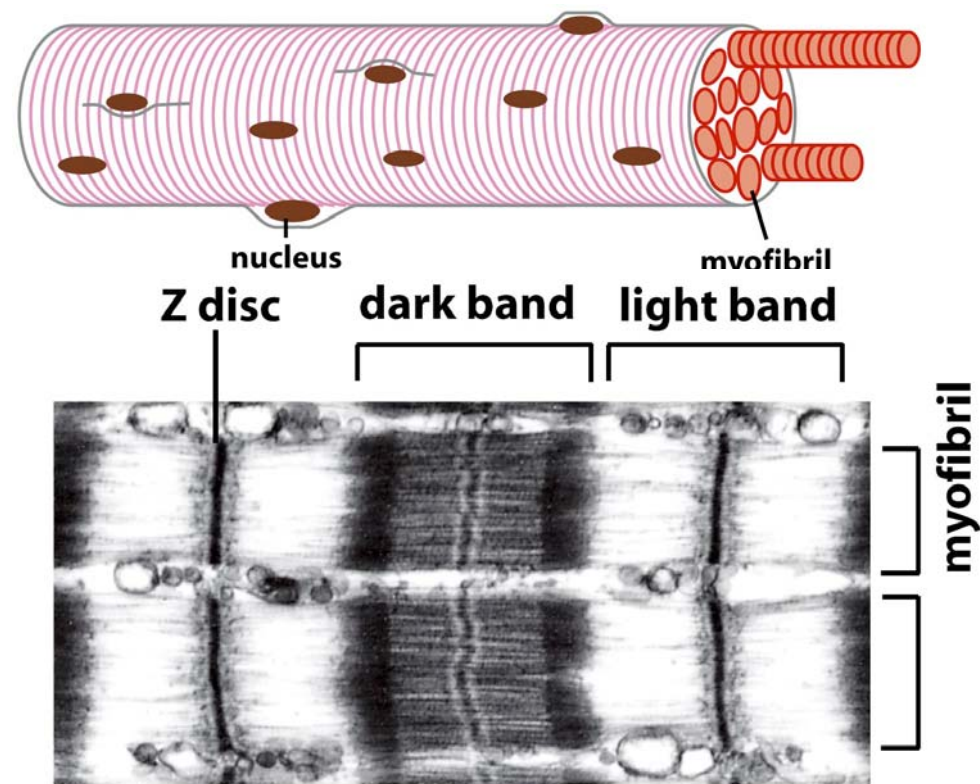
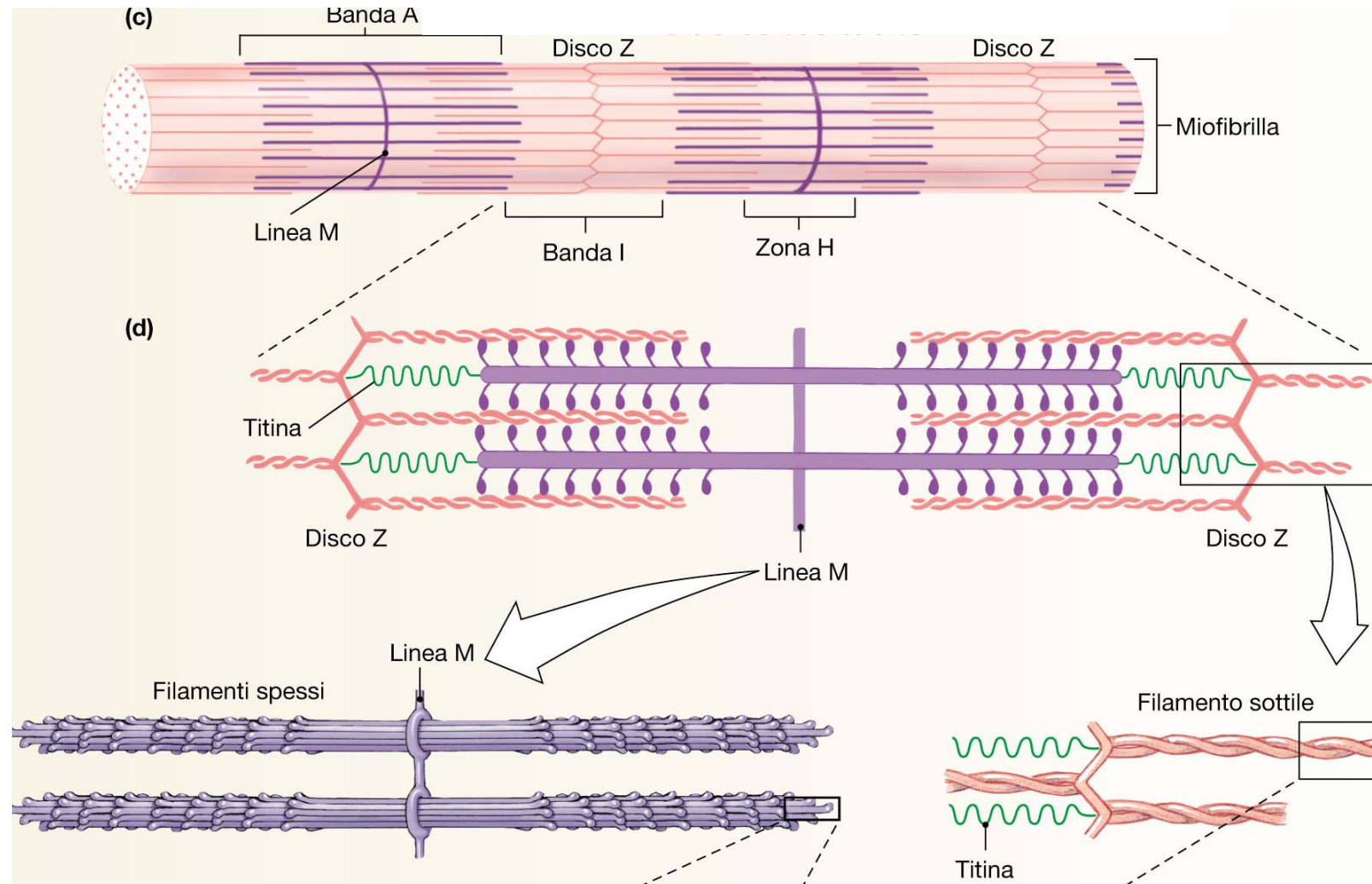
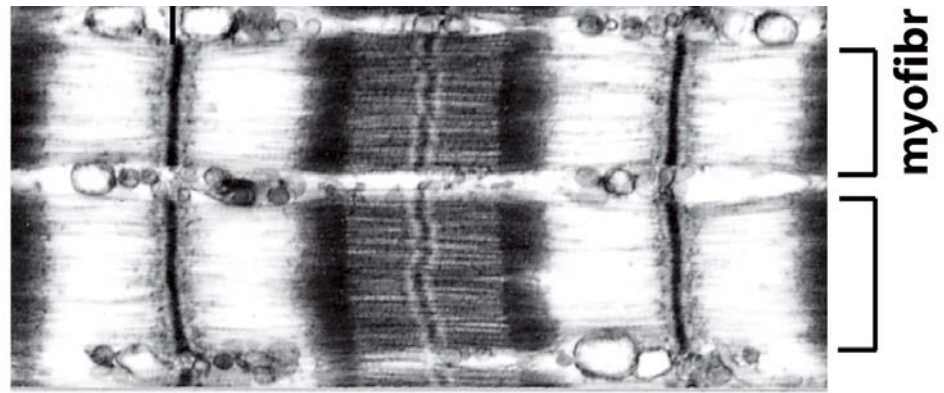
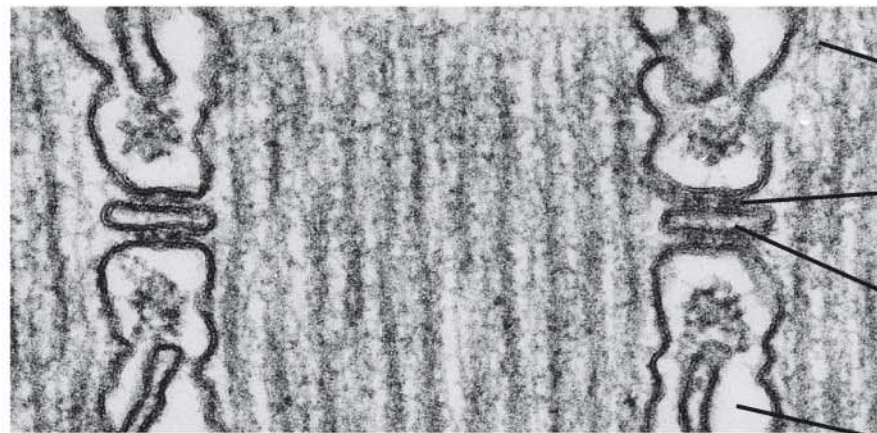


TABELLA 12-1 Terminologia specifica riferita ai muscoli	
TERMINE GENERICO	EQUIVALENTE MUSCOLARE
Cellula muscolare	Fibra muscolare
Membrana cellulare	Sarcolemma
Citoplasma	Sarcoplasma
Reticolo endoplasmatico modificato	Reticolo sarcoplasmatico



par





(B)

0.5 μm

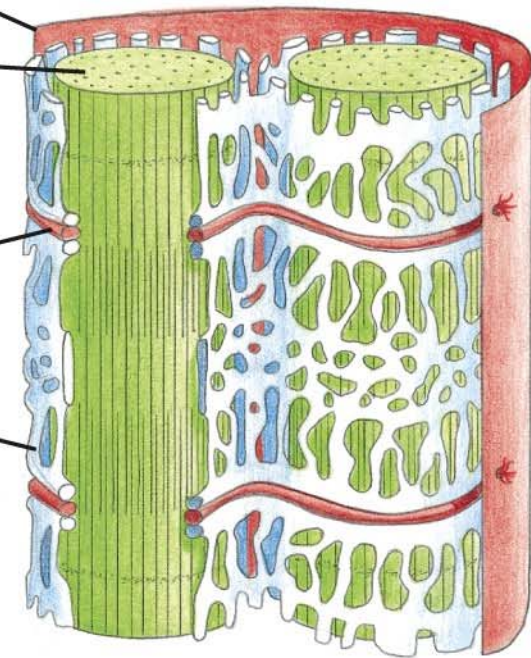
plasma membrane

myofibril

Ca^{2+} -release
channels

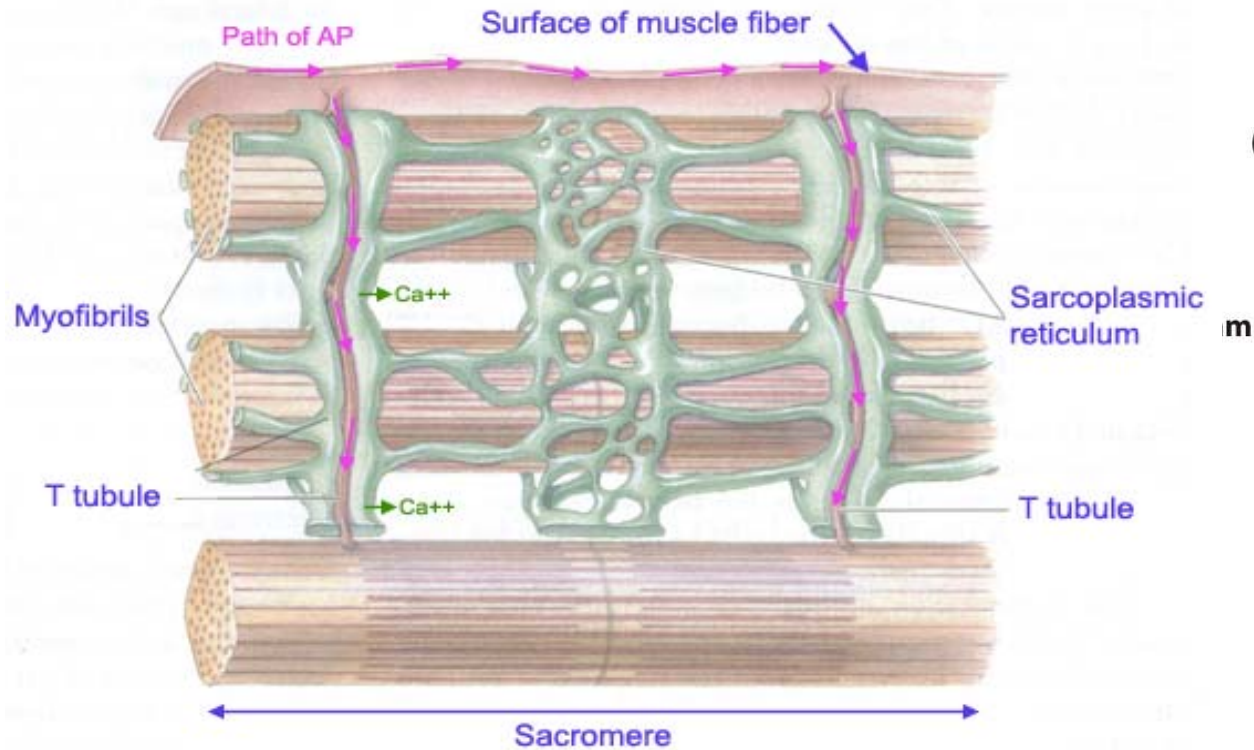
transverse (T)
tubules formed
from invaginations
of plasma membrane

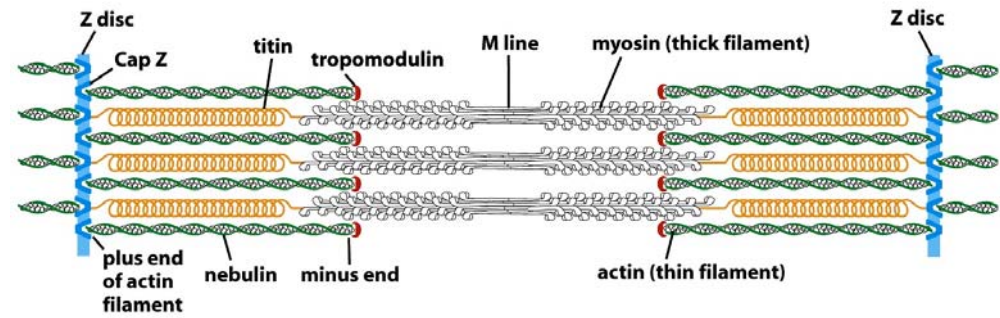
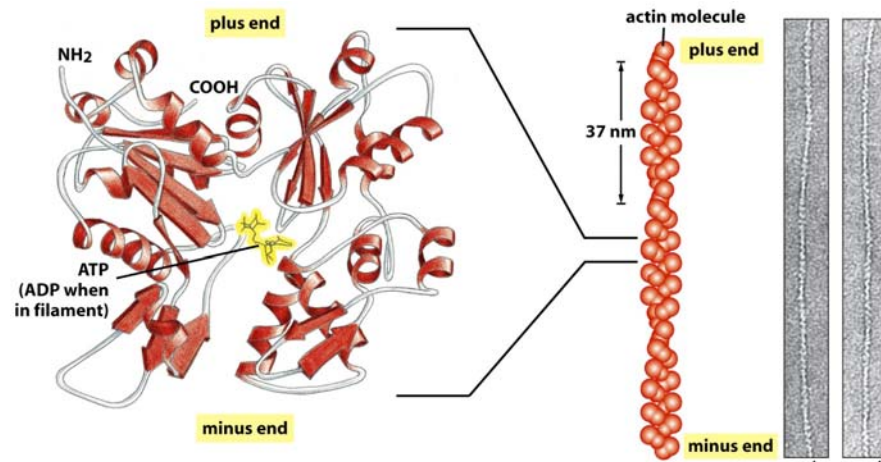
sarcoplasmic
reticulum



(A)

Role of Action Potential and Ca^{++} in Muscle Contraction





(A)



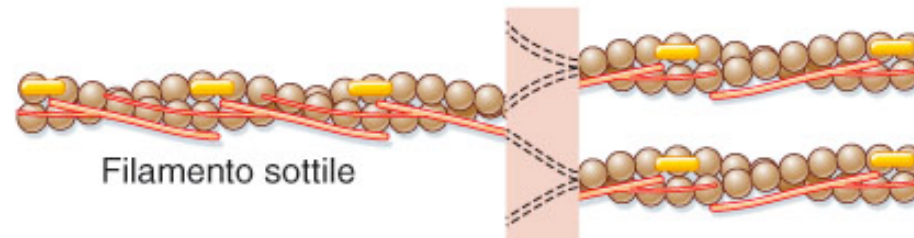
Actina
monomeric
o globulare



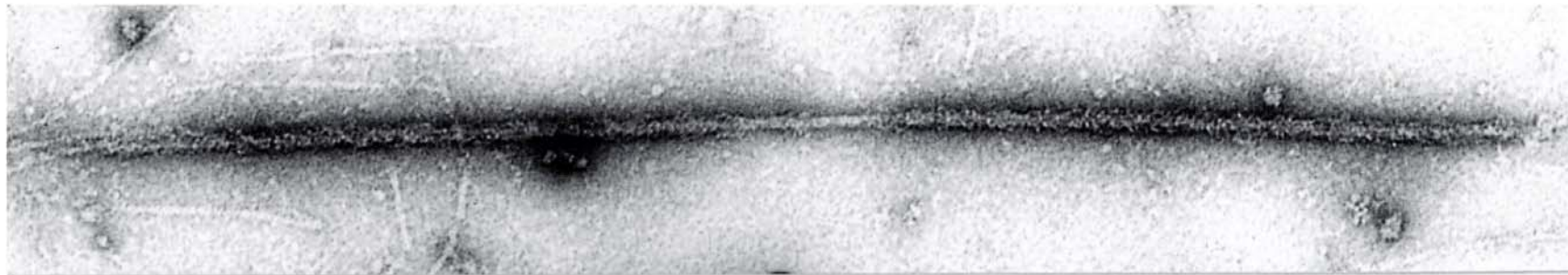
Actina
filamentosa



Nebulina
Tropomiosina

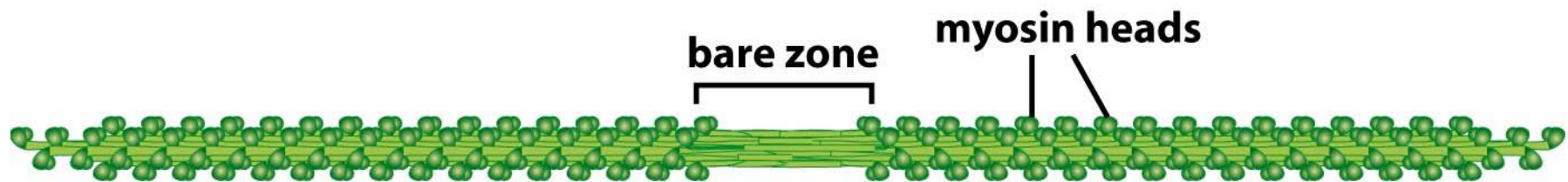


Disco Z
Citoscheletro

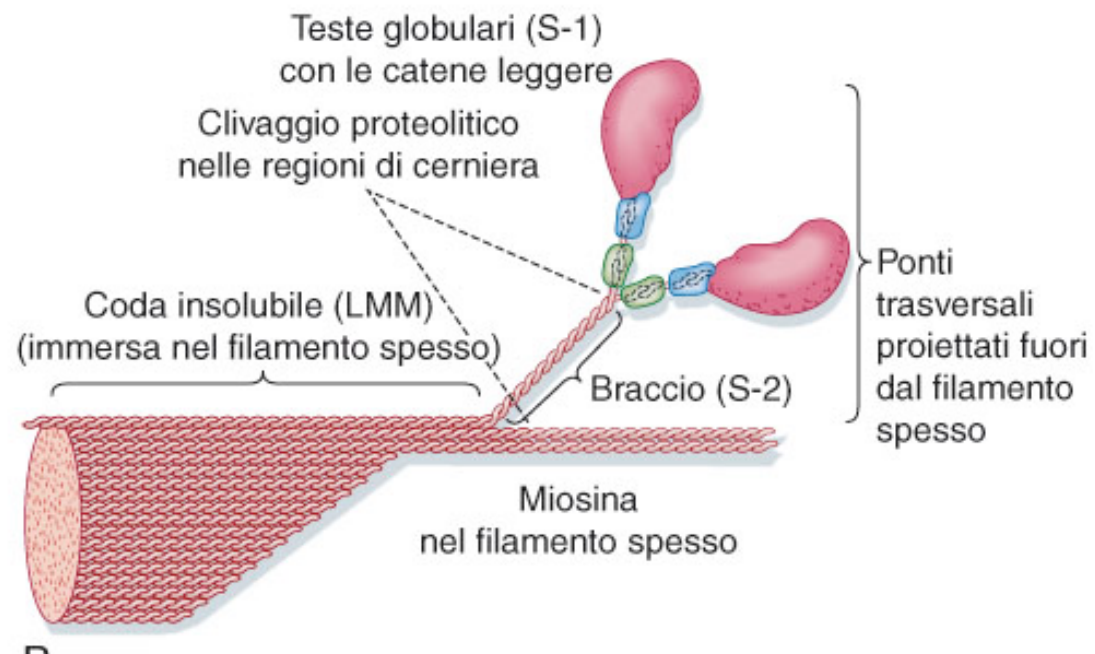


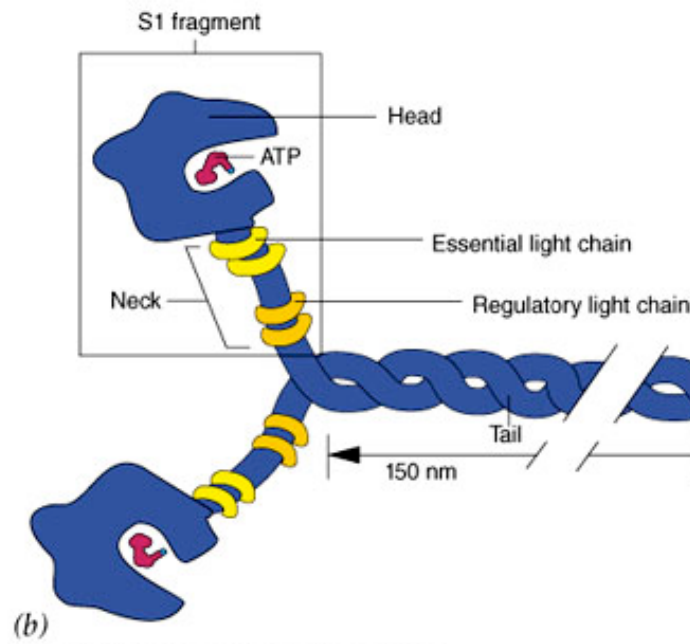
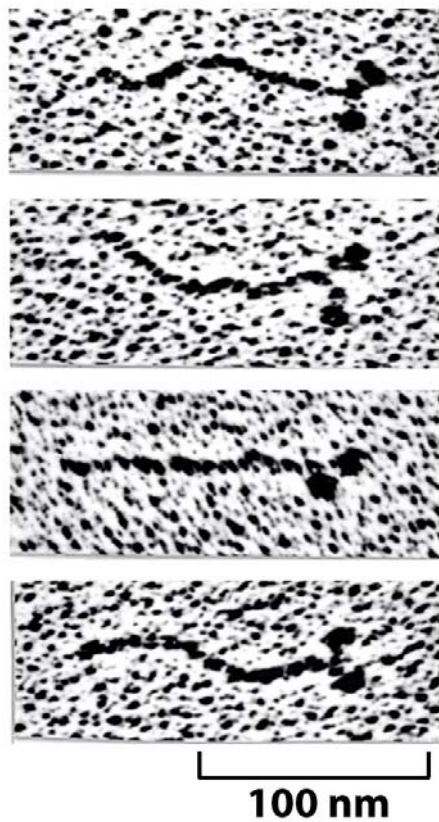
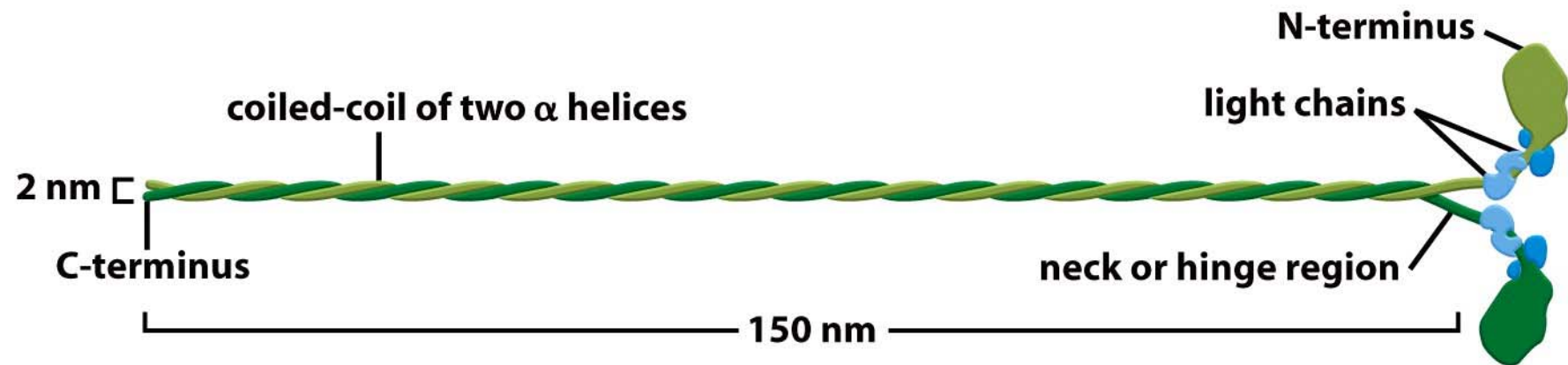
(A)

500 nm

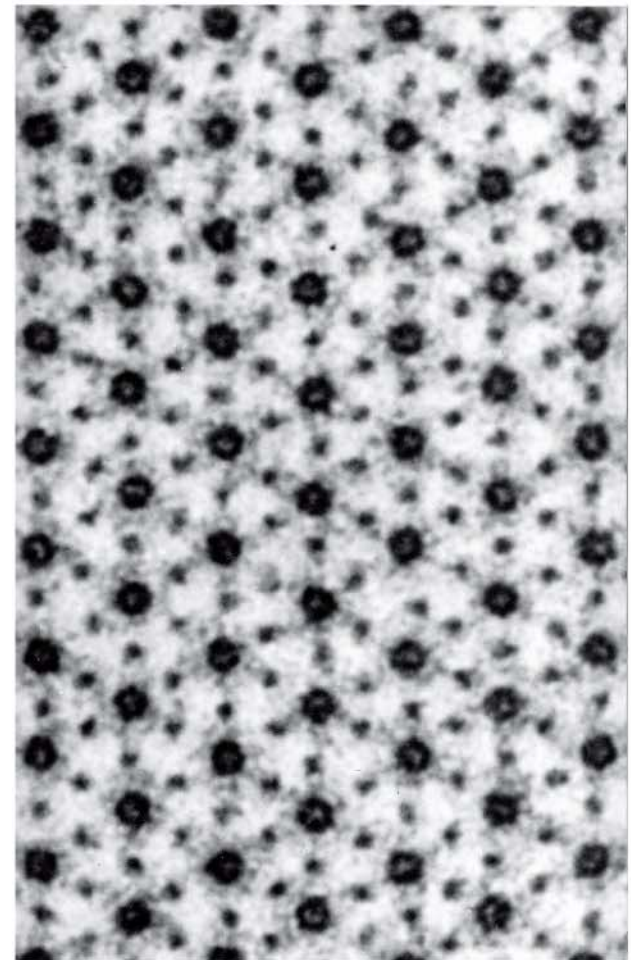
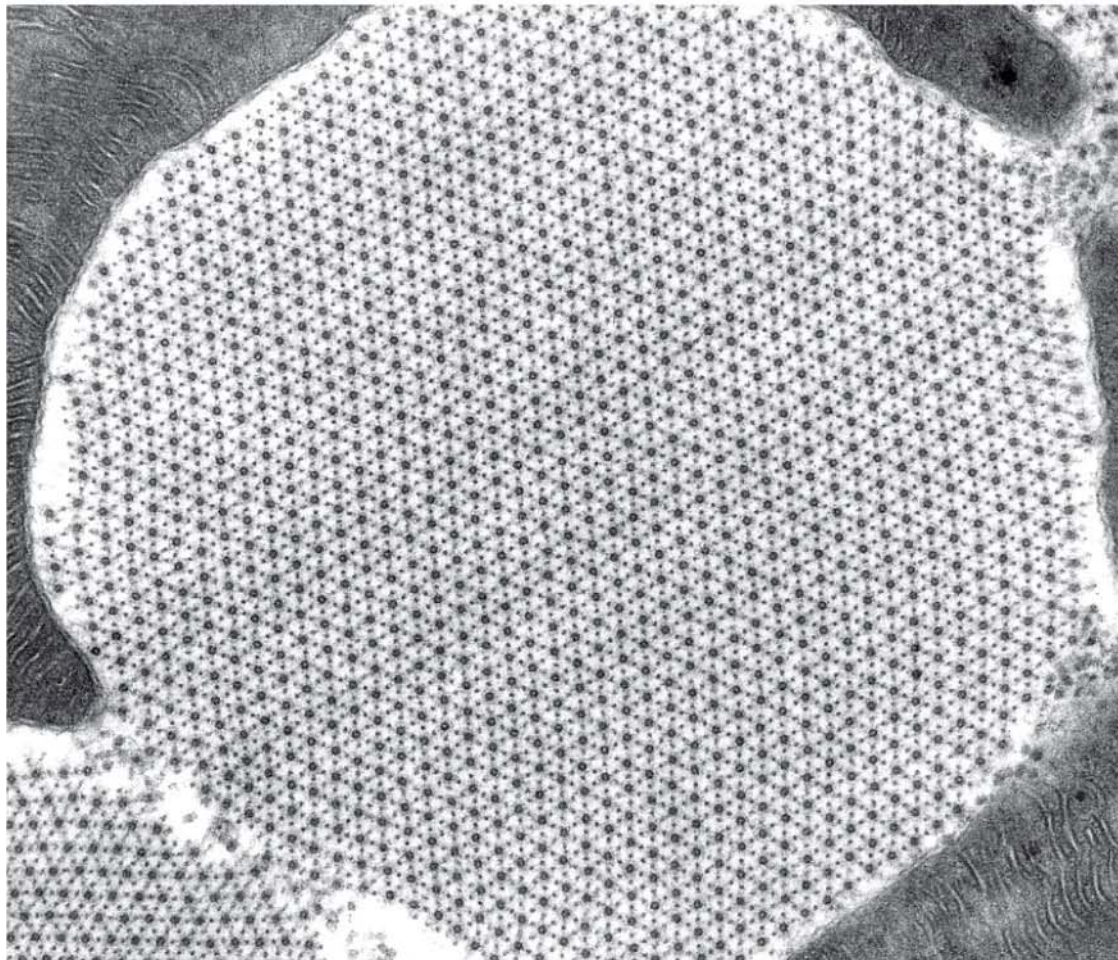


(B)

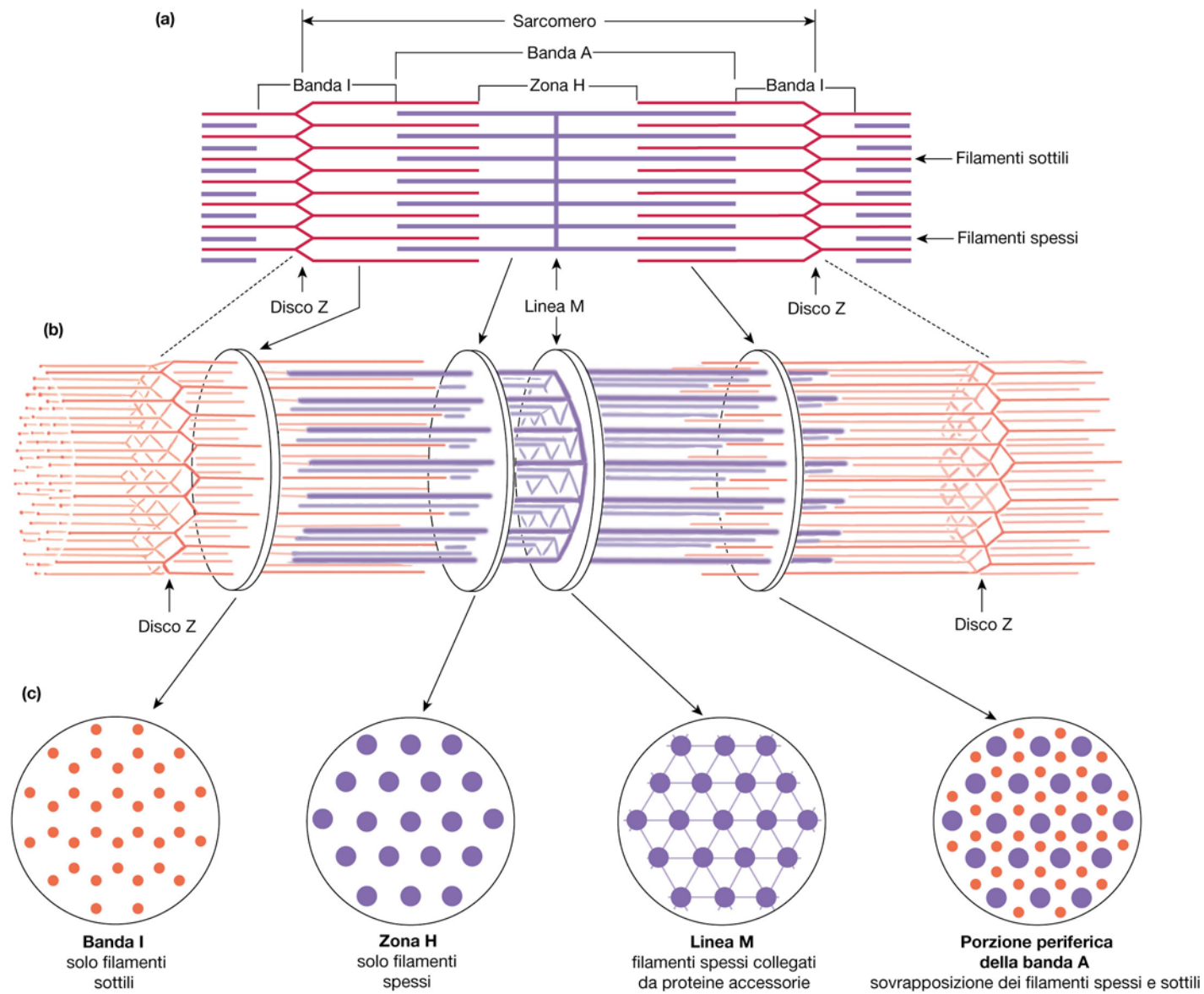


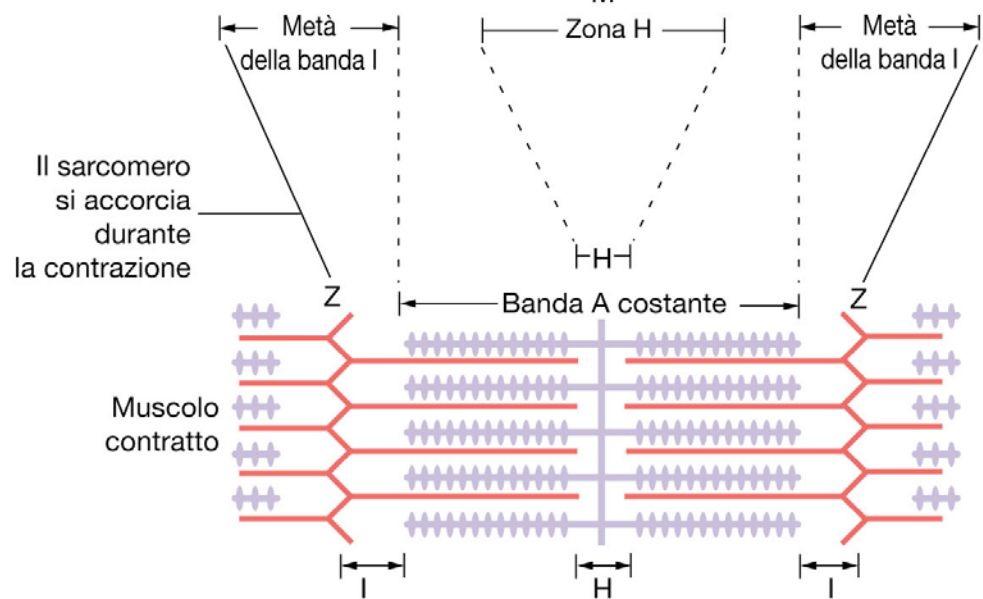
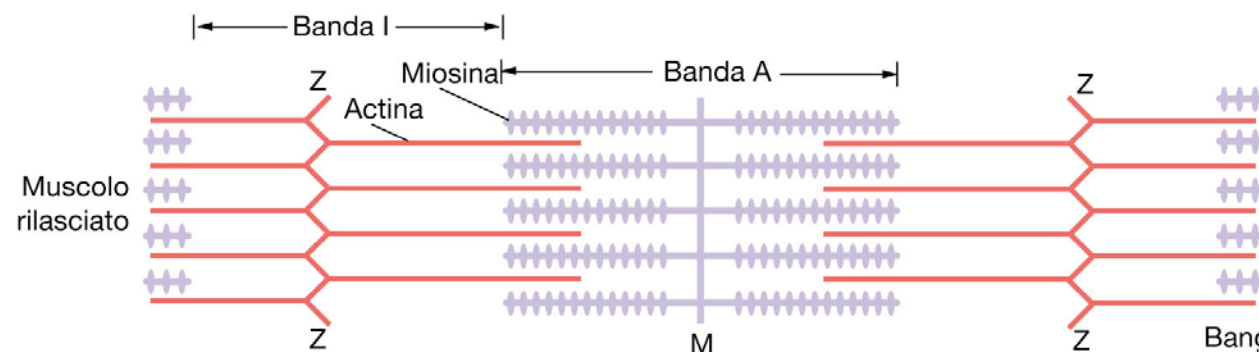


(b)
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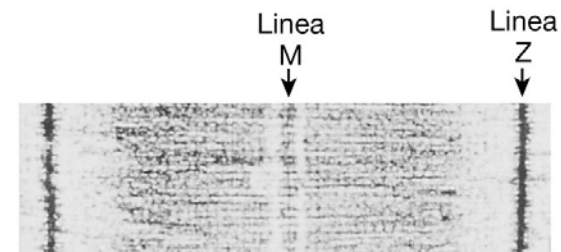
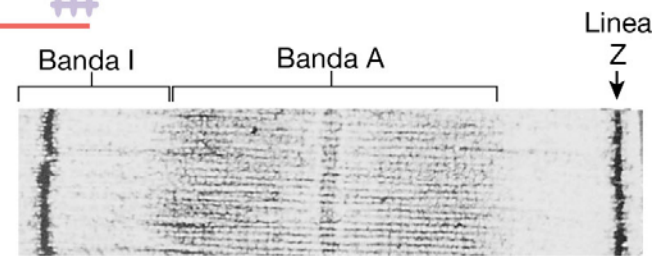


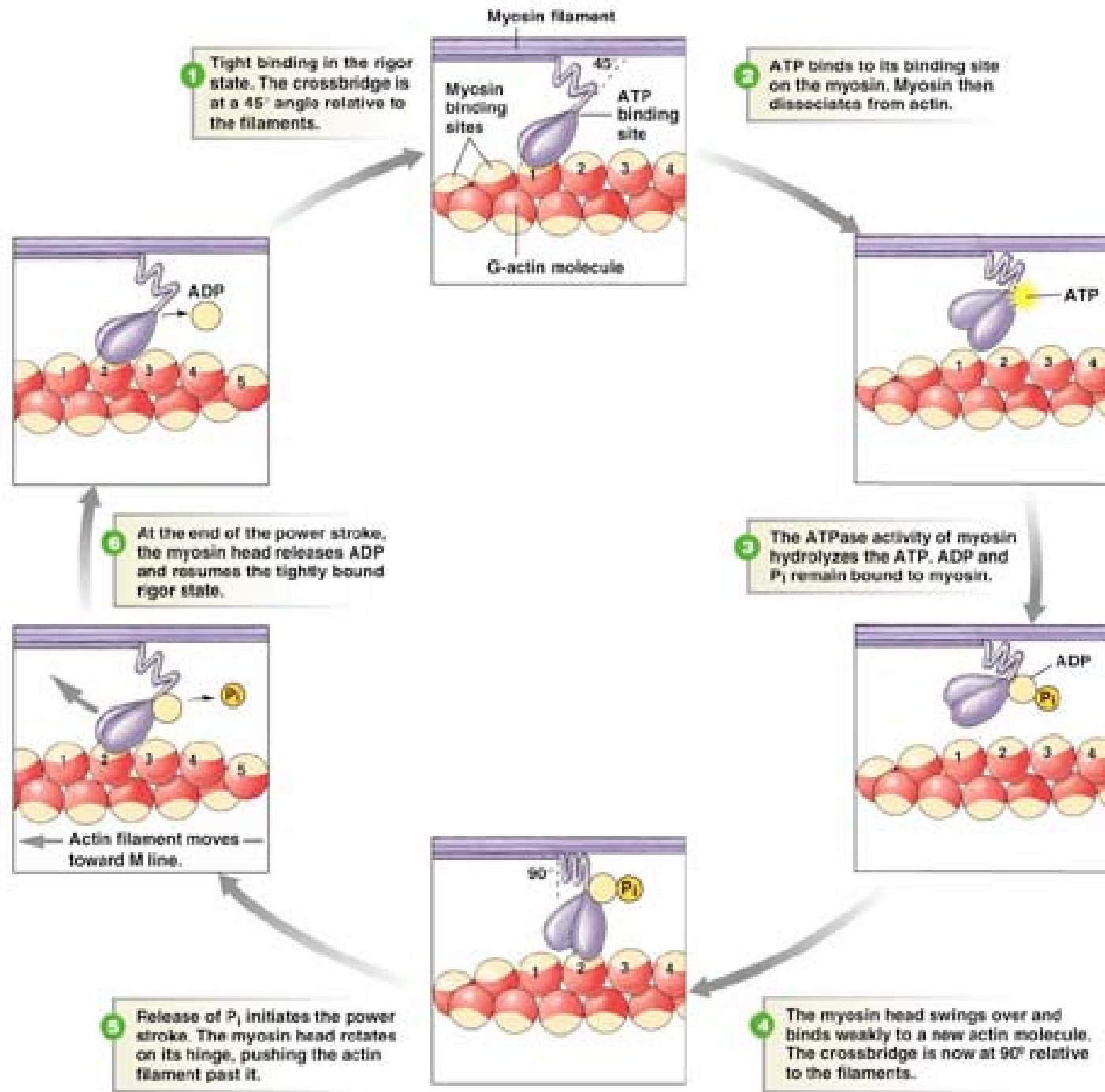
1 μm

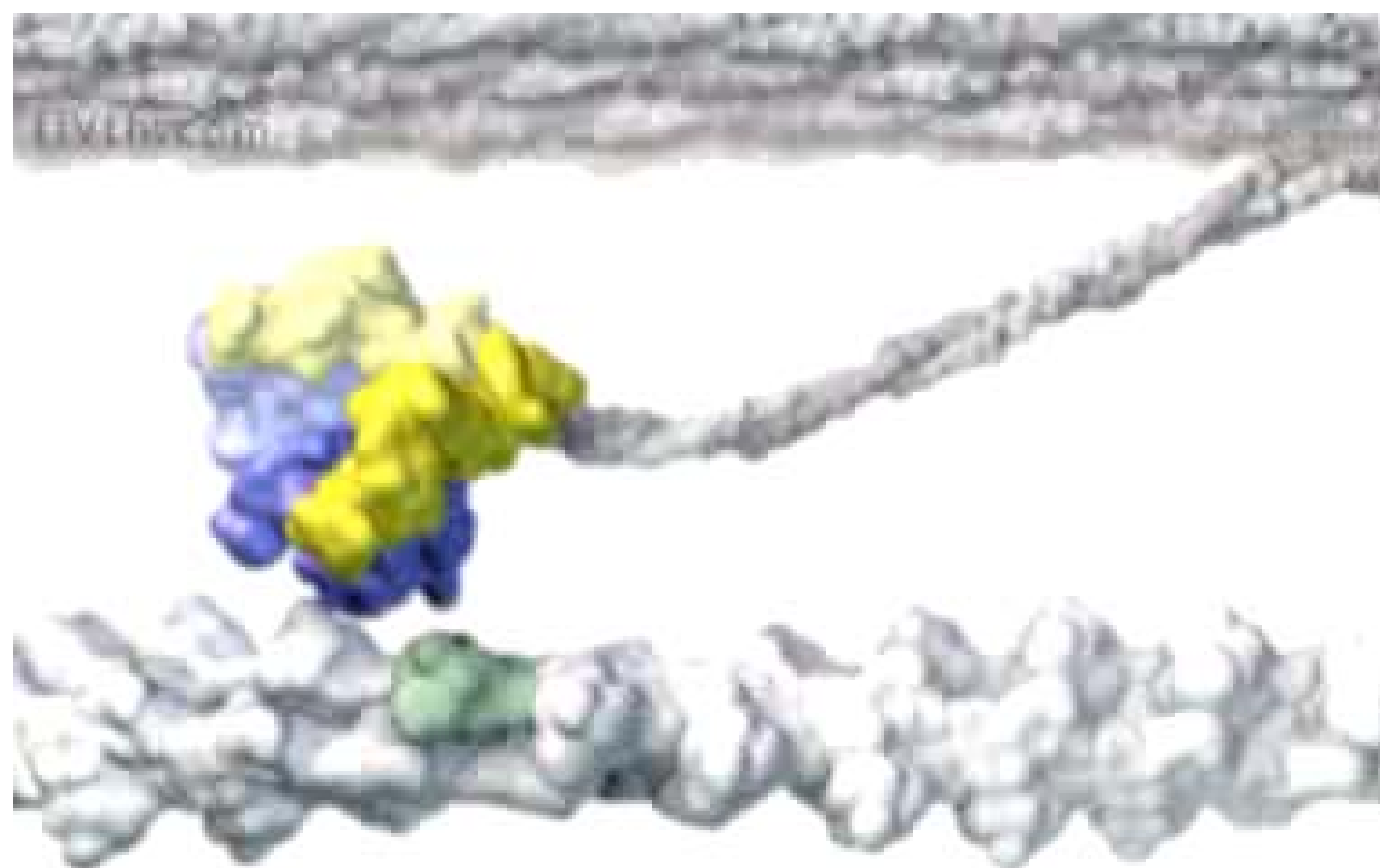




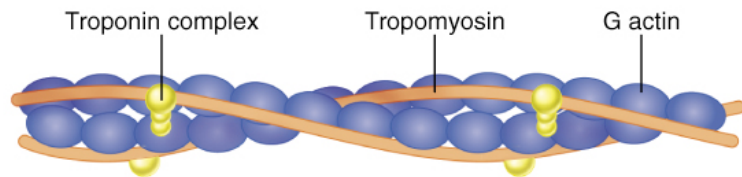
La zona H e la banda I si accorciano





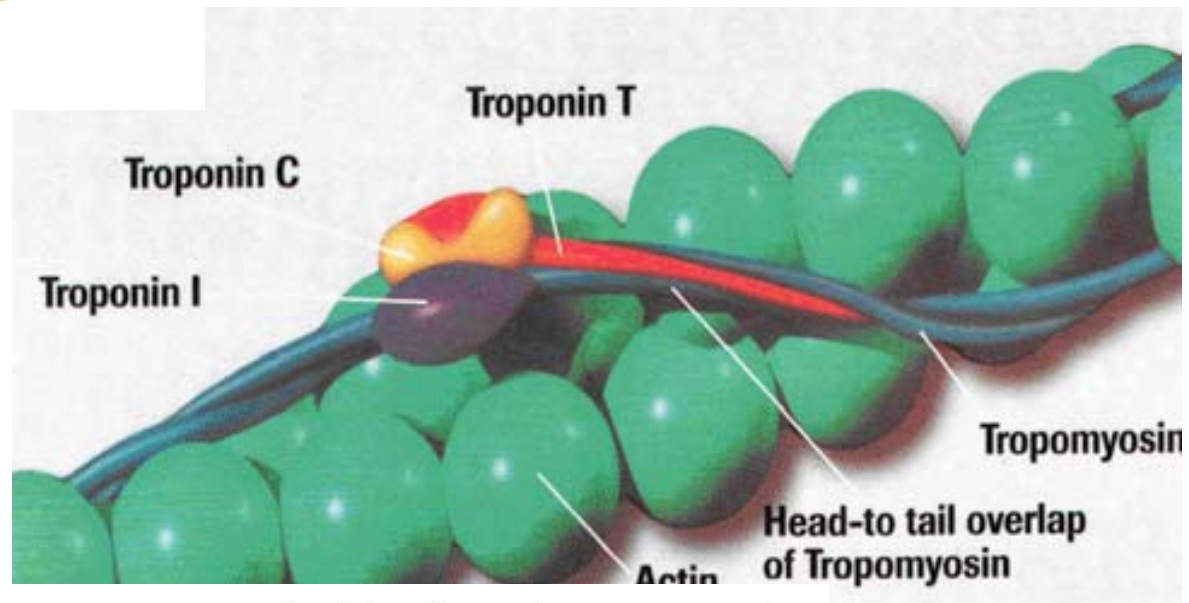


ivth.com

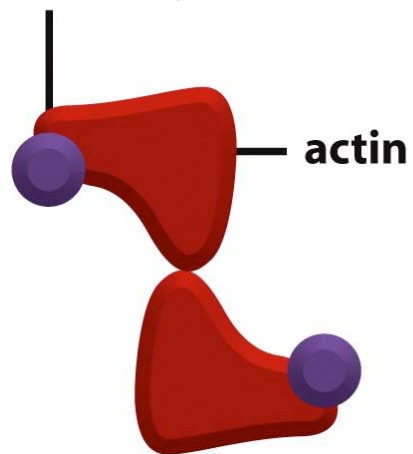


(c) Portion of a thin filament

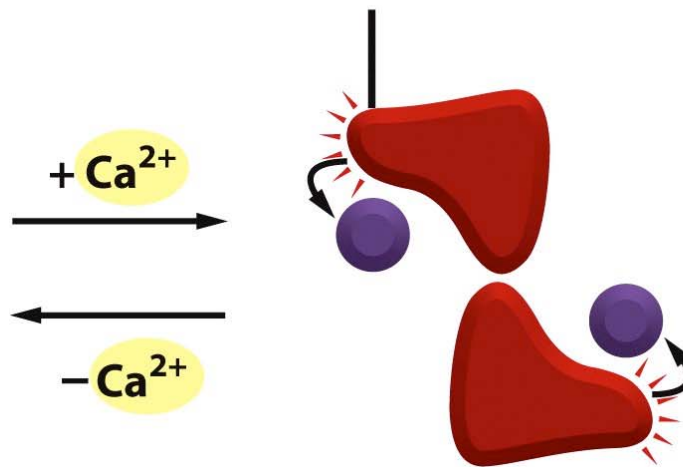
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tropomyosin blocking
myosin-binding site



myosin-binding site exposed
by Ca^{2+} -mediated tropomyosin
movement

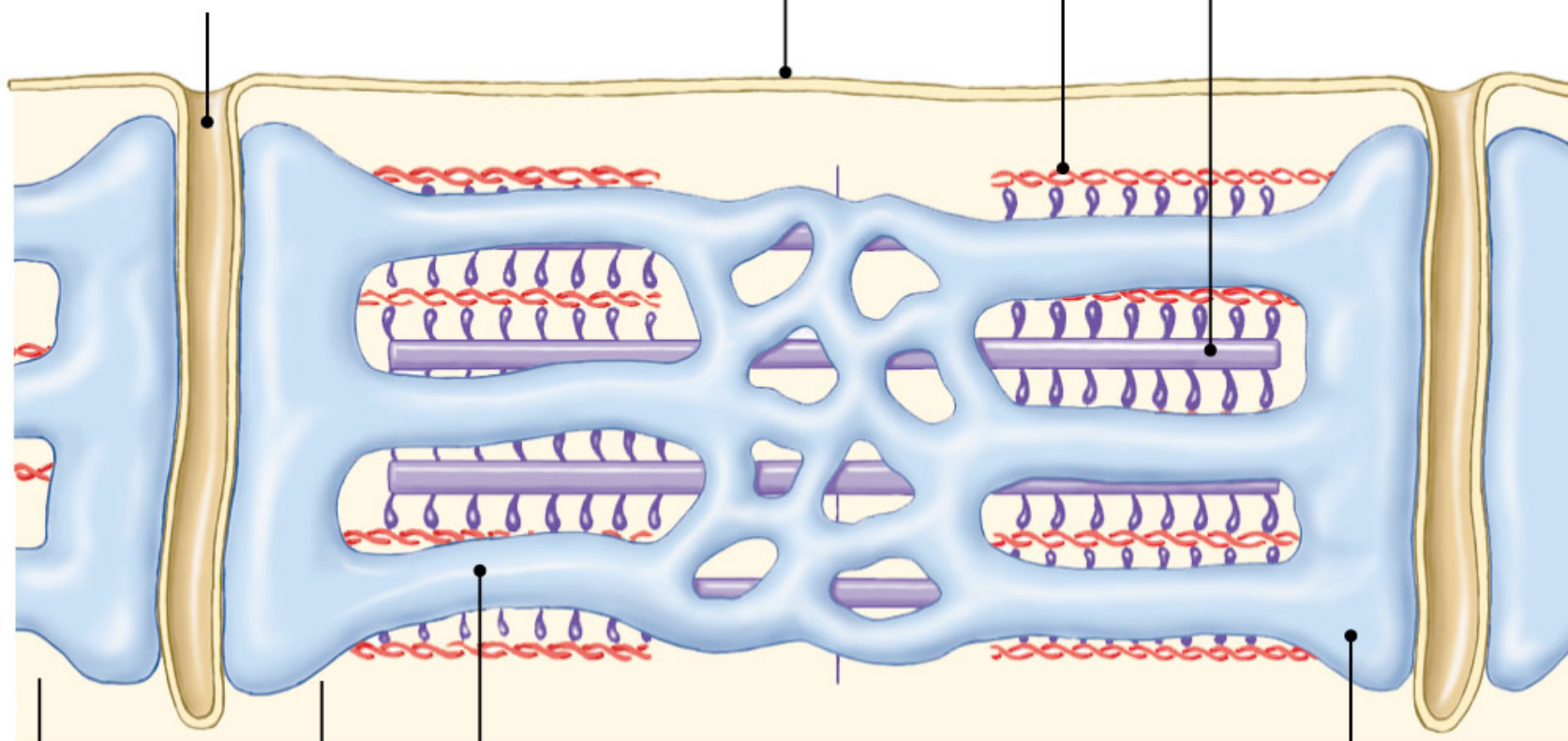


Il tubulo T conduce
i potenziali d'azione
all'interno della fibra
muscolare

Filamento sottile

Sarcolemma

Filamento spesso



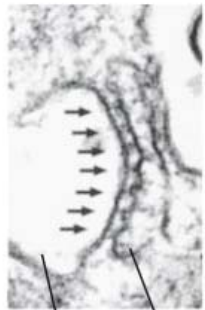
Triade

Il reticolo
sarcoplasmatico
accumula Ca^{2+}

Cisterna
terminale

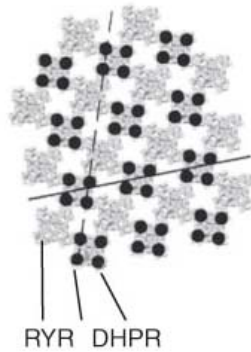
Calcio e Contrazione

Nel lume del SR il Ca è sequestrato dalla CALSEQUESTRINA.

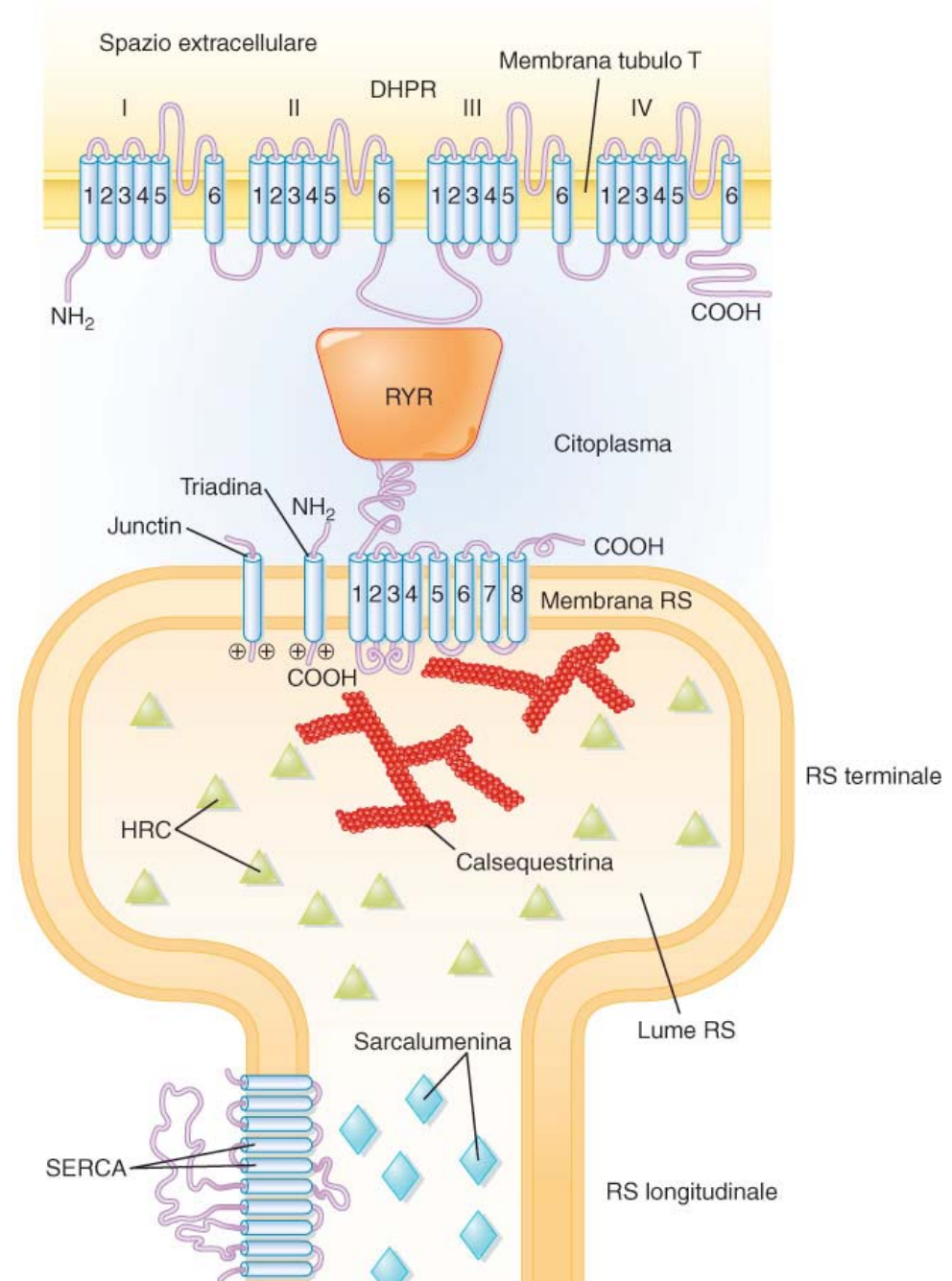


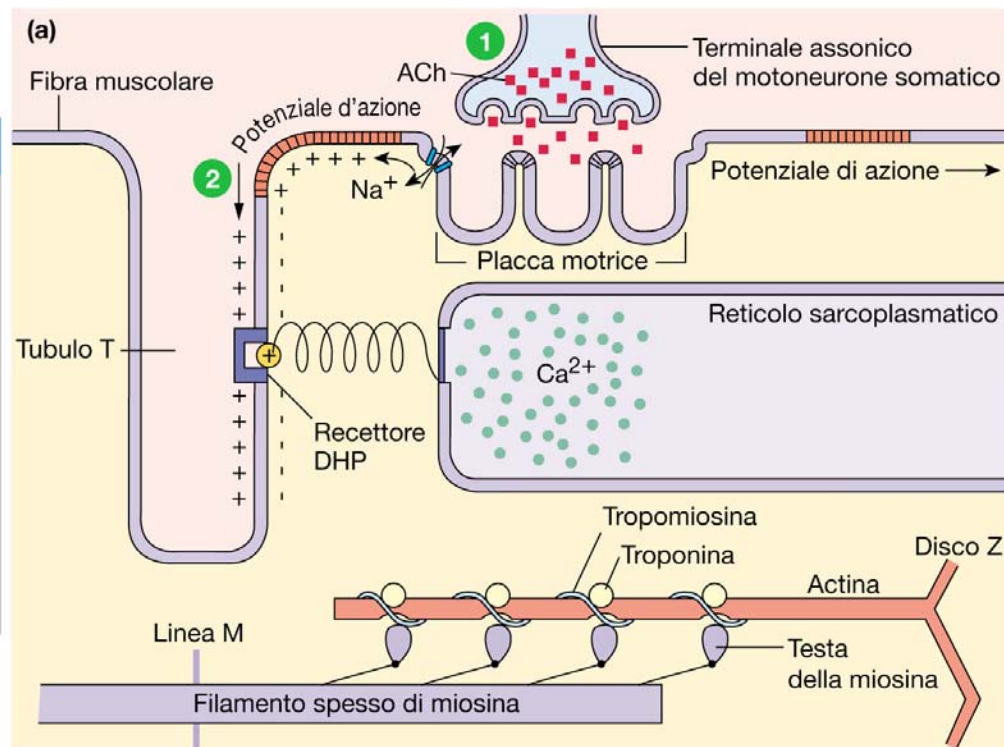
Cisterna Tubulo T terminale del RS

A



B





1 Il motoneurone somatico rilascia ACh a livello della giunzione neuromuscolare.

2 L'ingresso netto di Na⁺ tramite i recettori sensibili all'ACh induce un potenziale d'azione.

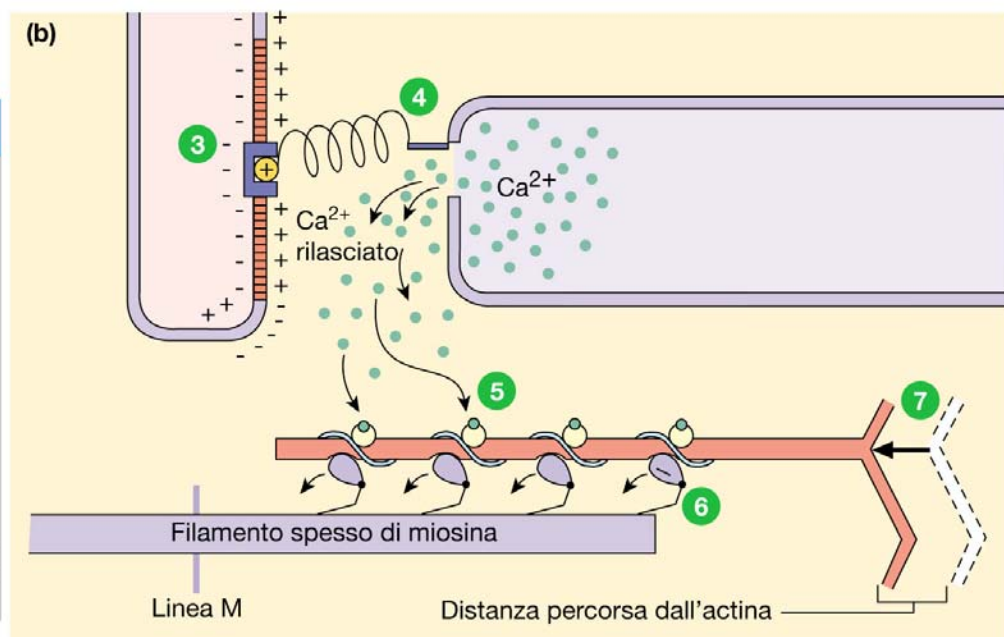
3 Il potenziale d'azione nei tubuli T altera la conformazione del recettore DHP.

4 Il recettore DHP apre canali per il rilascio del Ca²⁺ nel reticolo sarcoplasmatico e il Ca²⁺ entra nel citoplasma.

5 Il Ca²⁺ si lega alla troponina, consentendo il legame forte fra actina e miosina.

6 Le teste della miosina generano il colpo di forza.

7 I filamenti di actina scorrono verso il centro del sarcomero.



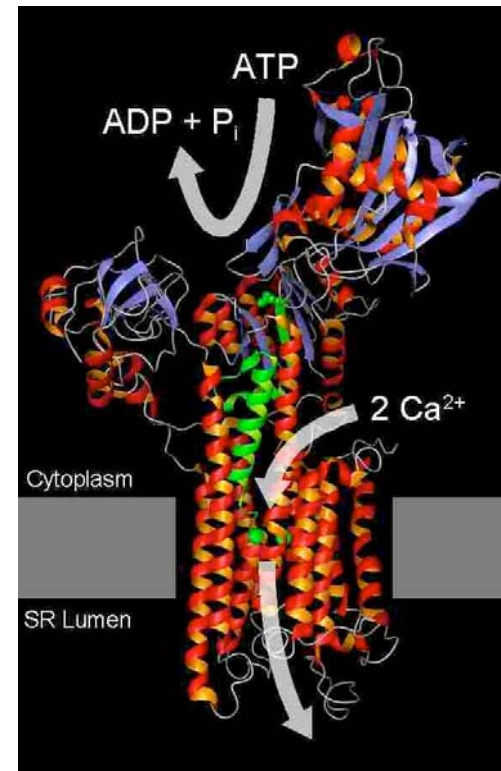
Calcio e Contrazione

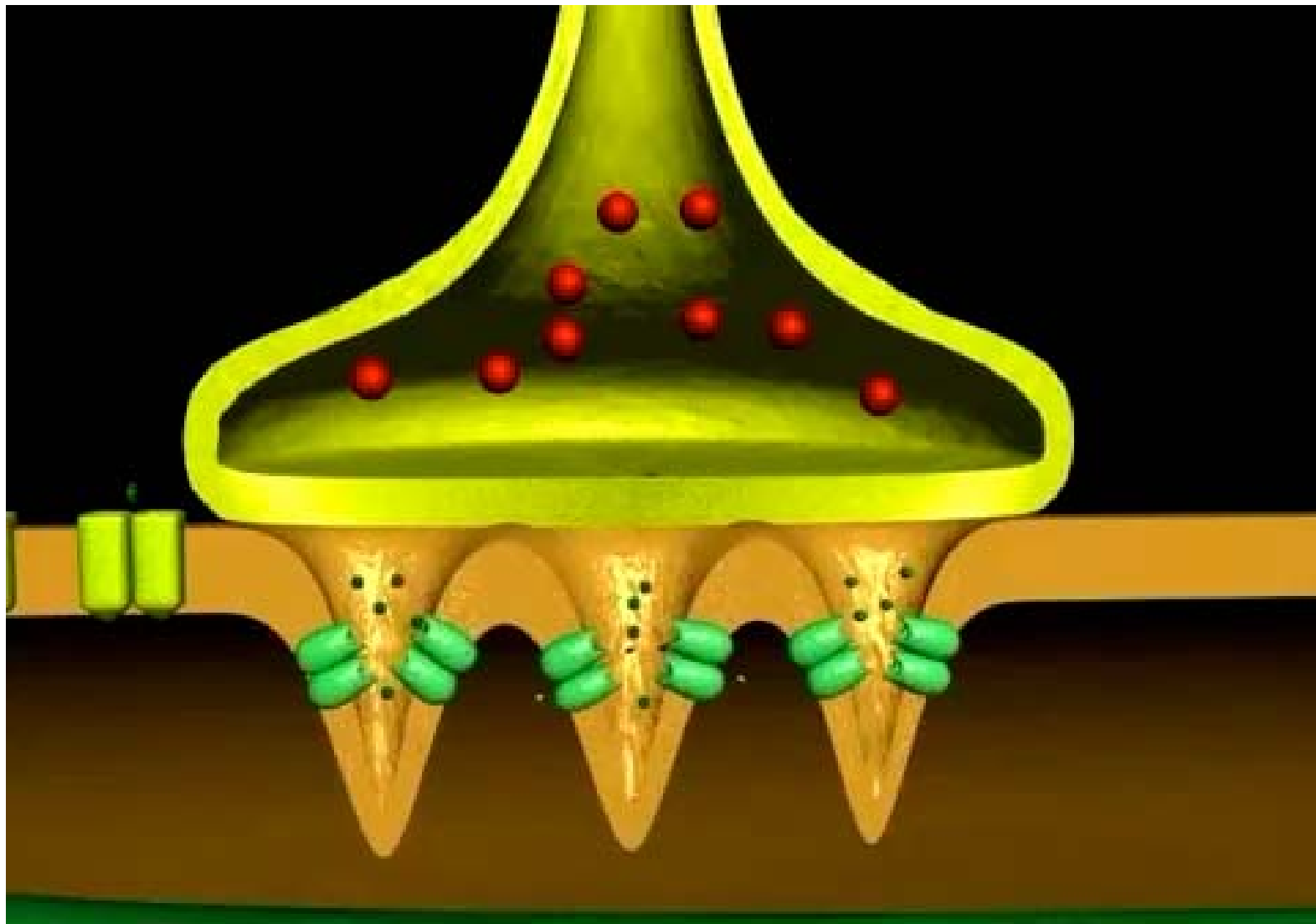
Successivamente all'apertura dei canali Ryanodina sensibili il Ca raggiunge valori superiori a 100 μM .

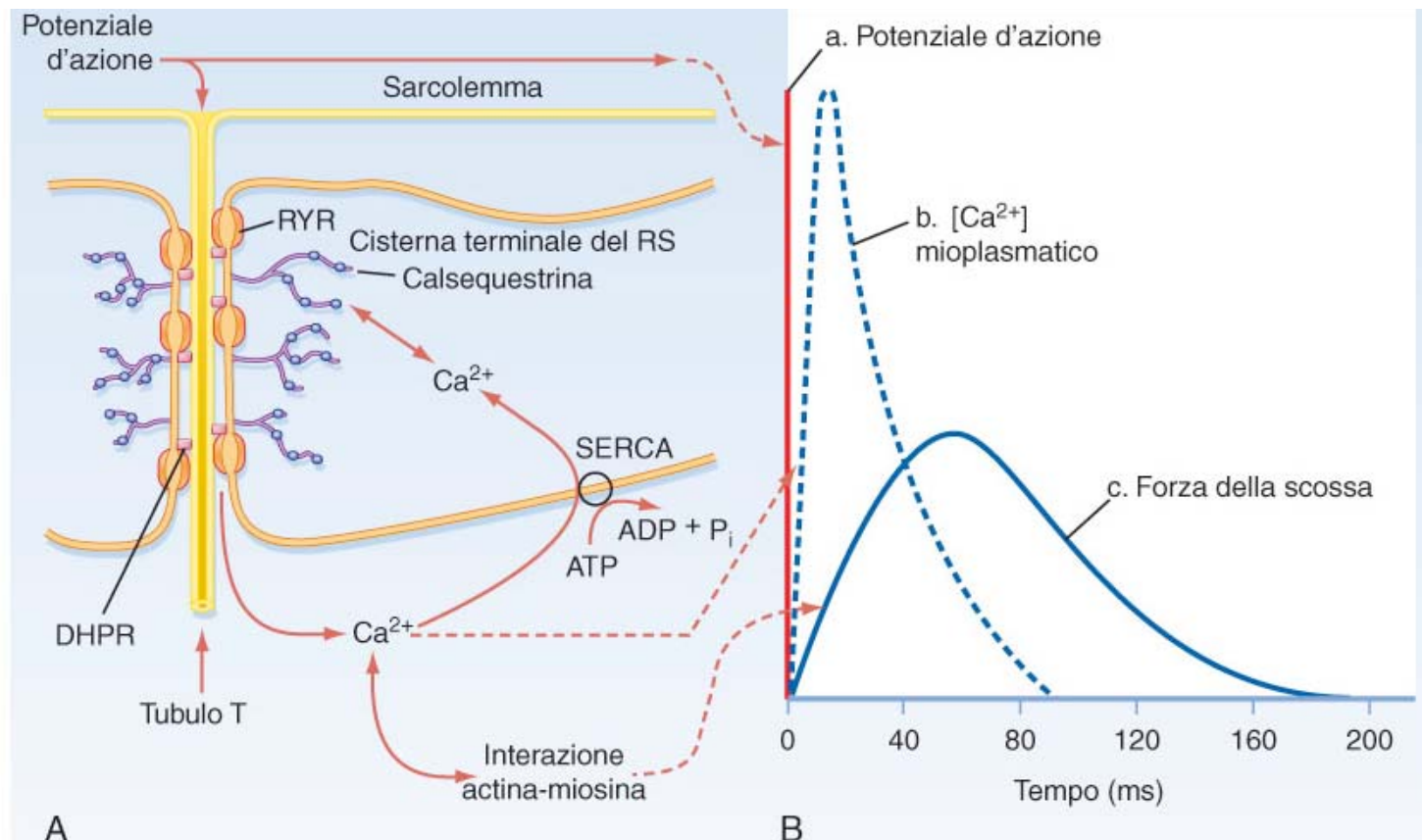
La contrazione del muscolo termina nel momento in cui i valori del Ca intracellulare tornano ai valori di riposo (intorno a 10-100 nM) grazie all'azione della $\text{Ca}^{++}\text{ATPasi}$

Il sarcoplasma contiene una proteina solubile PARVALBUMINA con affinità per il Ca intermedia tra la Ca-ATPasi e la Troponina.

La PA sequestra inizialmente il Ca nel sarcoplasma e lo trasferisce alla Ca-ATPasi.







Il Ca aumenta e diminuisce come un breve impulso. Questo impulso, in risposta ad un singolo potenziale d'azione causa una breve contrazione e rilassamento conosciuto come "twitch" scossa, la cui durata varia in base alla differente fibra e al differente muscolo

