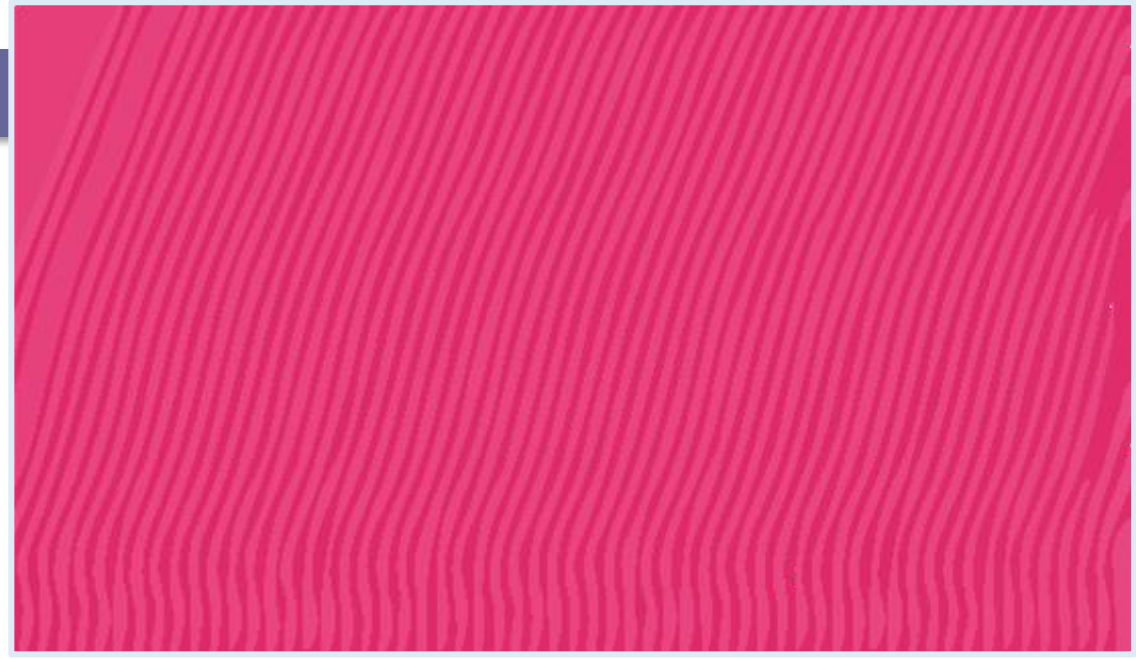
MIŠIĆNO TKIVO

4

Textus muscularis



Citologija i tkiva

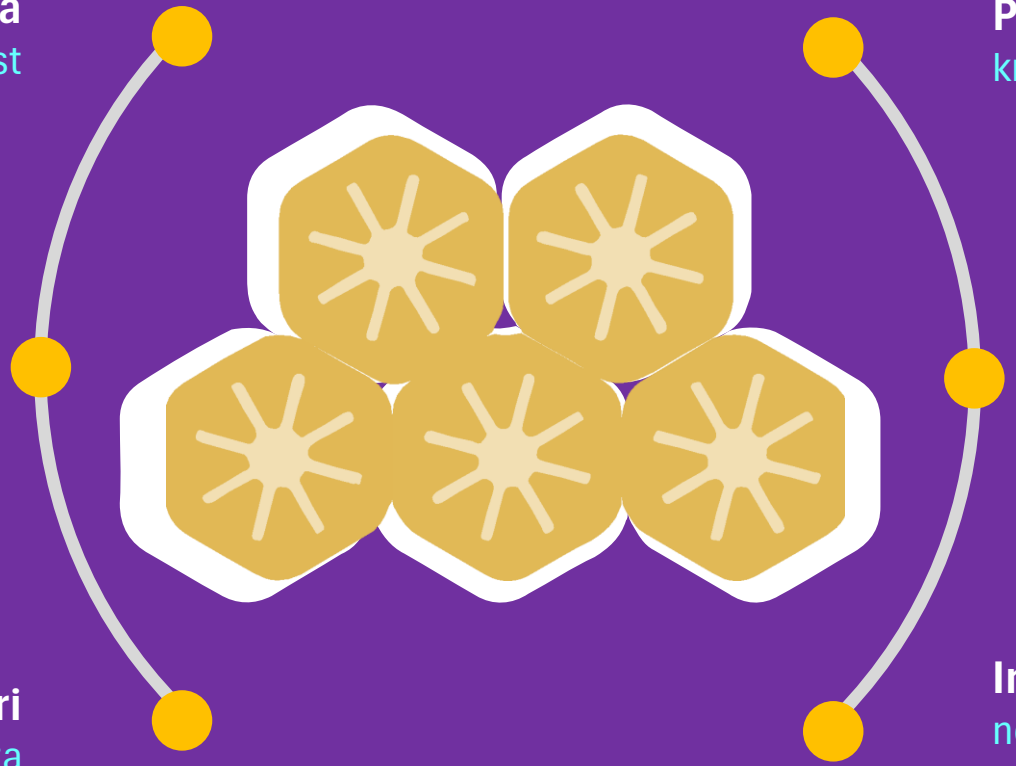
Mijat BOŽOVIĆ

OSVRT

Svojstva neurona
ekscitabilnost i konduktivnost

Sinapsa kao osnov komunikacije
integracija neurona u jedinstvenu funkcionalnu mrežu

Sinaptički transmiteri
oslobađaju se iz sinaptičkog čvora i vežu za receptore na postsinaptičkoj membrani

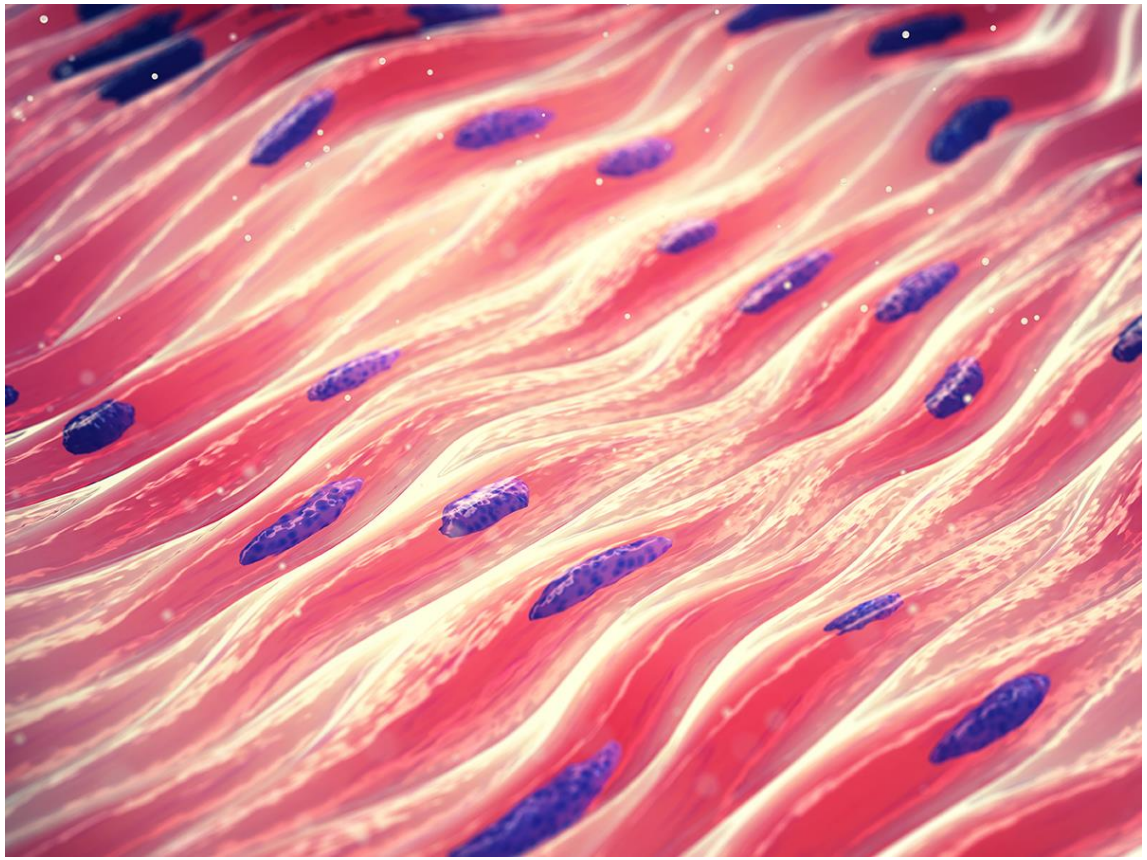


Periferni nervni sistem
kranijalni i spinalni nervi i ganglije

Eferentni nervni završeci
nose informacije od CNS-a do mišićnih ili ćelija endokrinog sistema

Inkapsulirani aferentni završeci
neuromišično vreteno i Goldžijev tetivni organ

Funkcionisanje mišićnog tkiva



Osnovna svojstva miocita:

ekscitabilnost

sposobnost da se pod uticajem raznih draži pobude (da dođe do njihove depolarizacije)

kontraktilnost

kao odgovor na tu draž (posredstvom proteina specifične molekularne građe i organizacije)

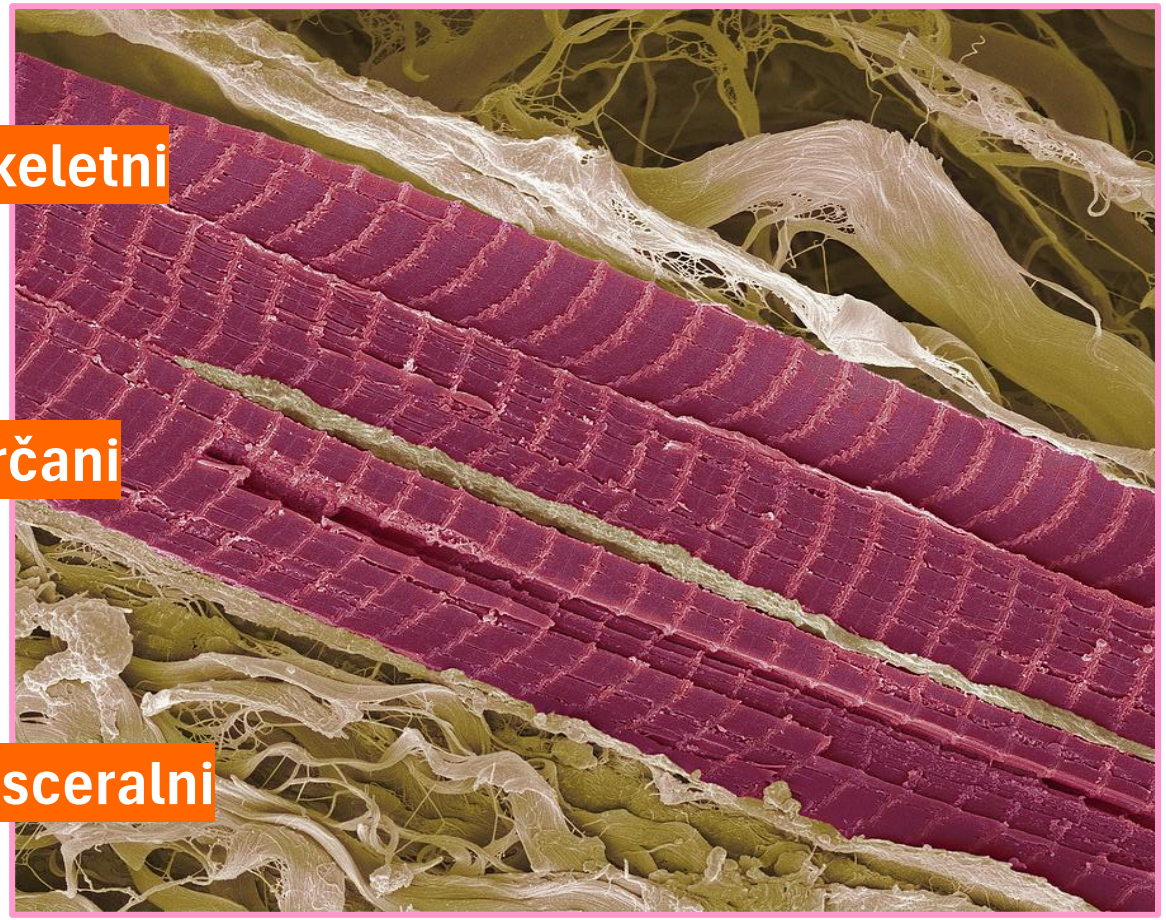
2 grupe mišića

prugasti

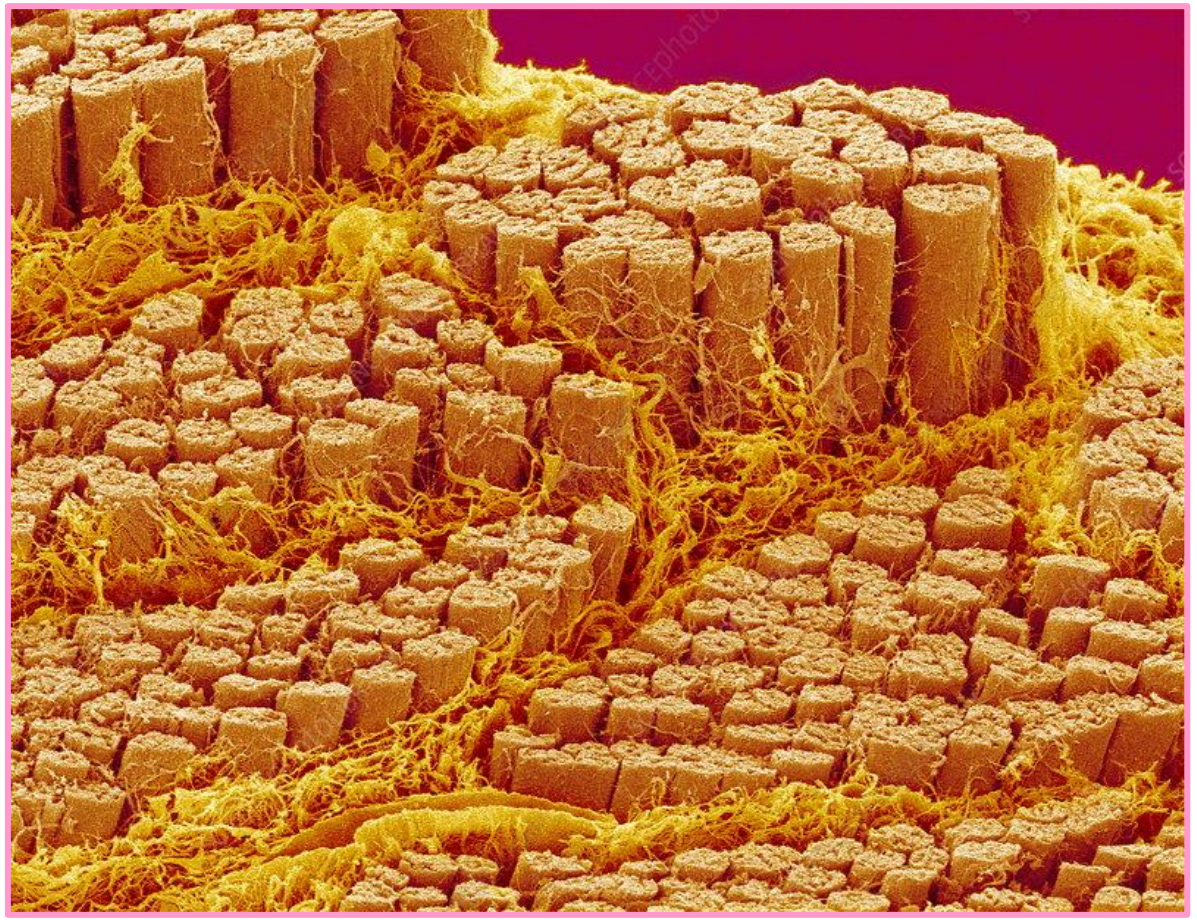
skeletni

srčani

visceralni

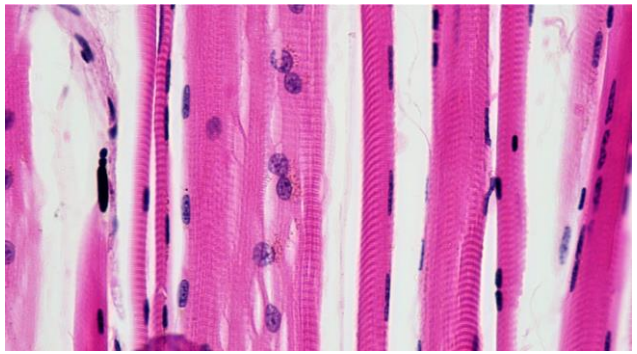


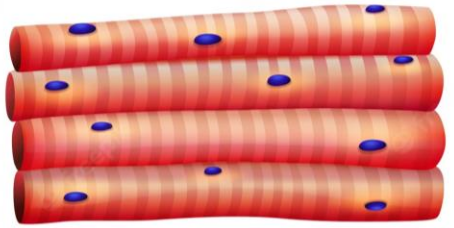
glatki

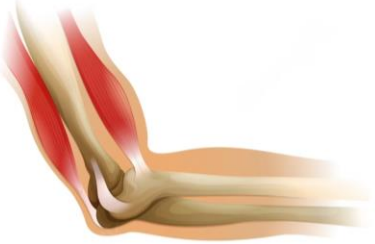


TIPOVI MIŠIĆNOG TKIVA

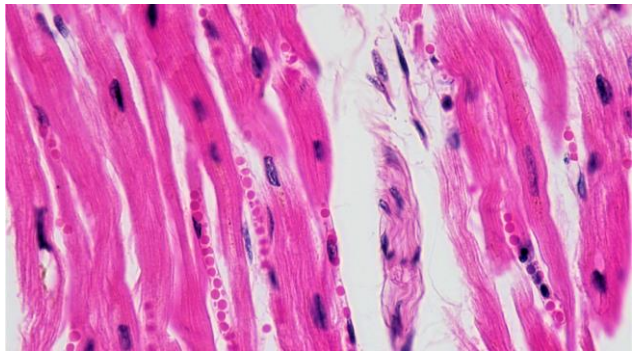
poprečno-prugasto (skeletno)

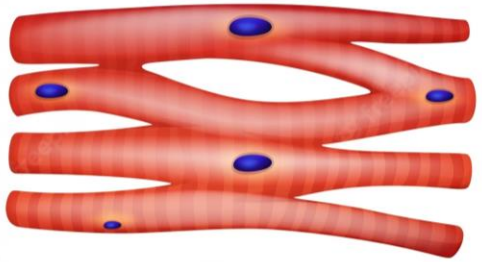


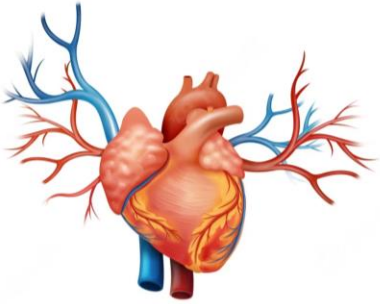




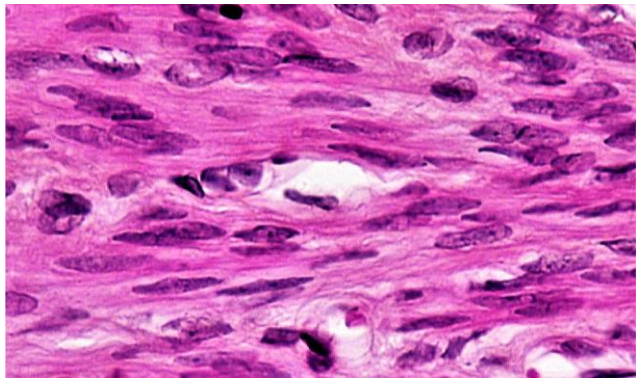
srčano

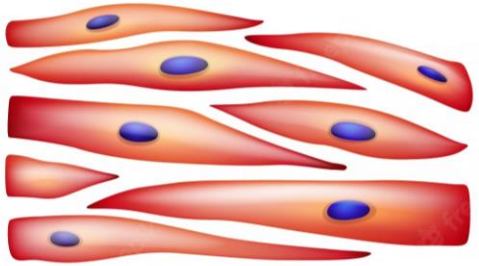


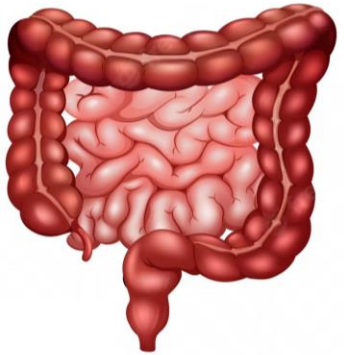




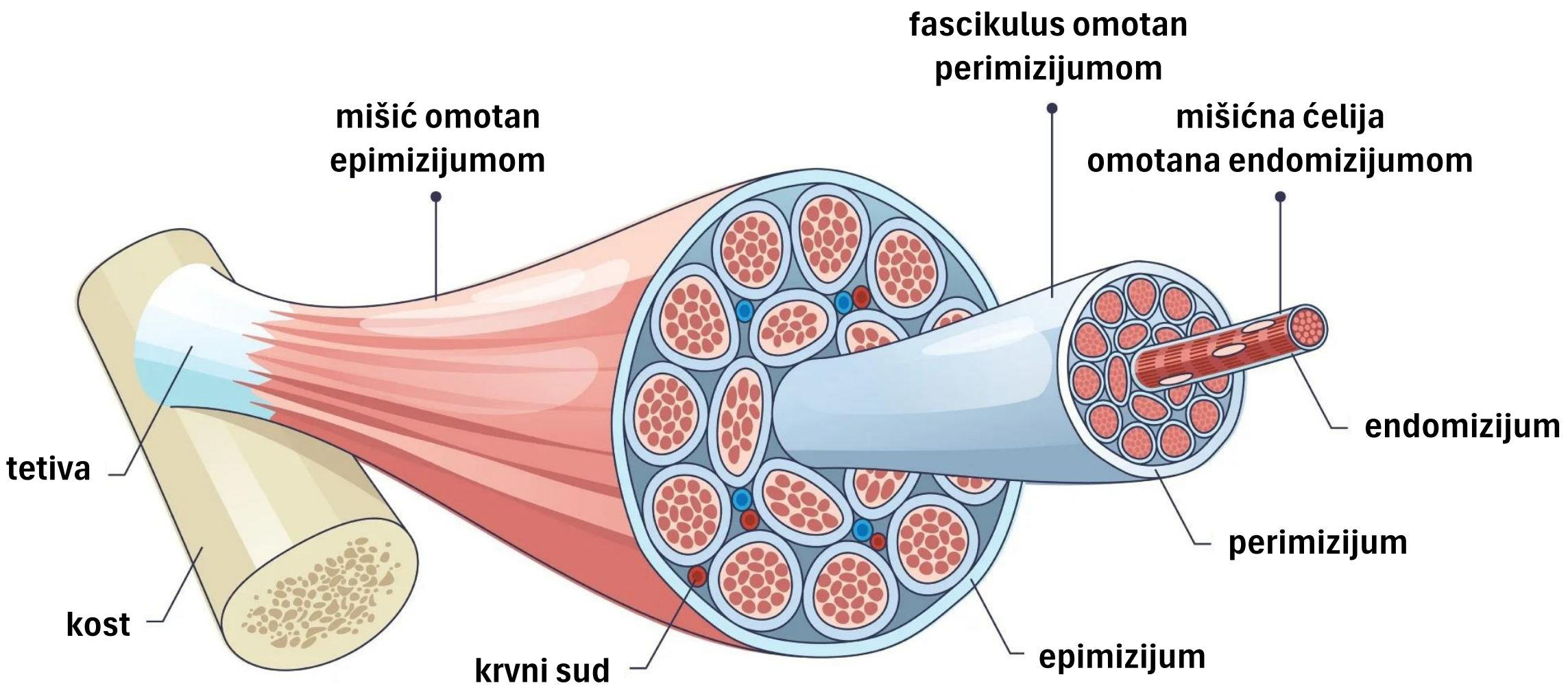
glatko



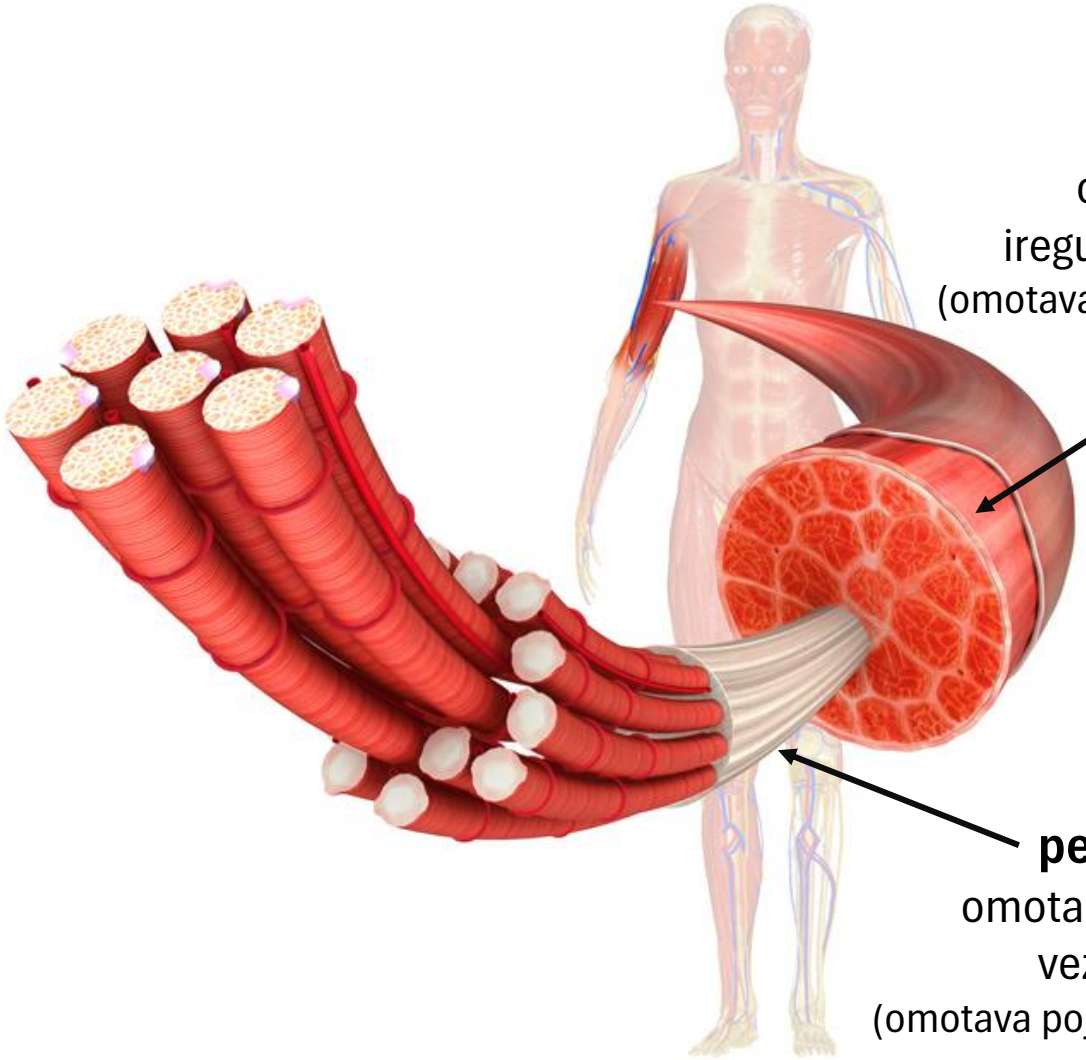




Poprečno-prugasto mišićno tkivo



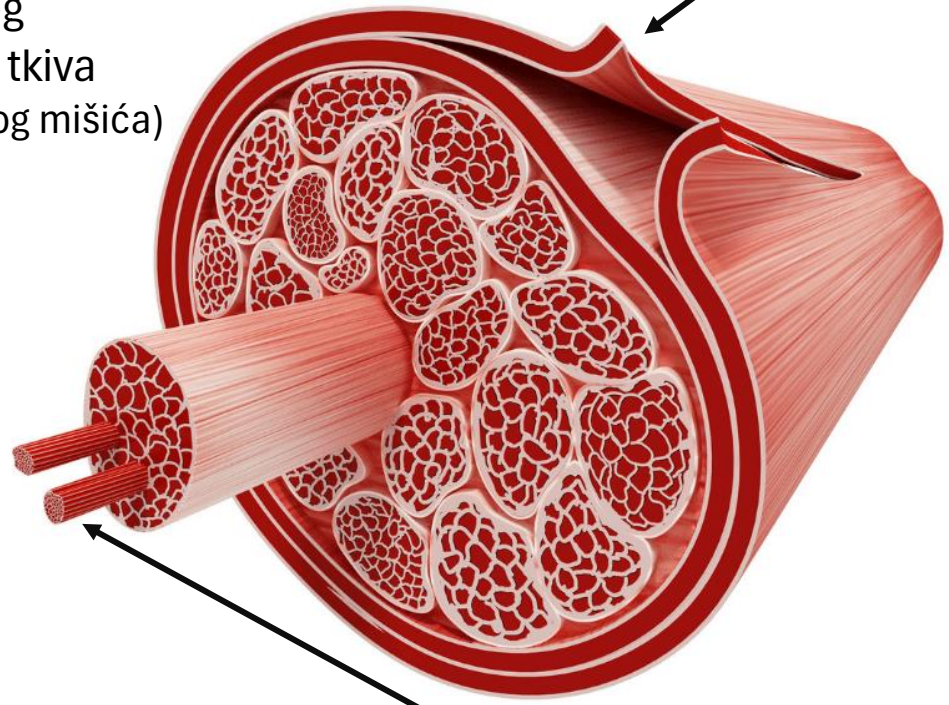
Vezivnotkivni omotači



epimizijum
omotač od gustog
iregularnog vezivnog tkiva
(omotava fascikuluse jednog mišića)

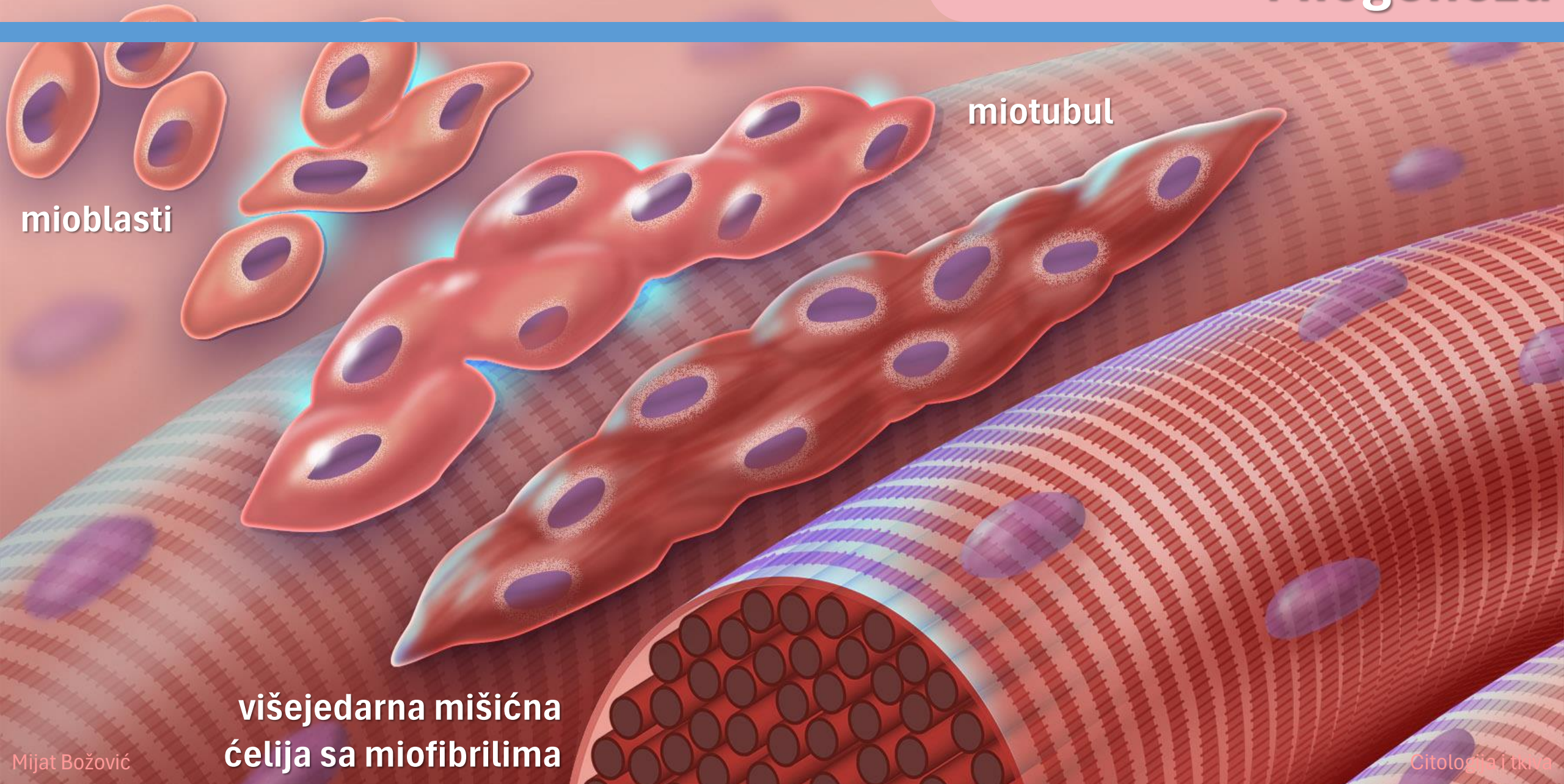
perimizijum
omotač od rastresitog
vezivnog tkiva
(omotava pojedinačne fascikuluse)

fascija
sloj gustog regularnog
fibroznog veziva
(omotava pojedinačne mišiće
i naliježe na epimizijum)

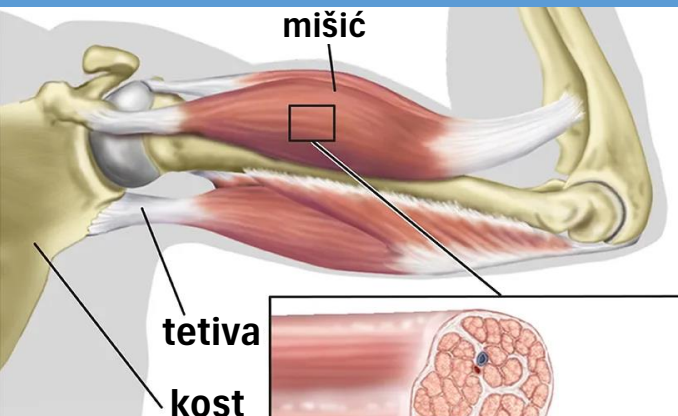


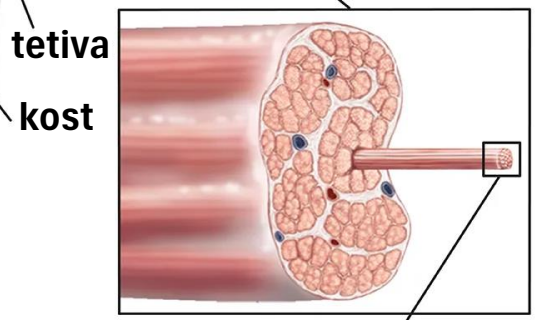
endomizijum
bazalna lamina i retikularna vlakna
(omotava pojedinačne mišićne ćelije)

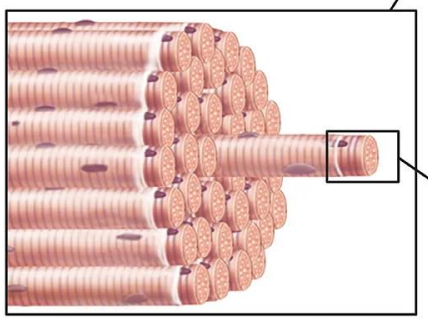
Miogeneza

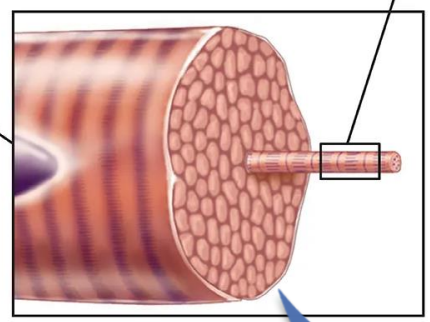

miotubul
mioblasti
višejedarna mišićna
ćelija sa miofibrilima

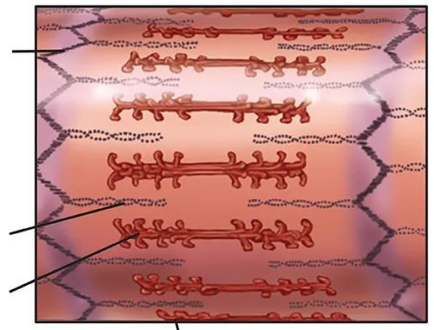
Skeletna mišićna ćelija

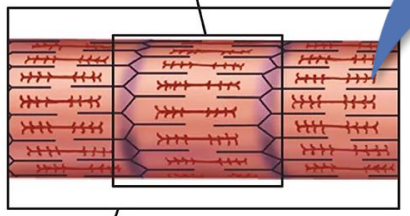


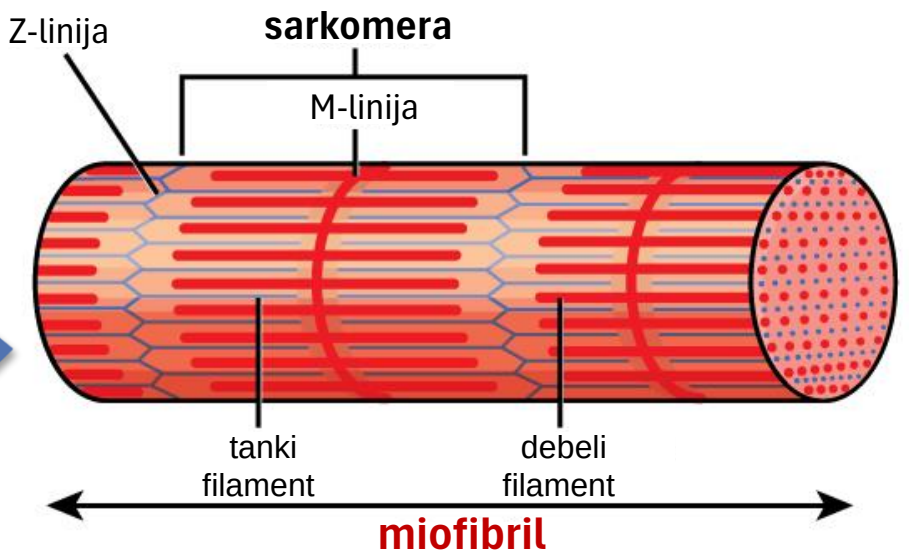


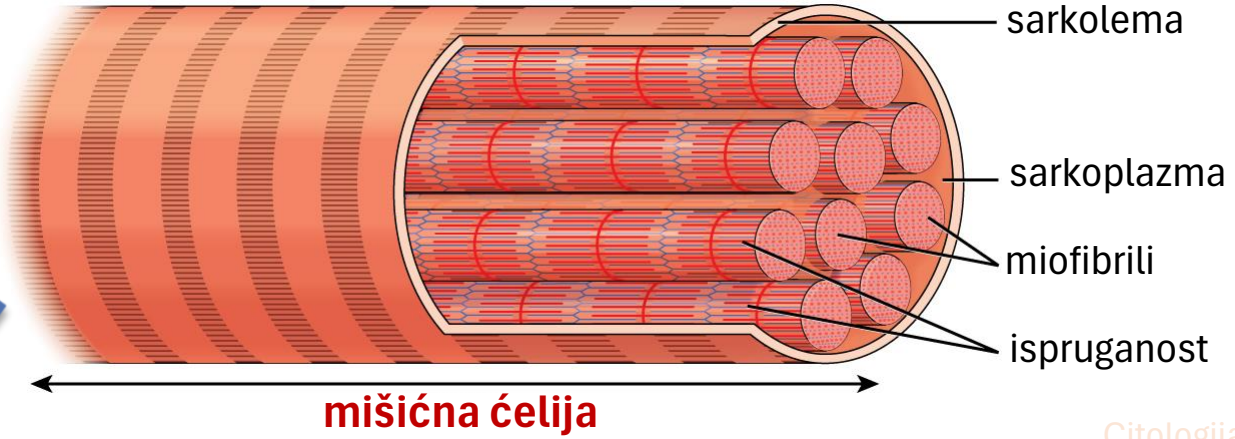




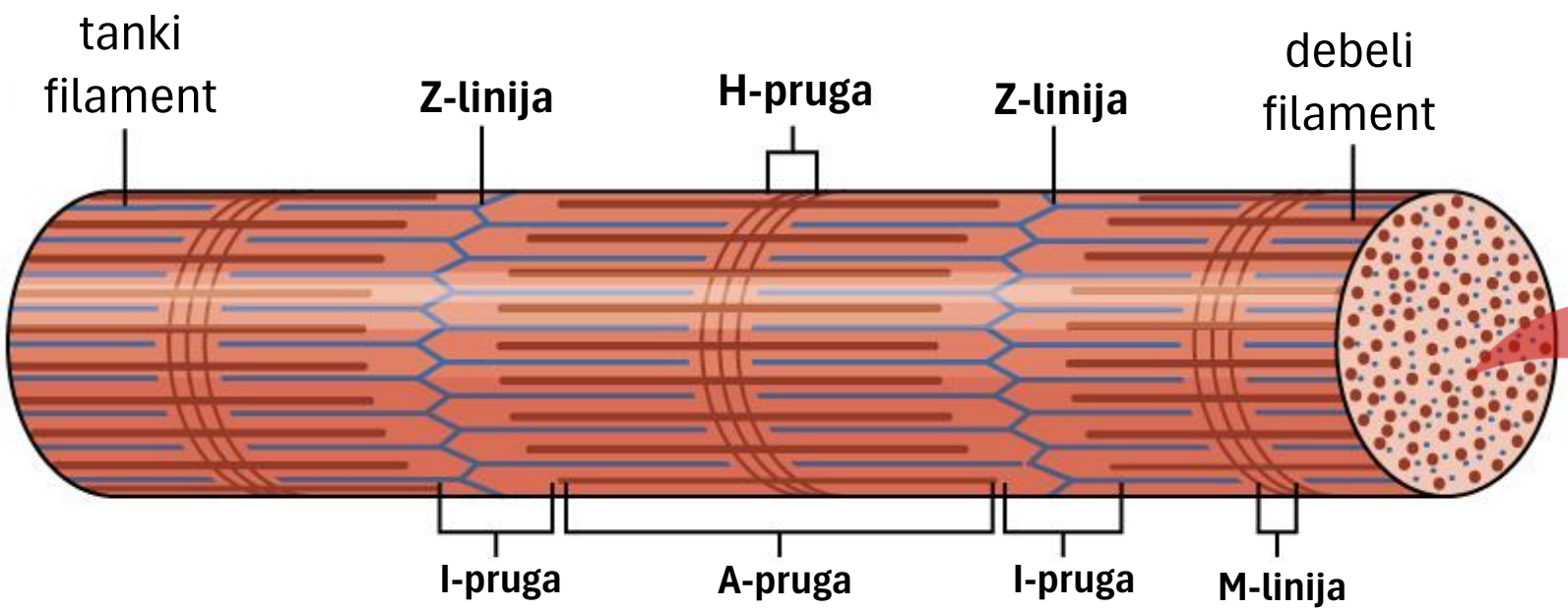




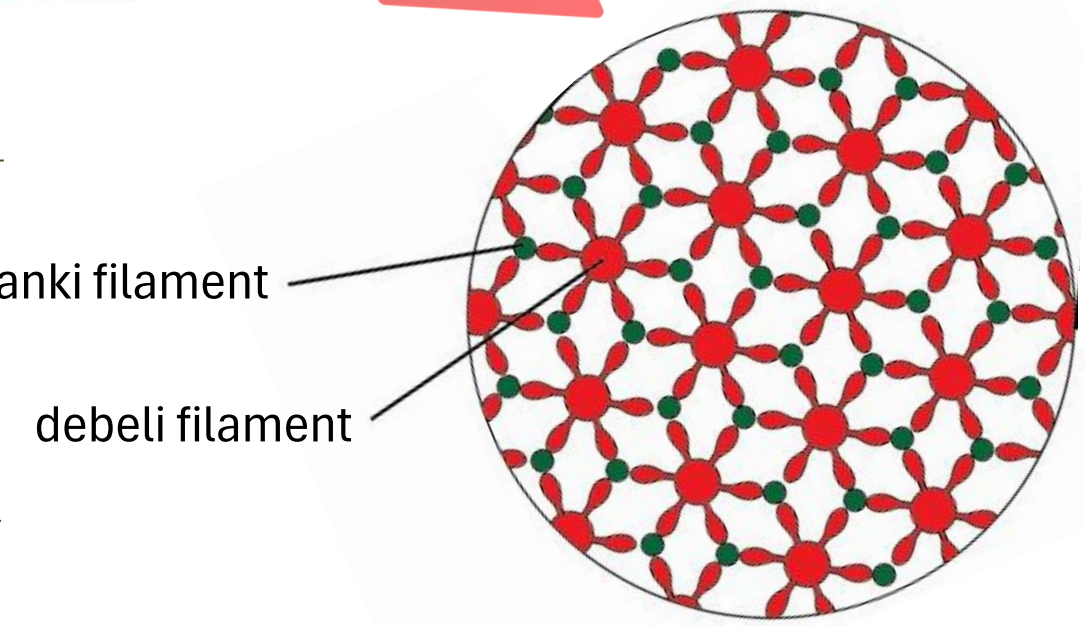




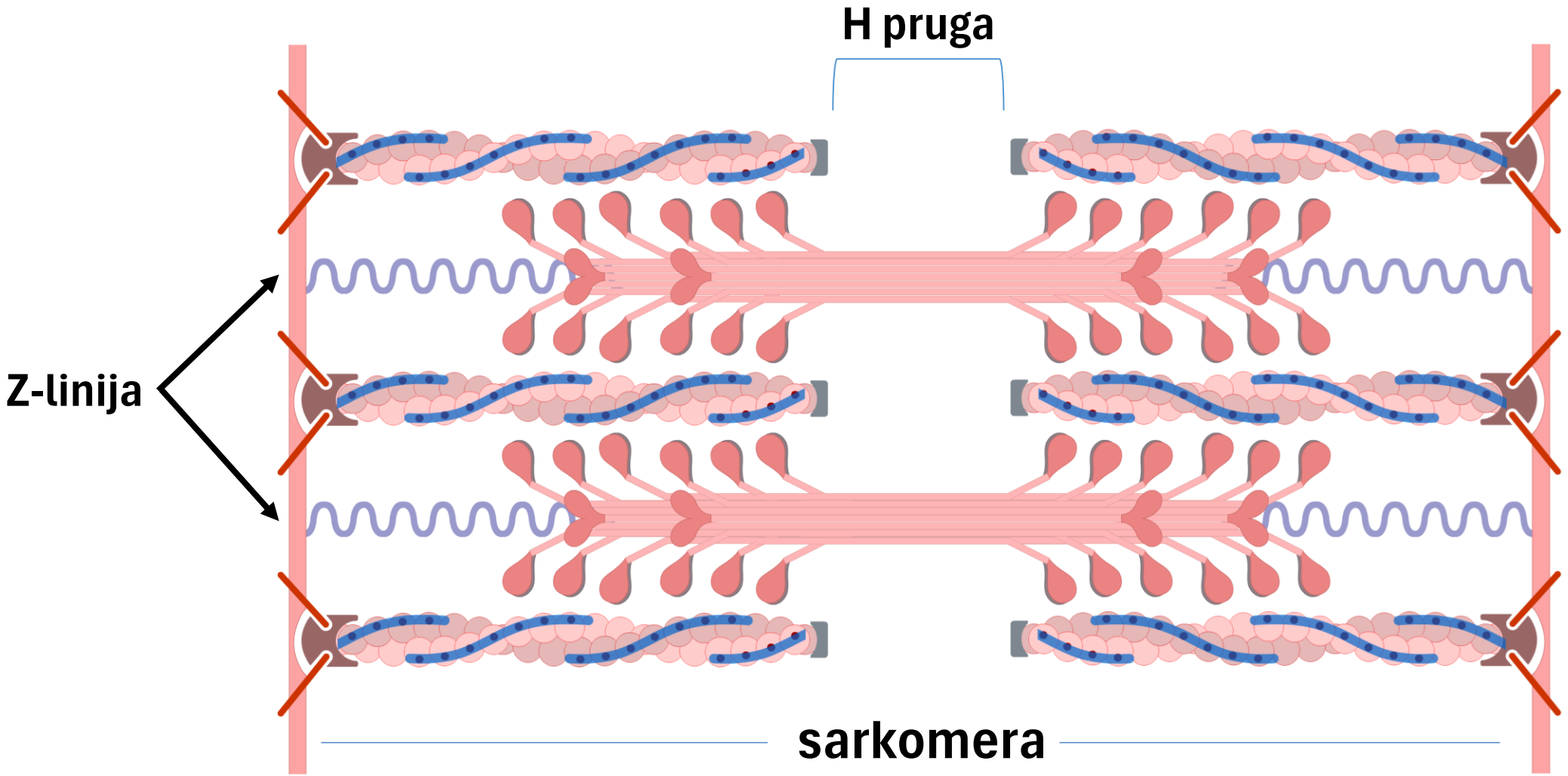
Tanki i debeli filamenti miofibrila



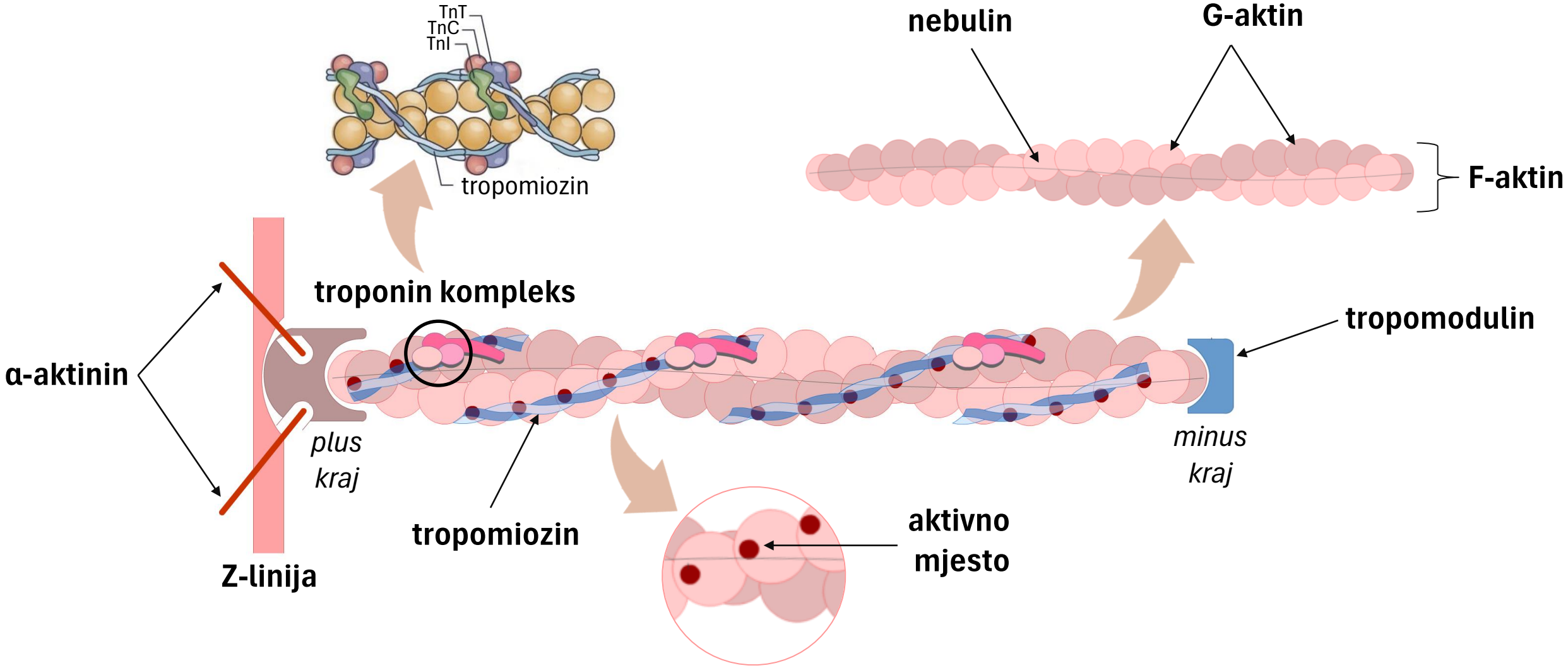
parakristalni raspored
(1 debeli okružen sa 6 tankih)



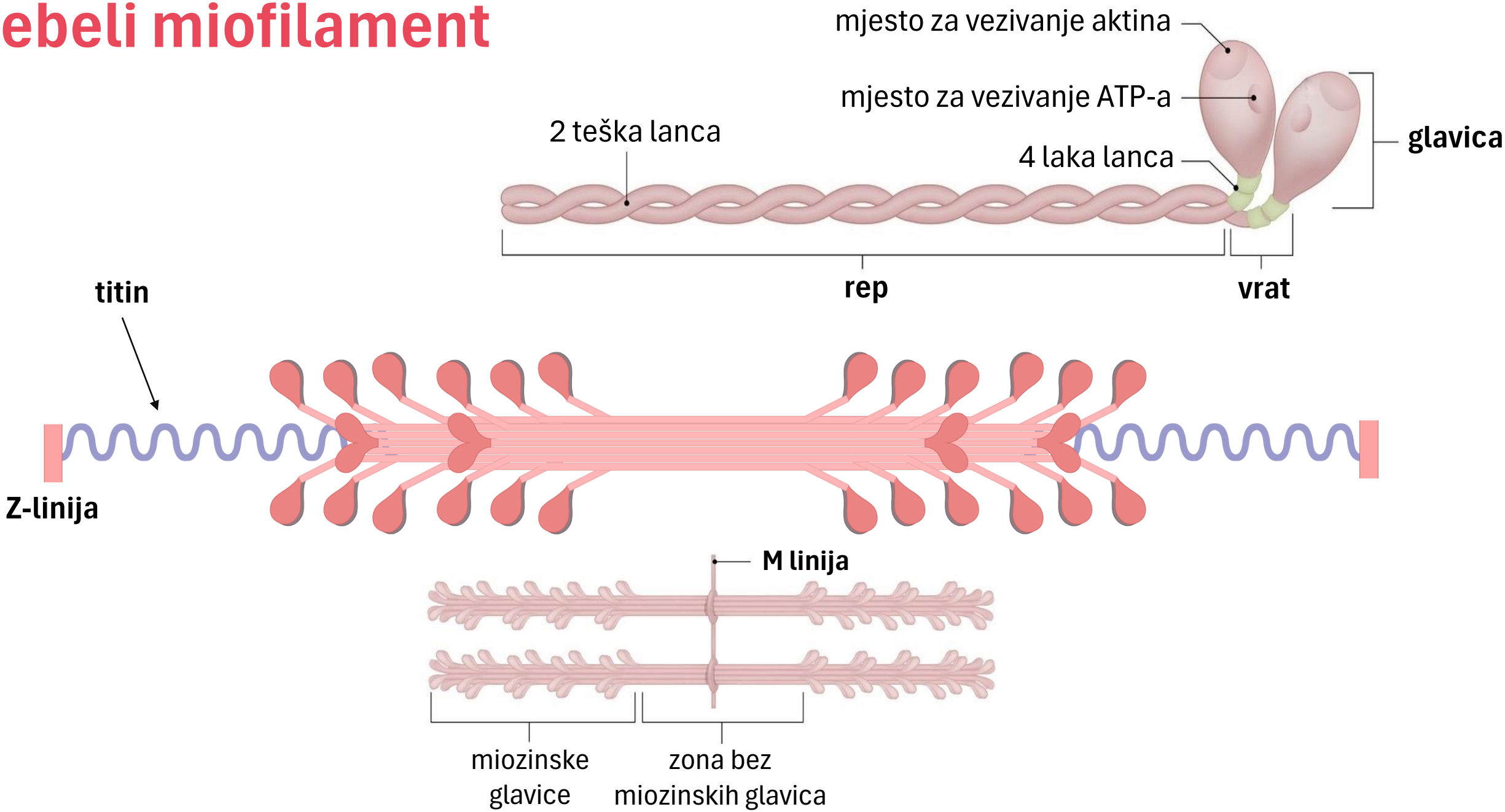
Sarkomera: bazična kontraktilna jedinica



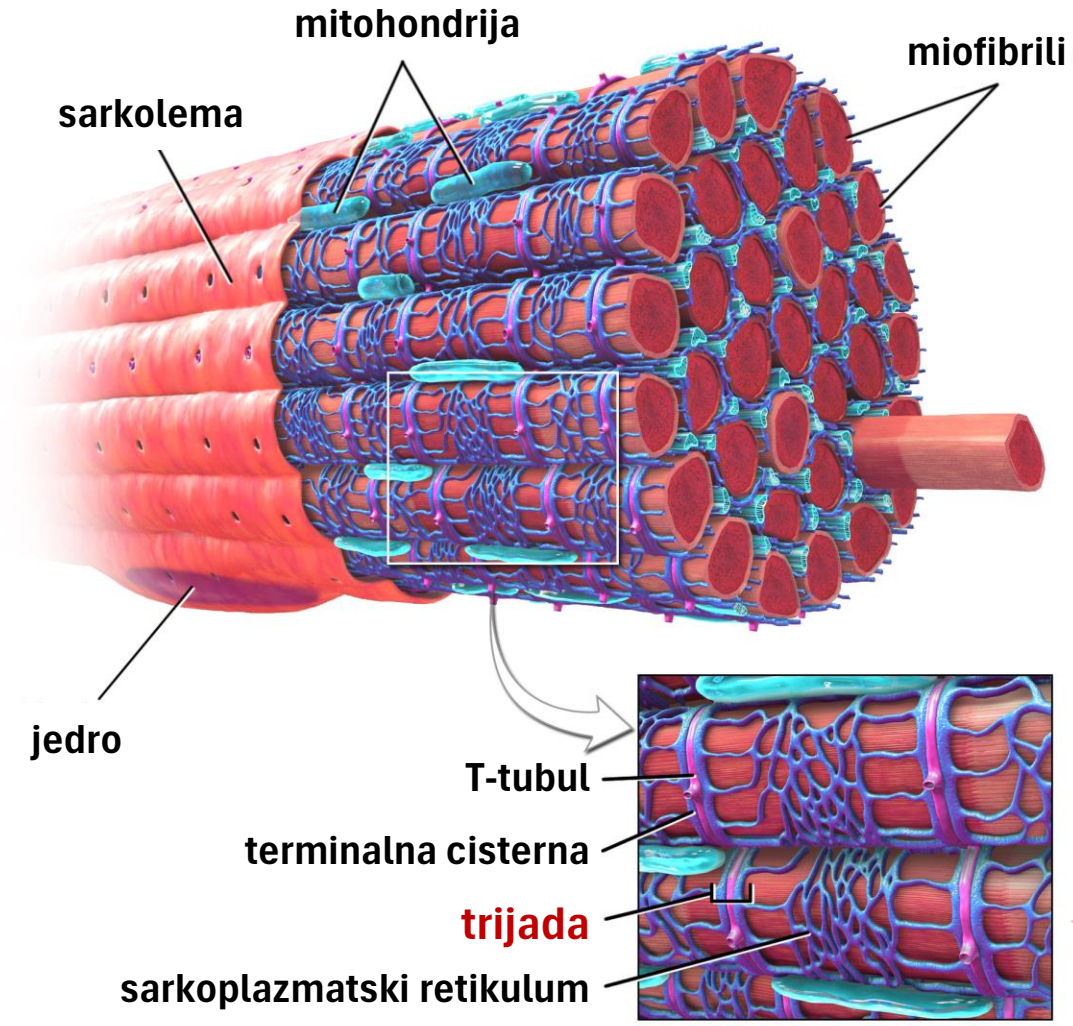
Tanki miofilament

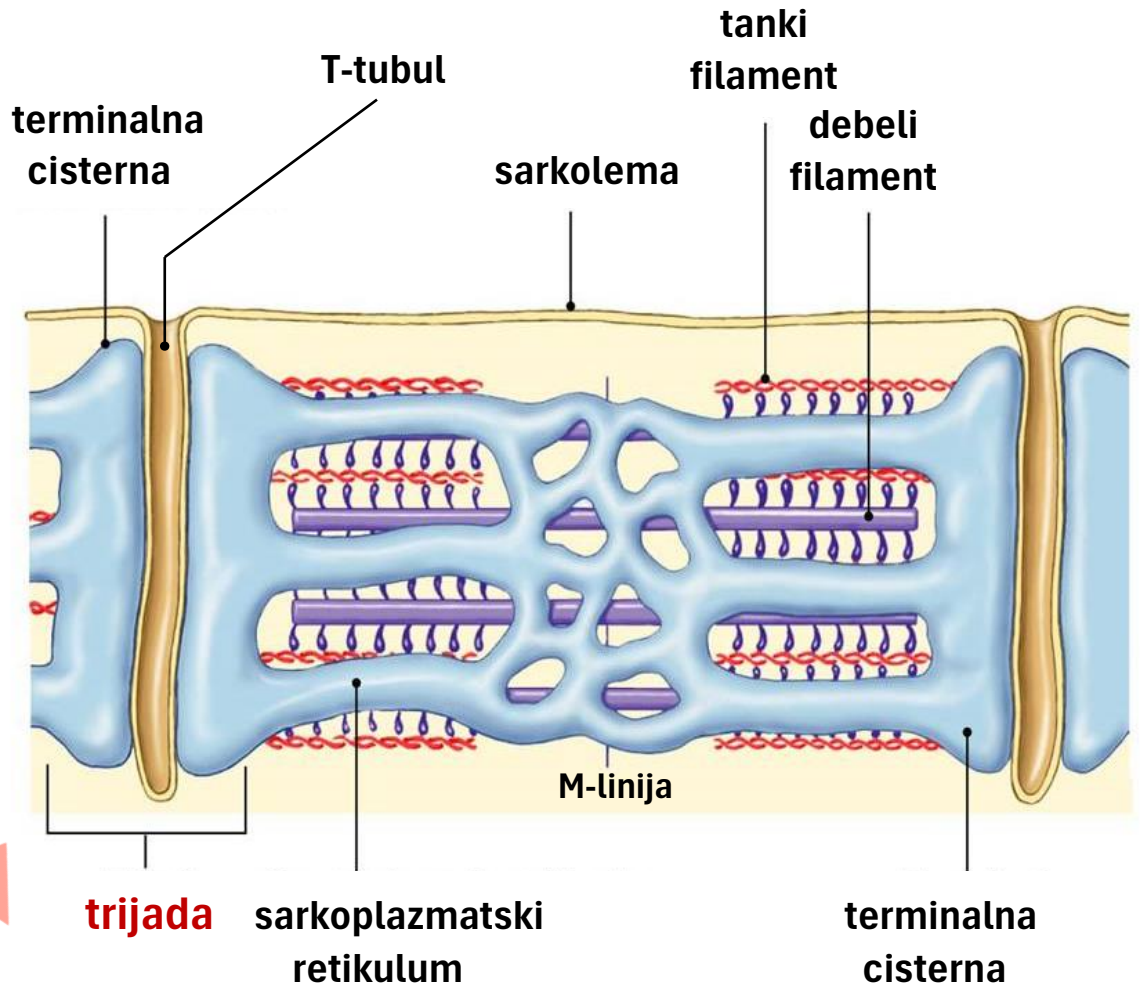


Debeli miofilament



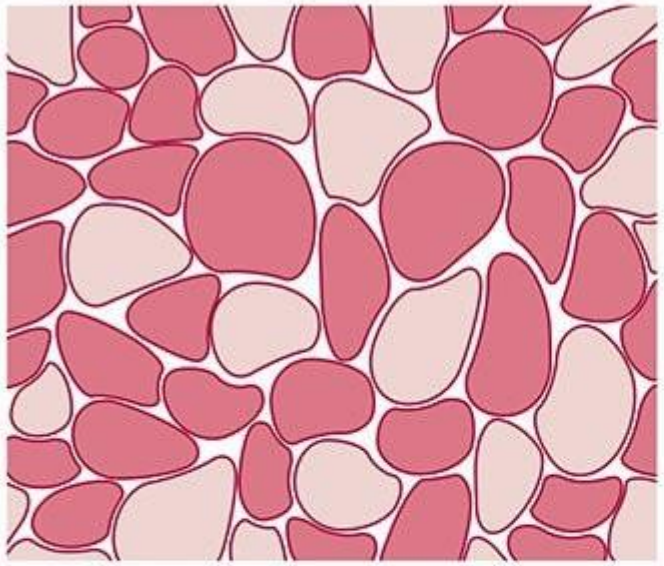
Trijada skeletnog mišića



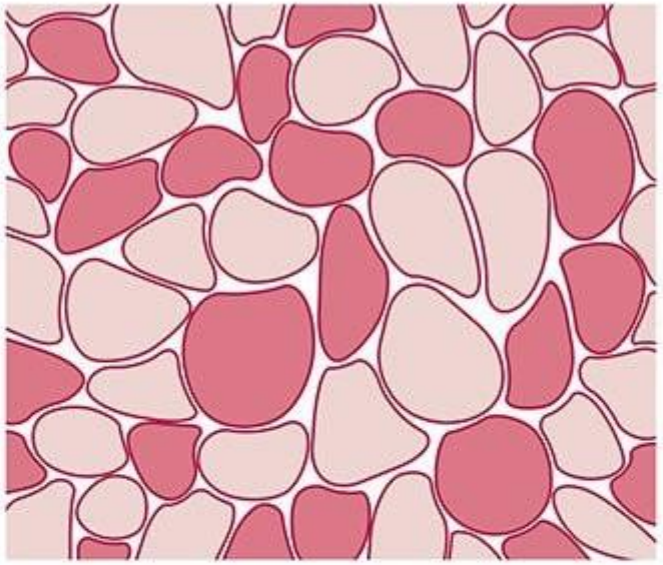


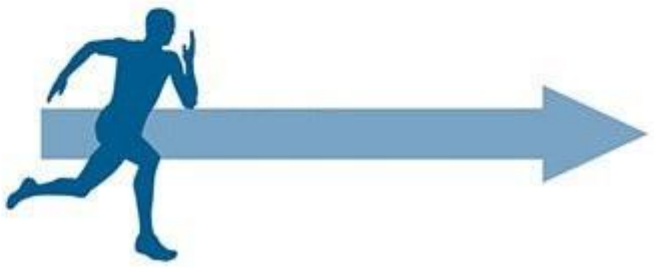
Tipovi skeletnih mišićnih ćelija

crvene (aerobne)

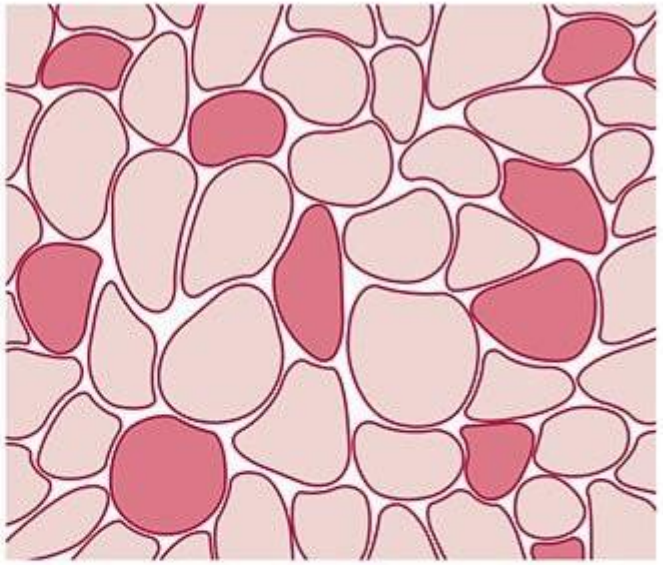


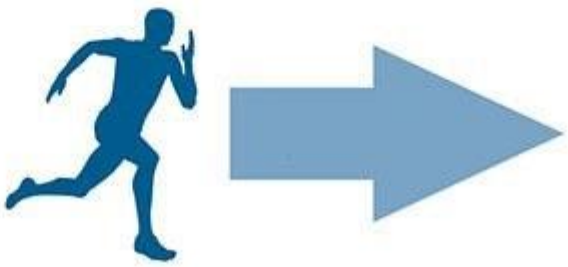
intermedijarne



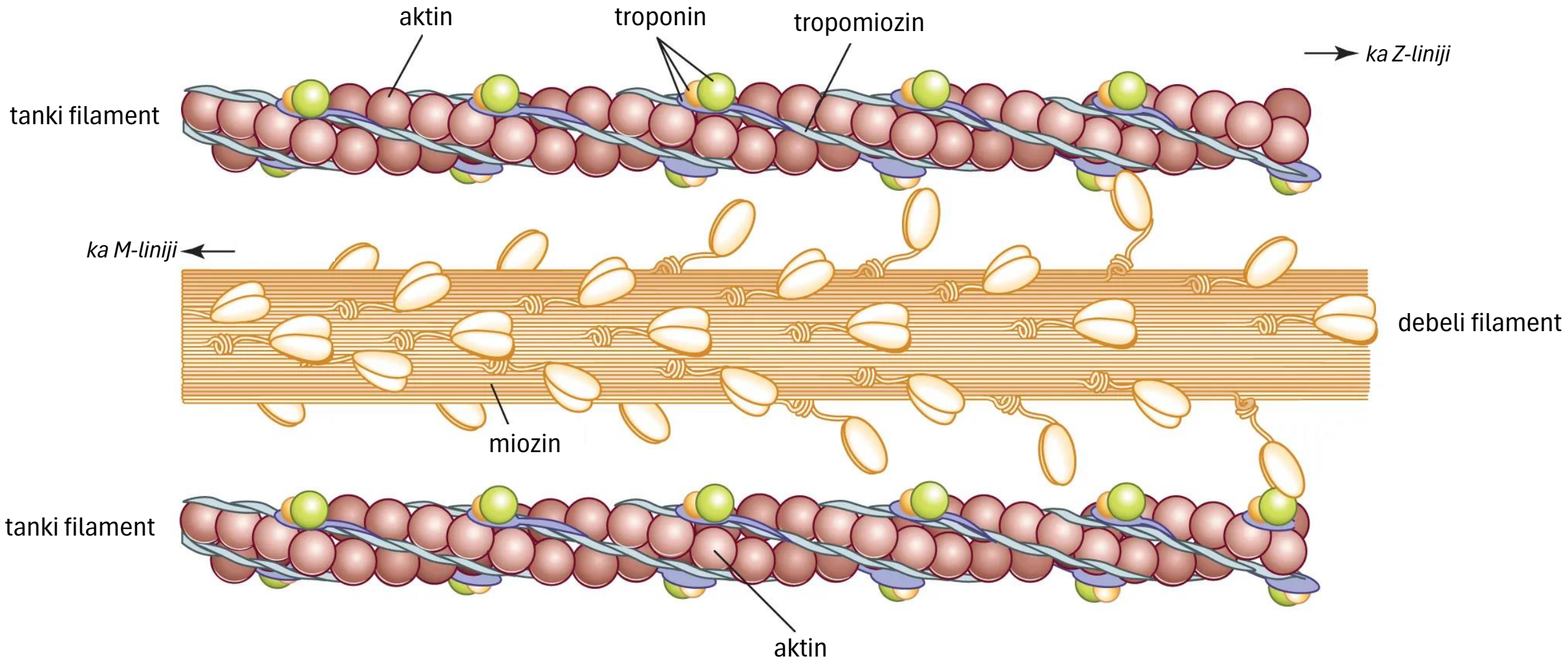


bijele (anaerobne)





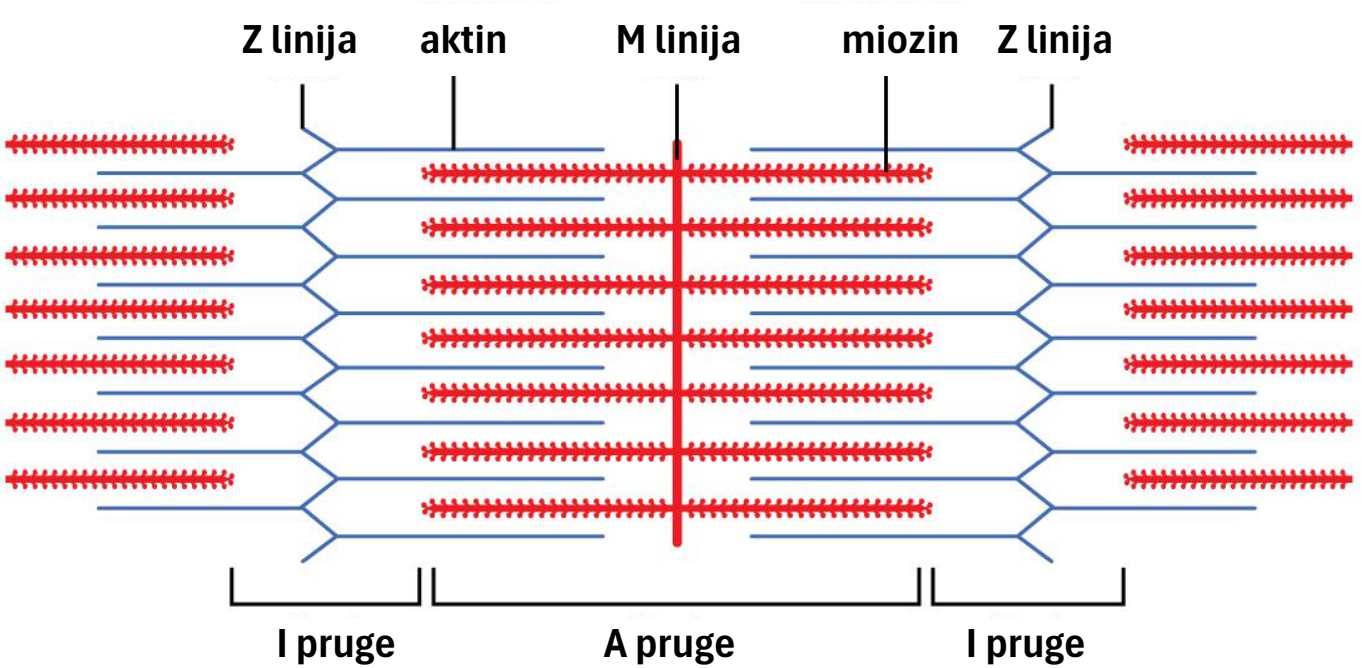
Klizanje filamenata u kontrakciji

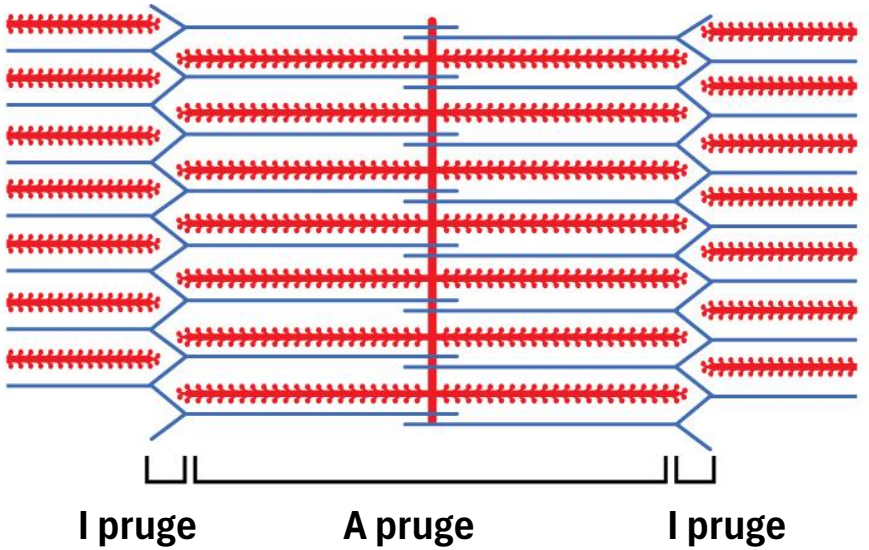


Sarkomera u kontrakciji

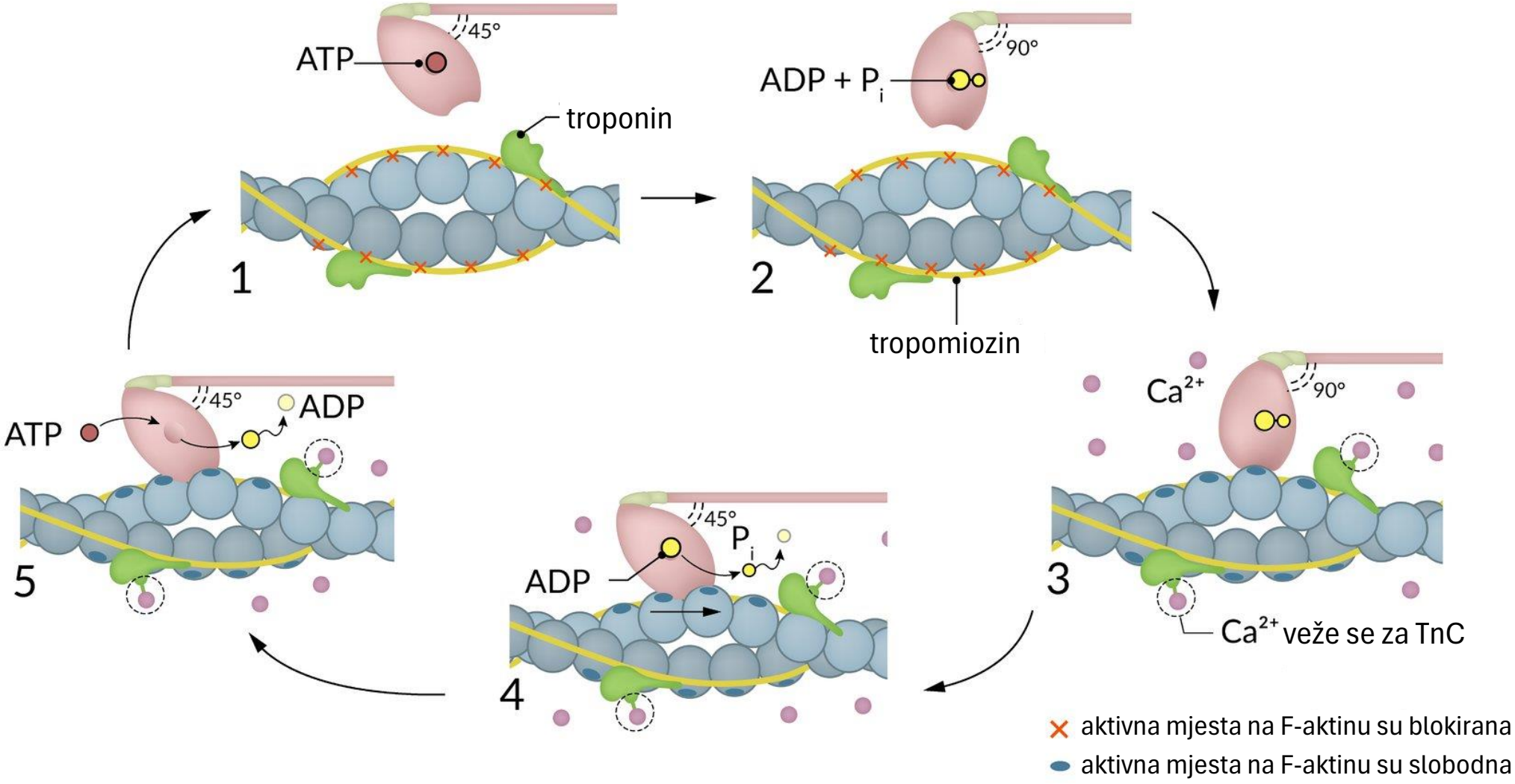
stanje mirovanja

kontrakcija

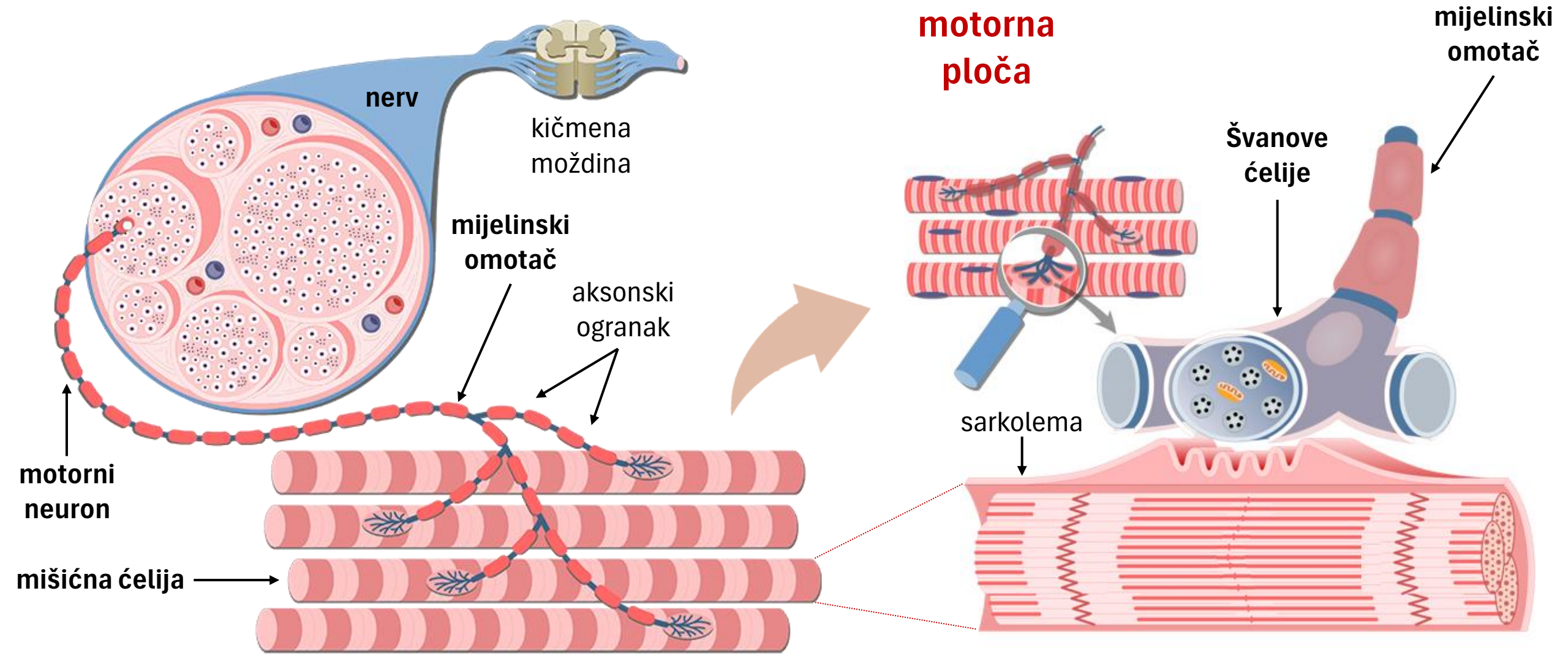




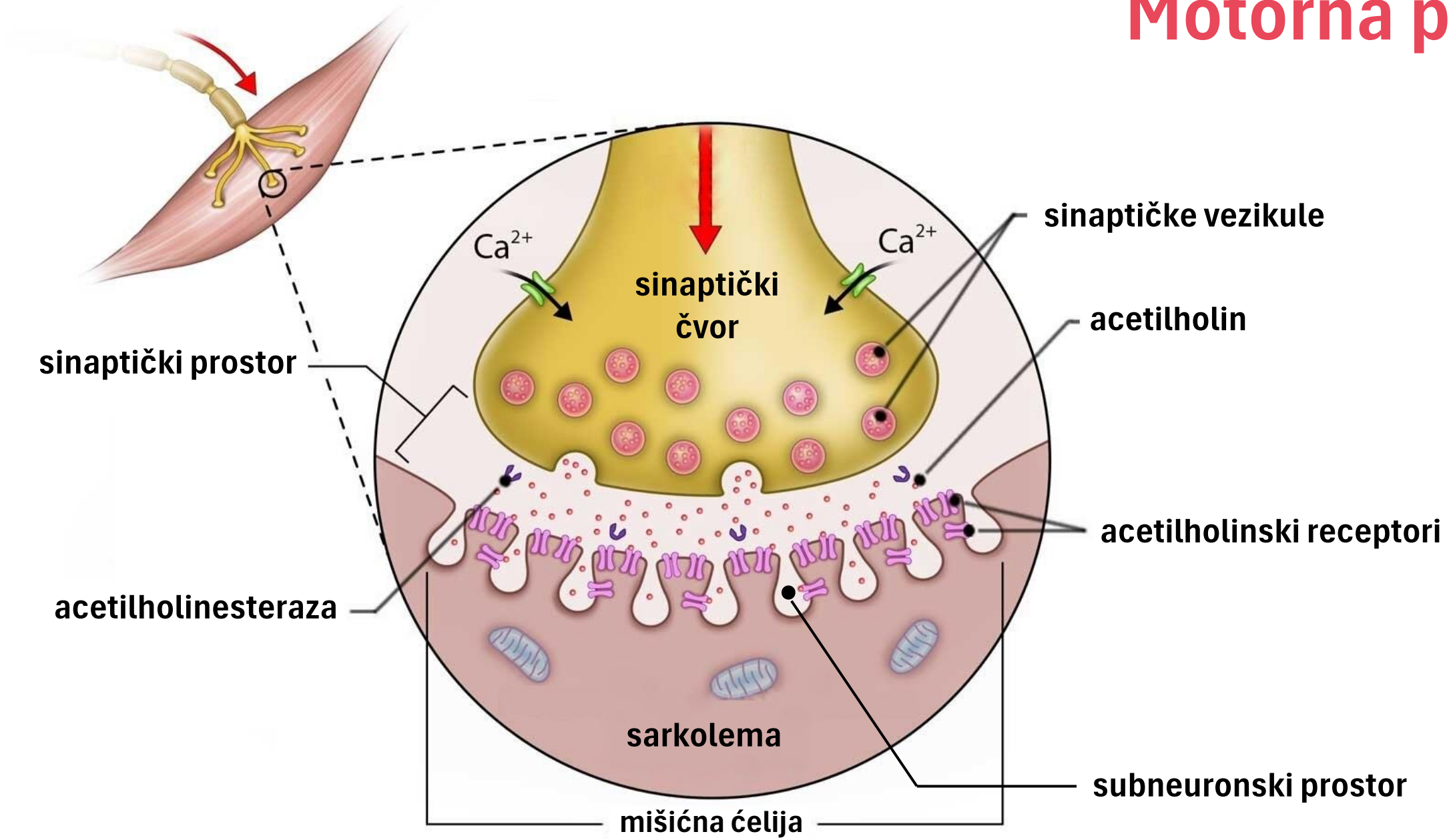
Mehanizam kontrakcije



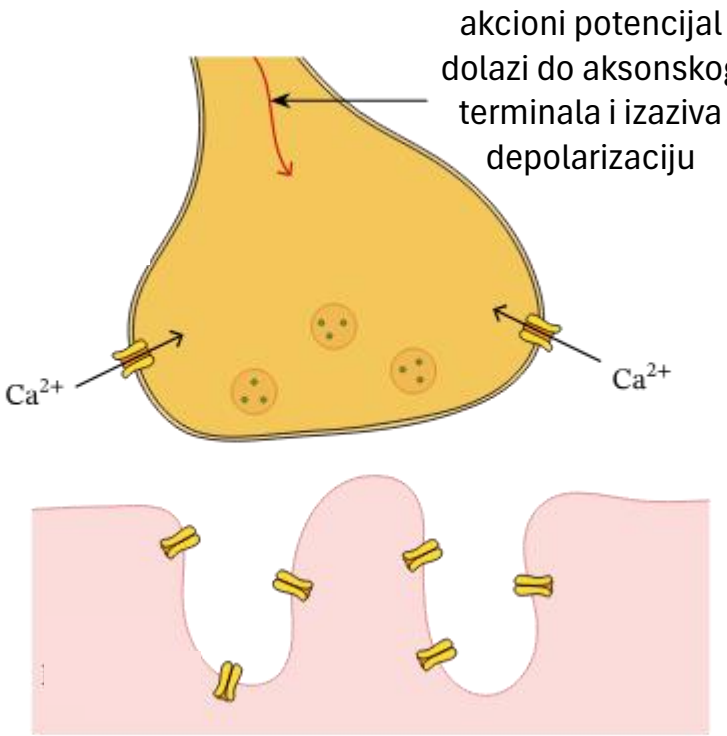
Motorna inervacija skeletnog mišića



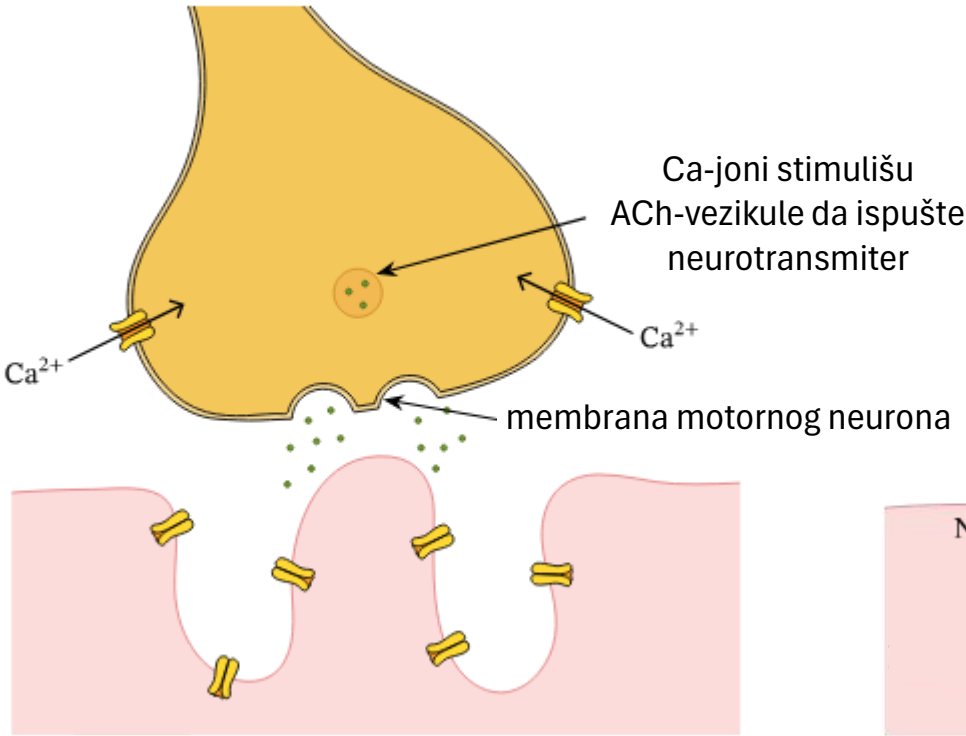
Motorna ploča



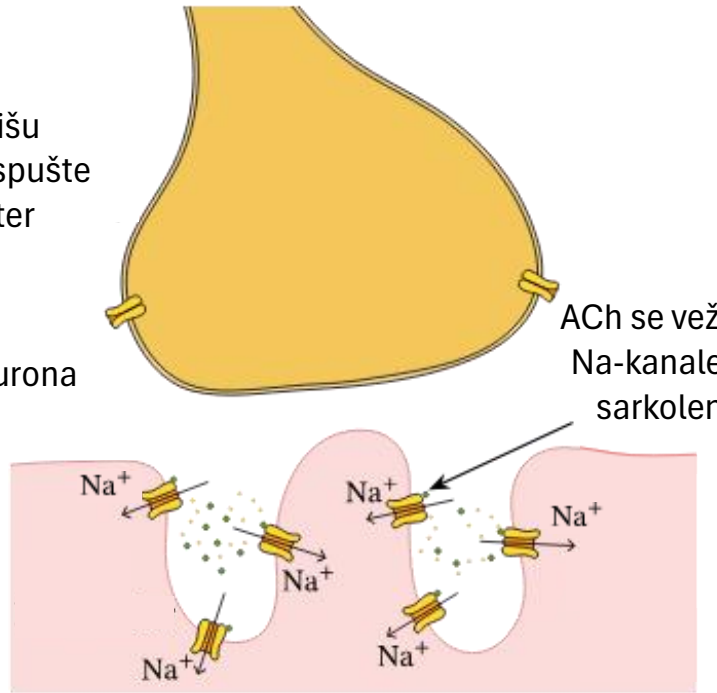
Stvaranje talasa depolarizacije



otvaranje Ca-kanala i ulazak Ca-jona u motorni neuron

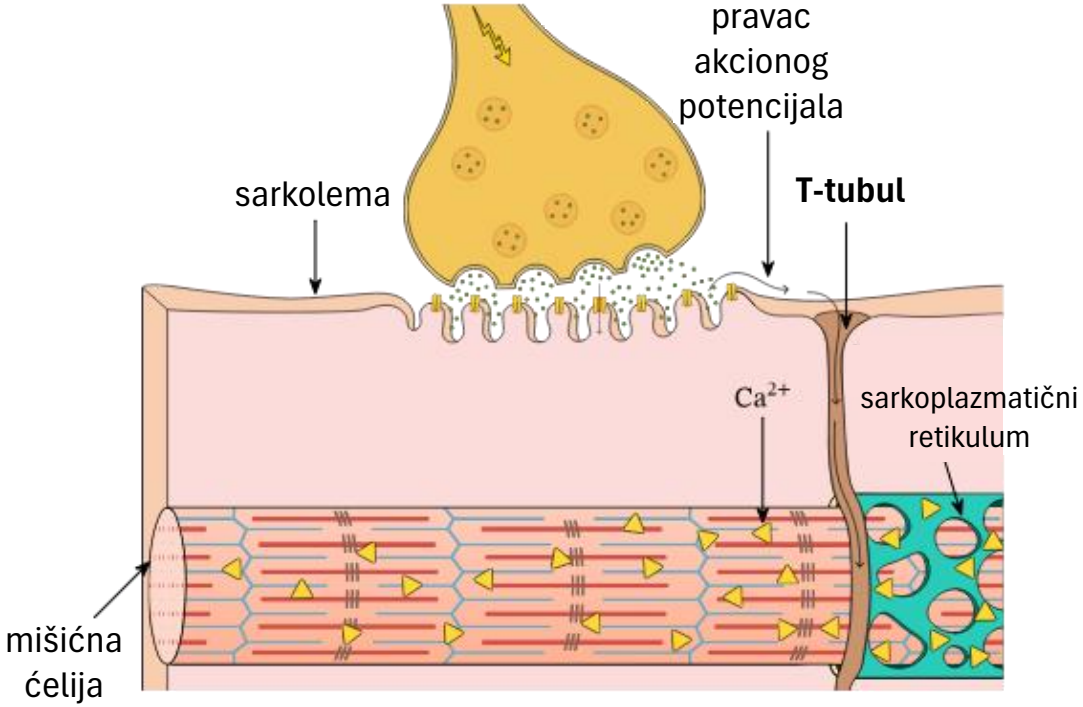


oslobađanje ACh u sinaptički prostor

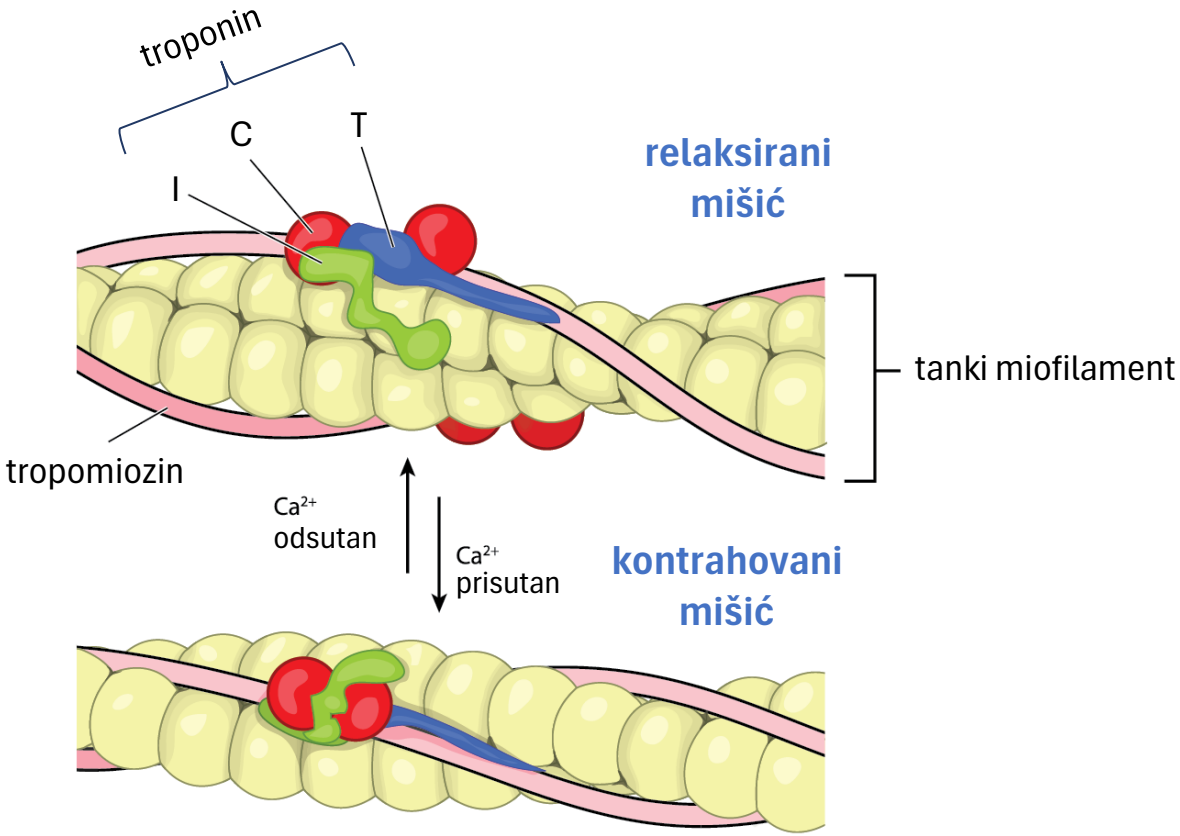


prodor Na-jona u sarkoplazmu

Širenje talasa depolarizacije i iniciranje kontrakcije

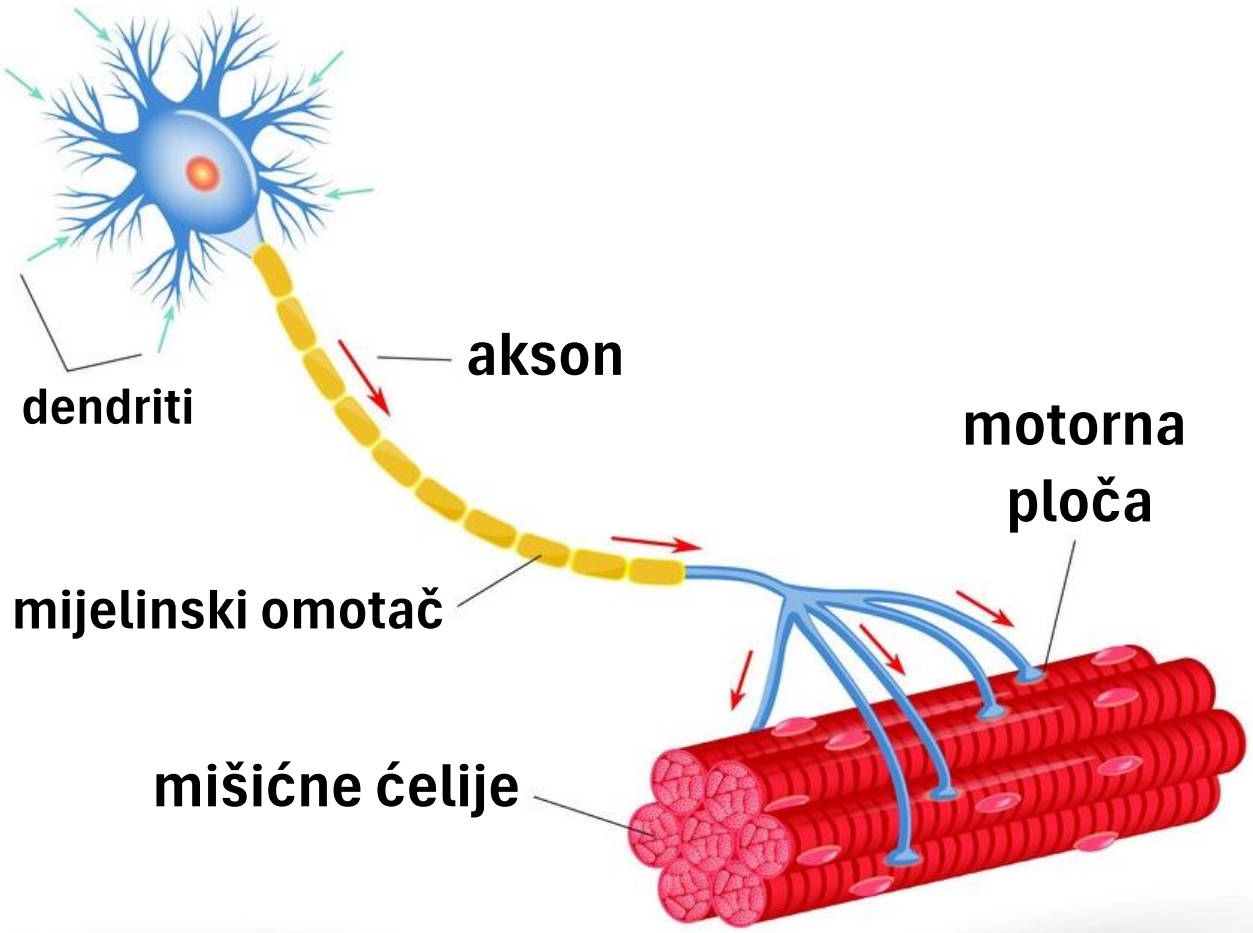


širenje talasa polarizacije kroz T-tubul



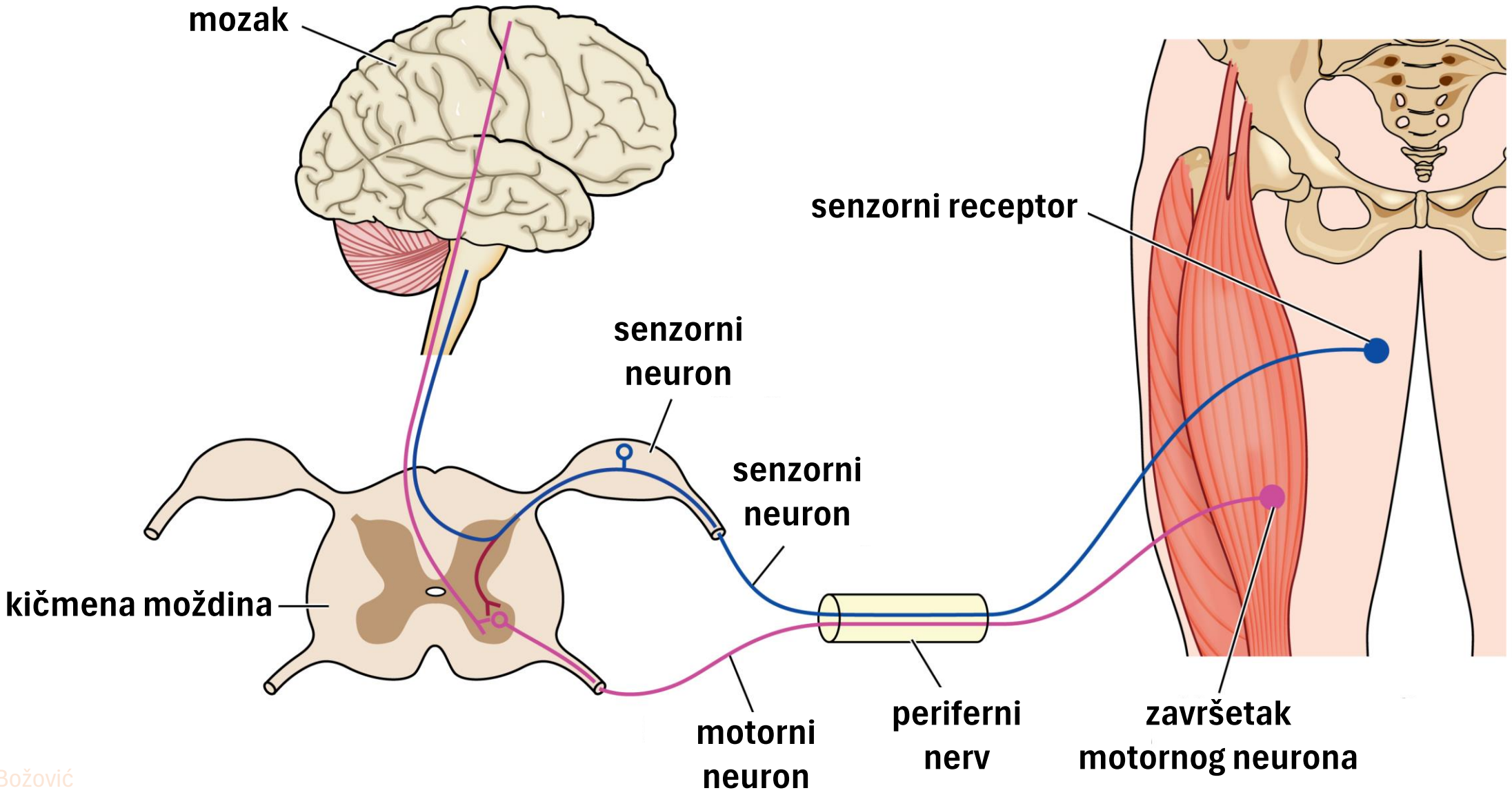
vezivanje oslobođenih Ca-jona za TnC čime se inicira kontrakcija

Motorna jedinica

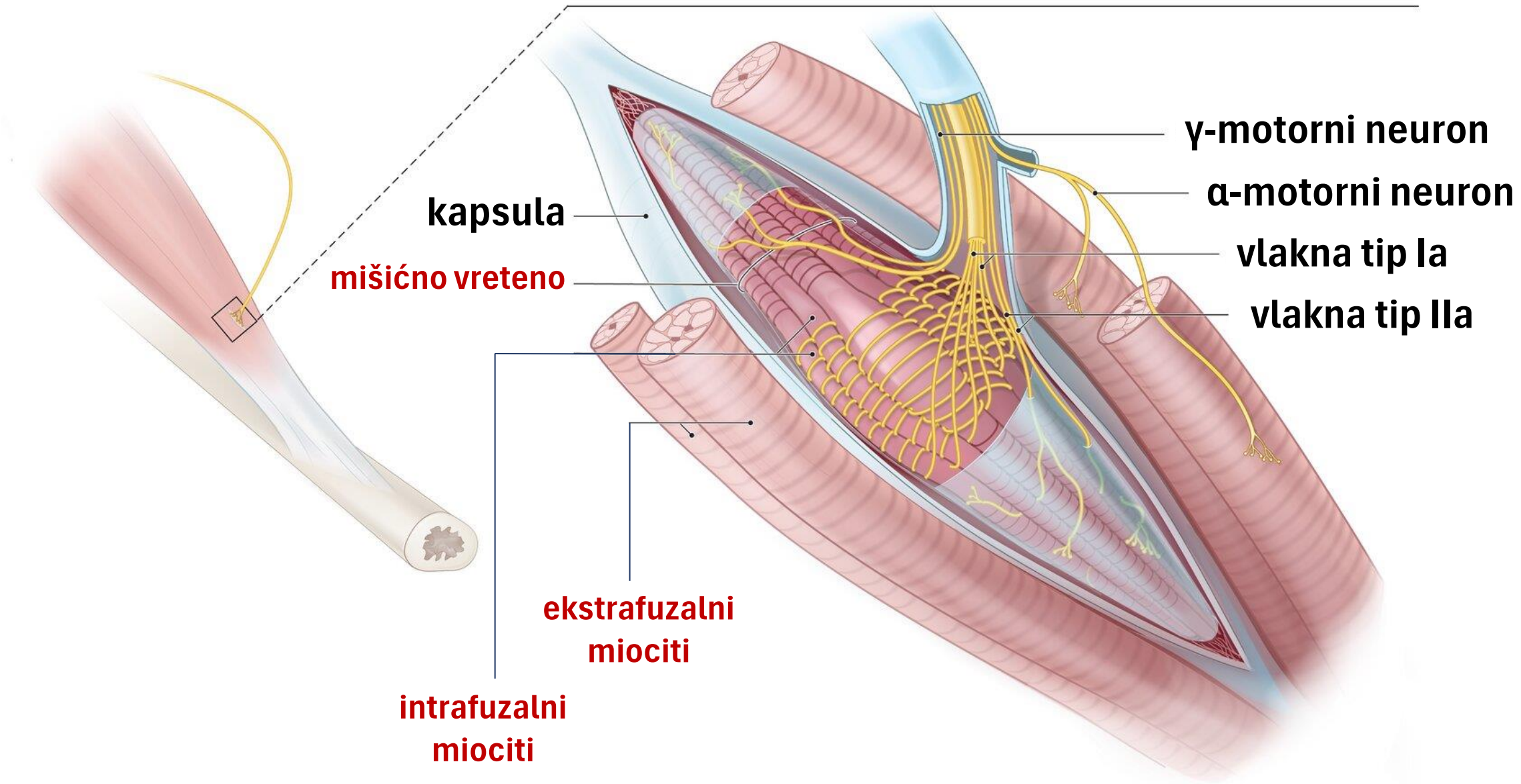


- Jedan motorni neuron i sve mišićne ćelije koje on inerviše čine jednu motornu jedinicu.
- Jedan akson može inervisati jedan ili više miocita.
- Skeletne mišićne ćelije se kontrahuju po principu *sve ili ništa* (nije moguća djelimična kontrakcija).
- Snaga kontrakcije zavisi od broja angažovanih motornih jedinica a preciznost i finoća pokreta od veličine motornih jedinica.

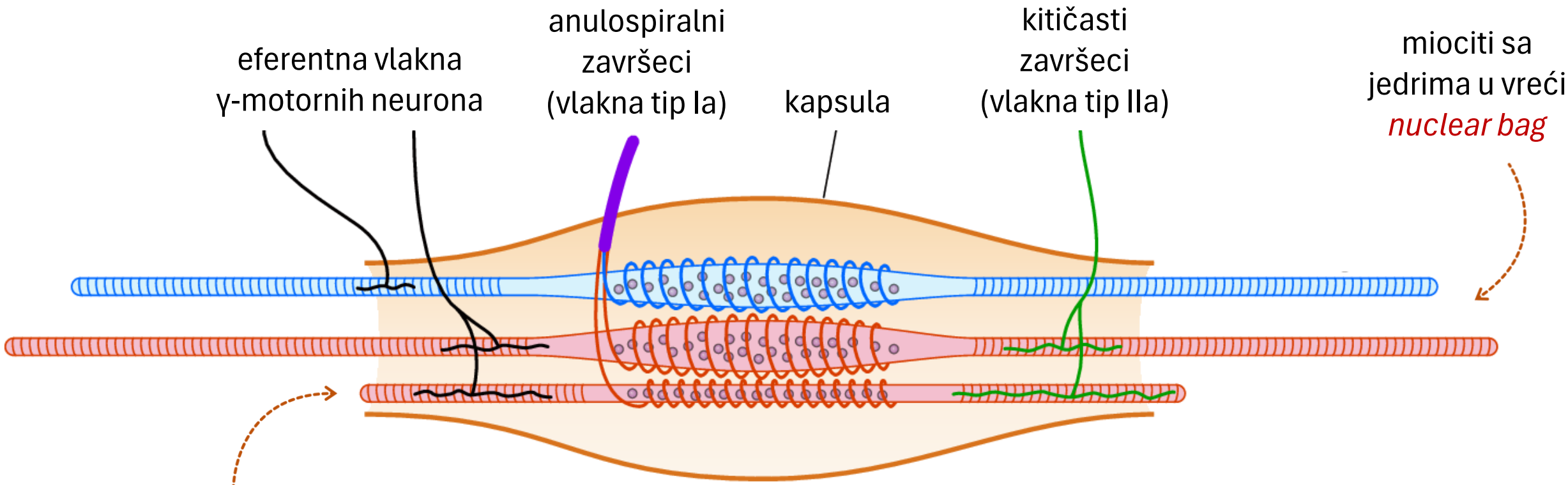
Senzorna inervacija skeletnog mišića



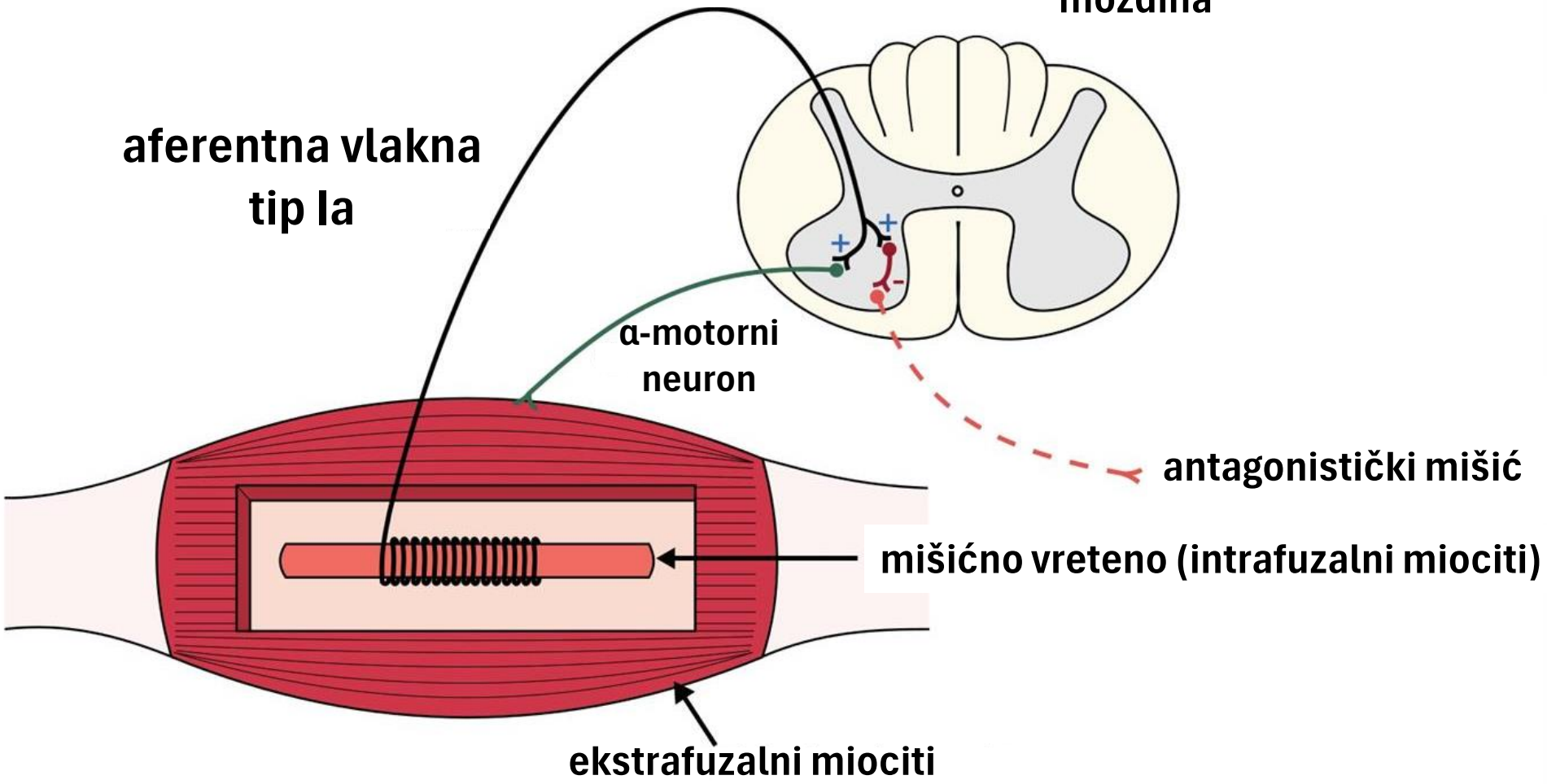
Mišićno vreteno



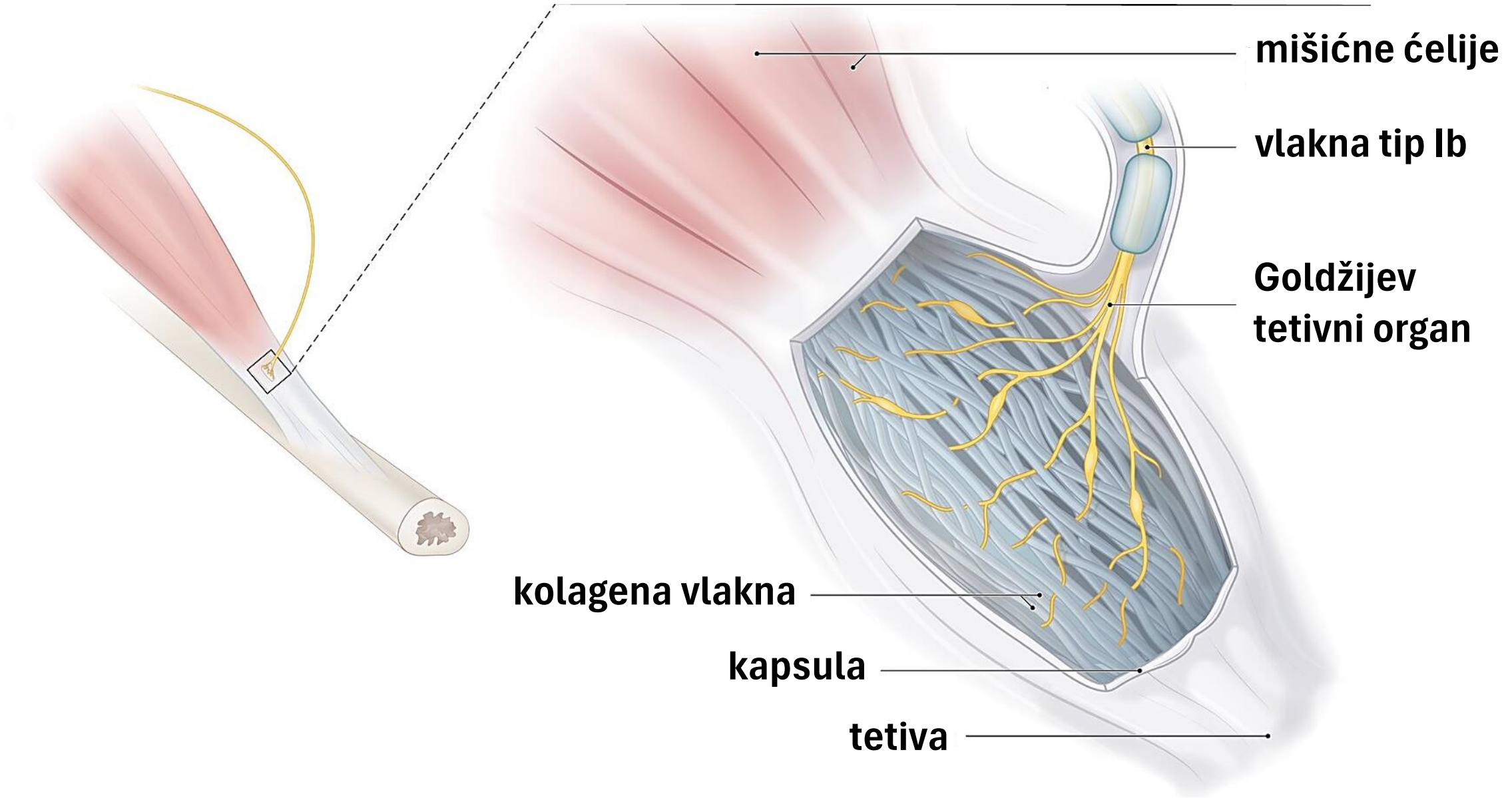
Intrafuzalni miociti



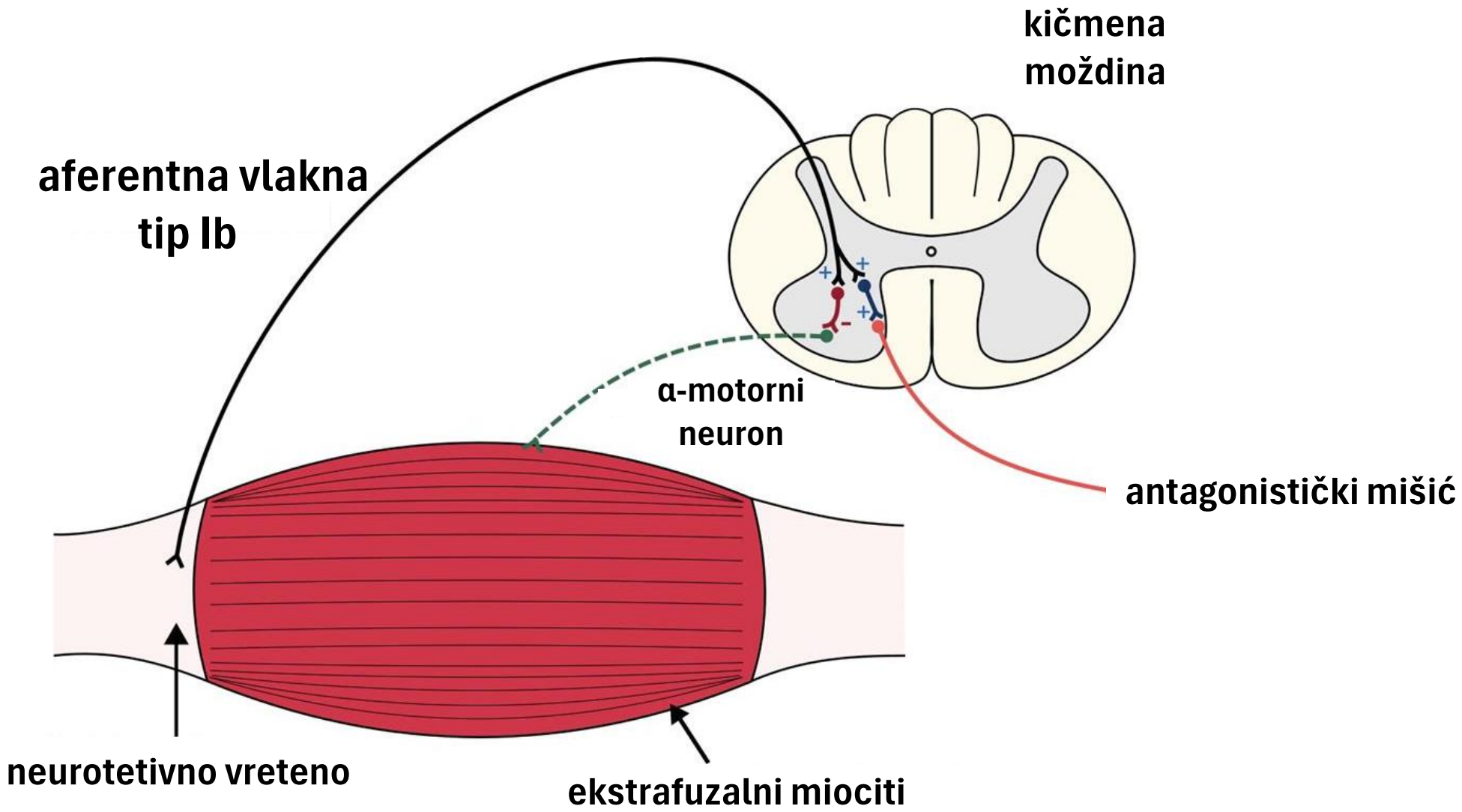
Refleks na istezanje



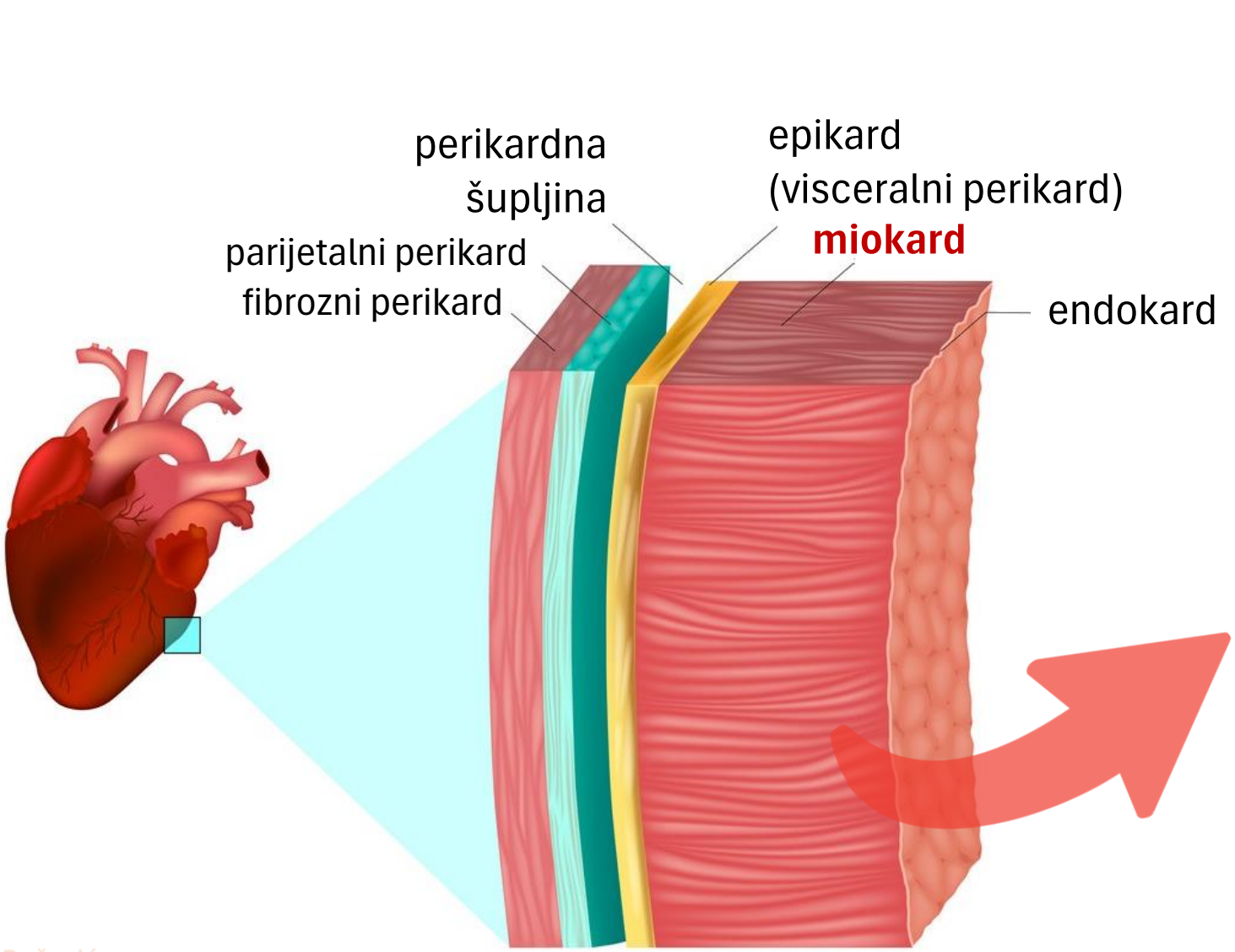
Neurotetivno vreteno

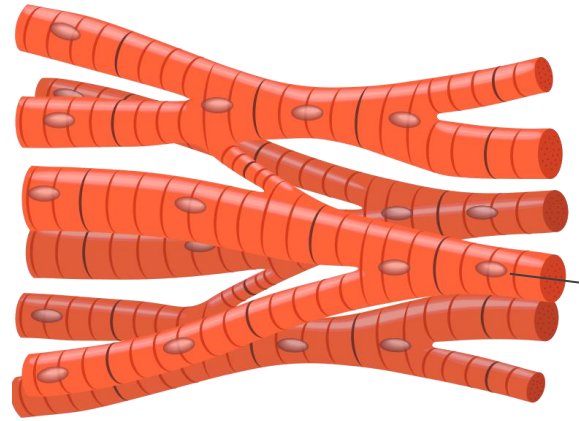


Goldžijev tetivni refleks



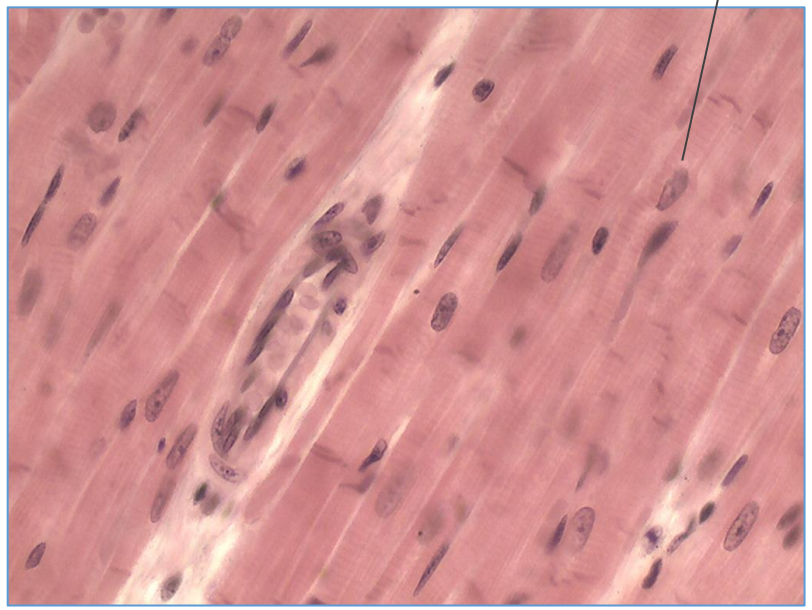
Srčano mišićno tkivo





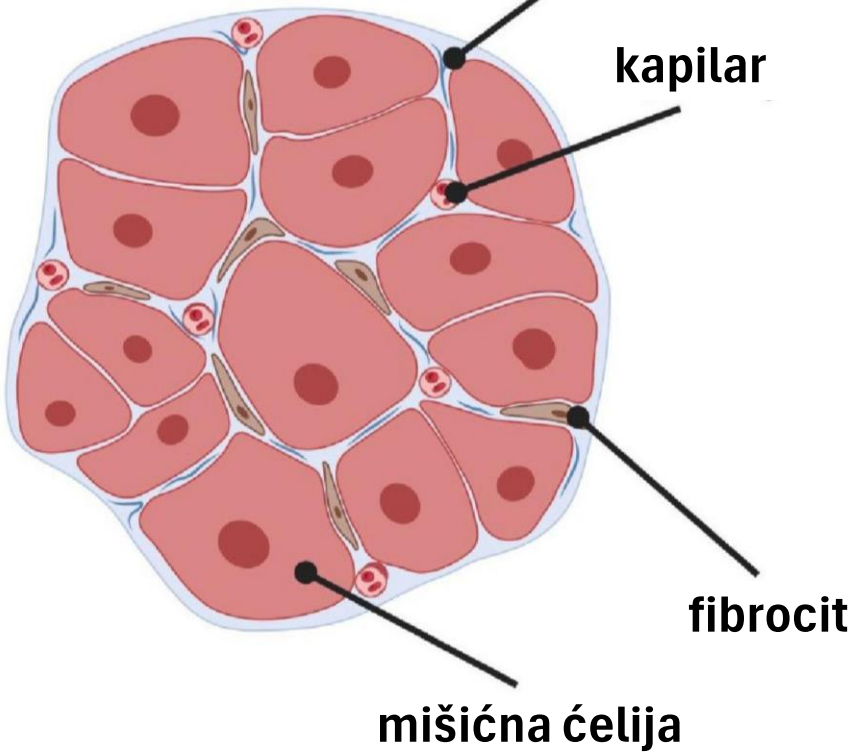
jedro

srčano mišićno tkivo

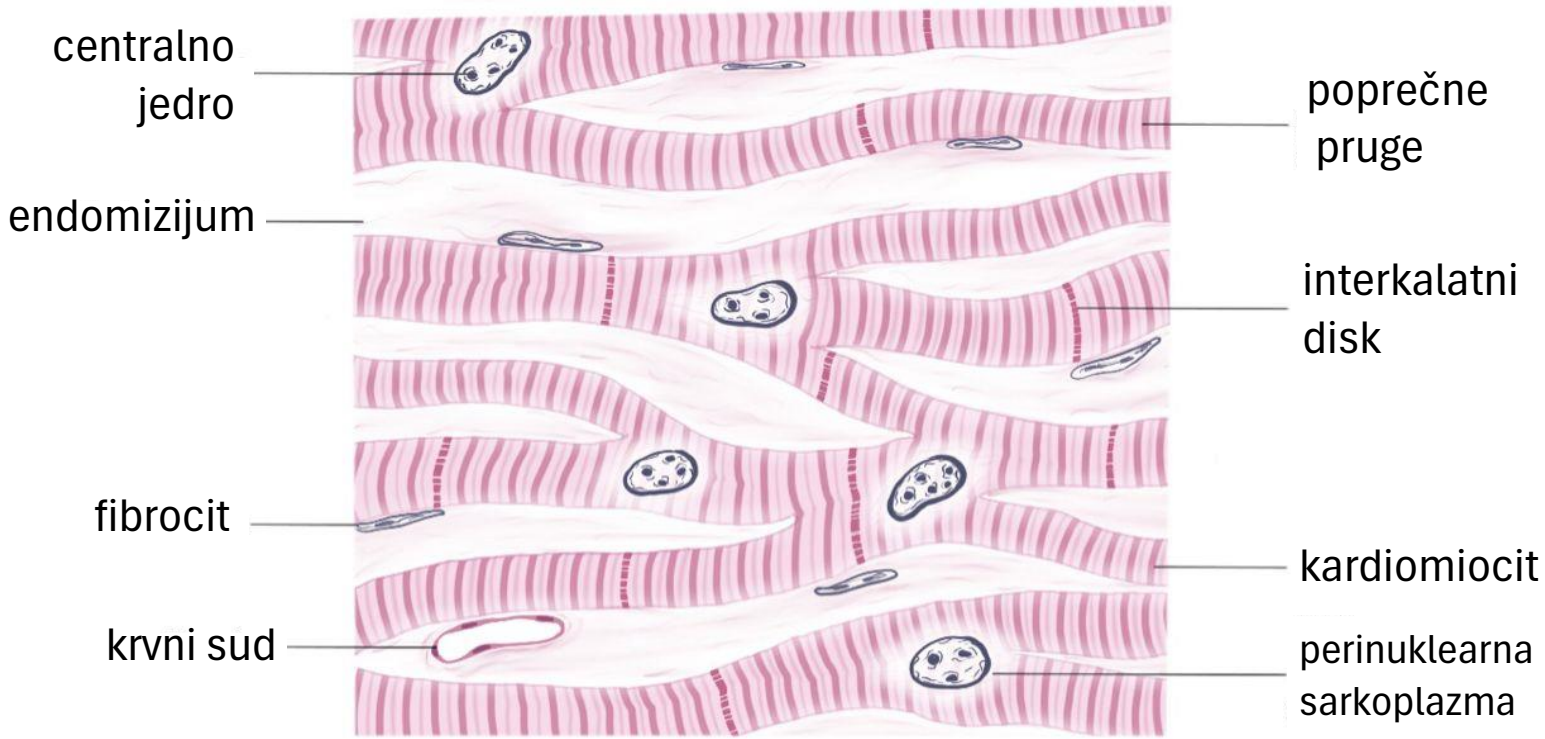


Organizacija srčanog mišičnog tkiva

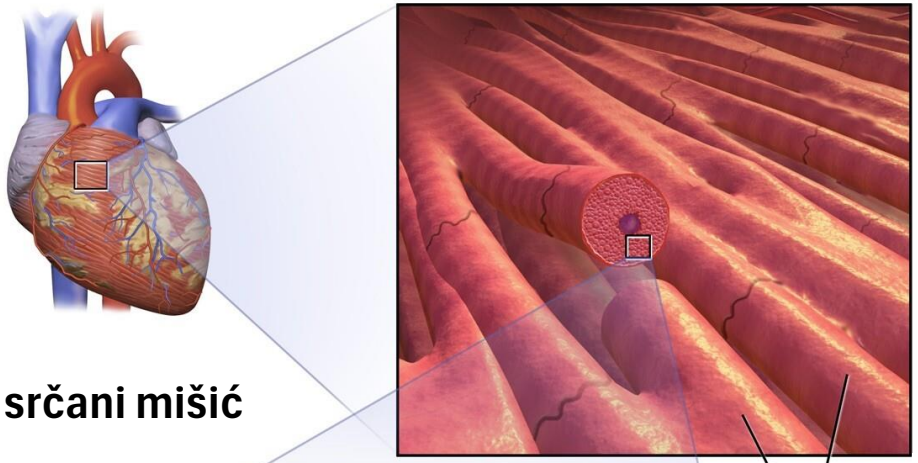
poprečni presjek



uzdužni presjek

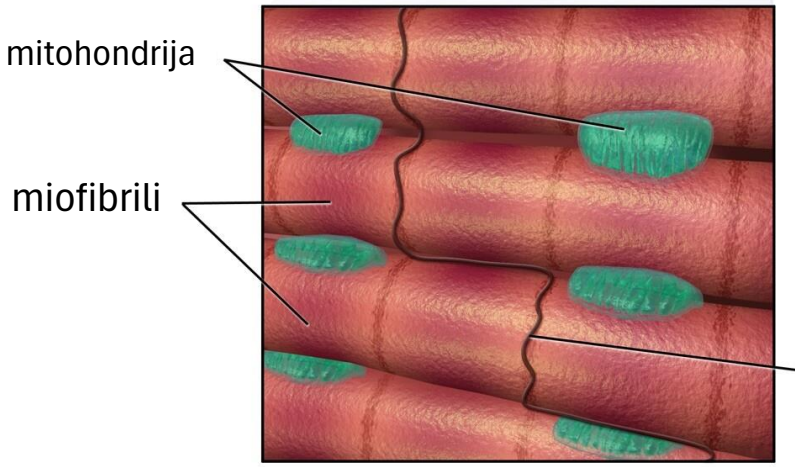


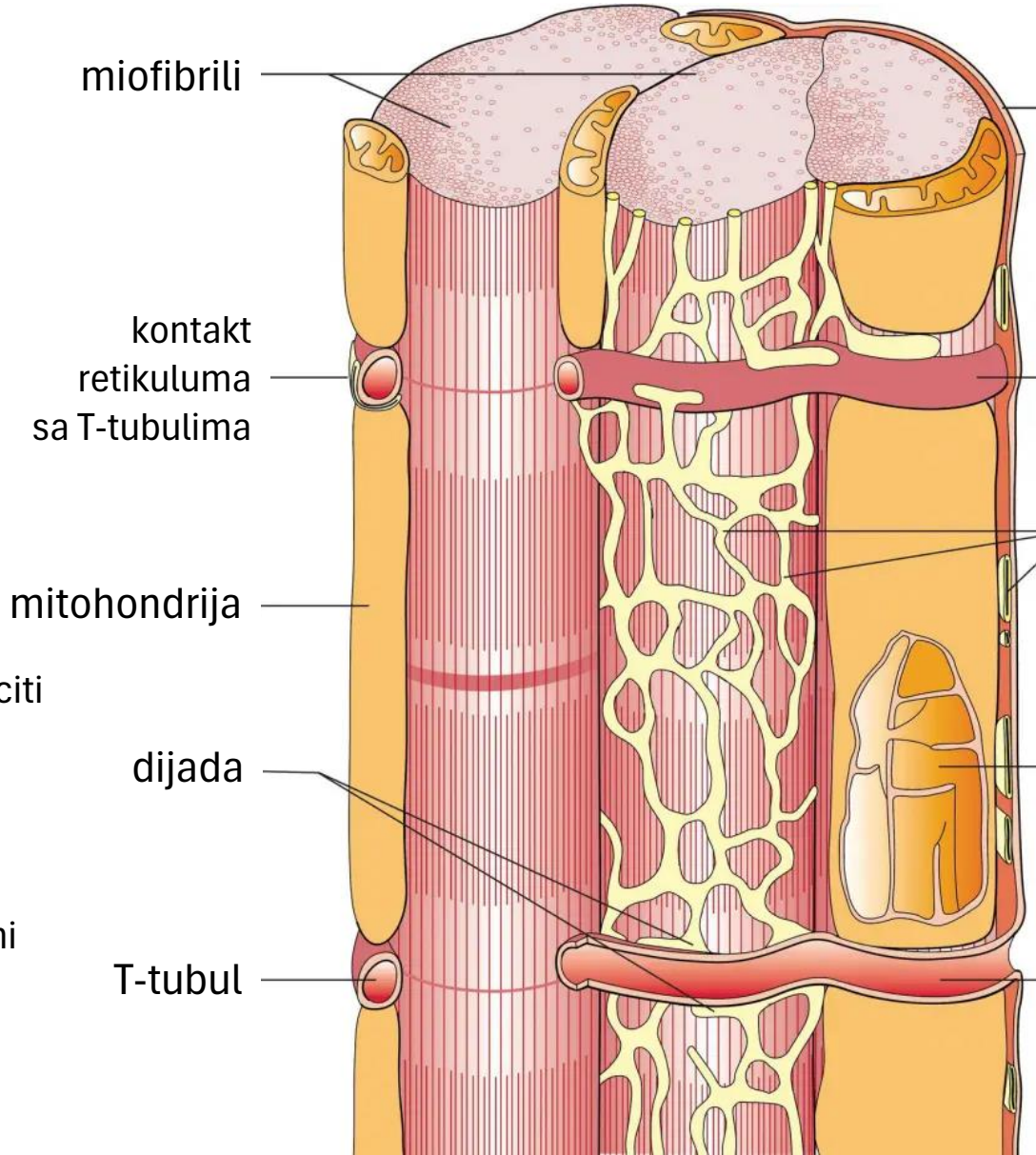
Srčana mišićna ćelija



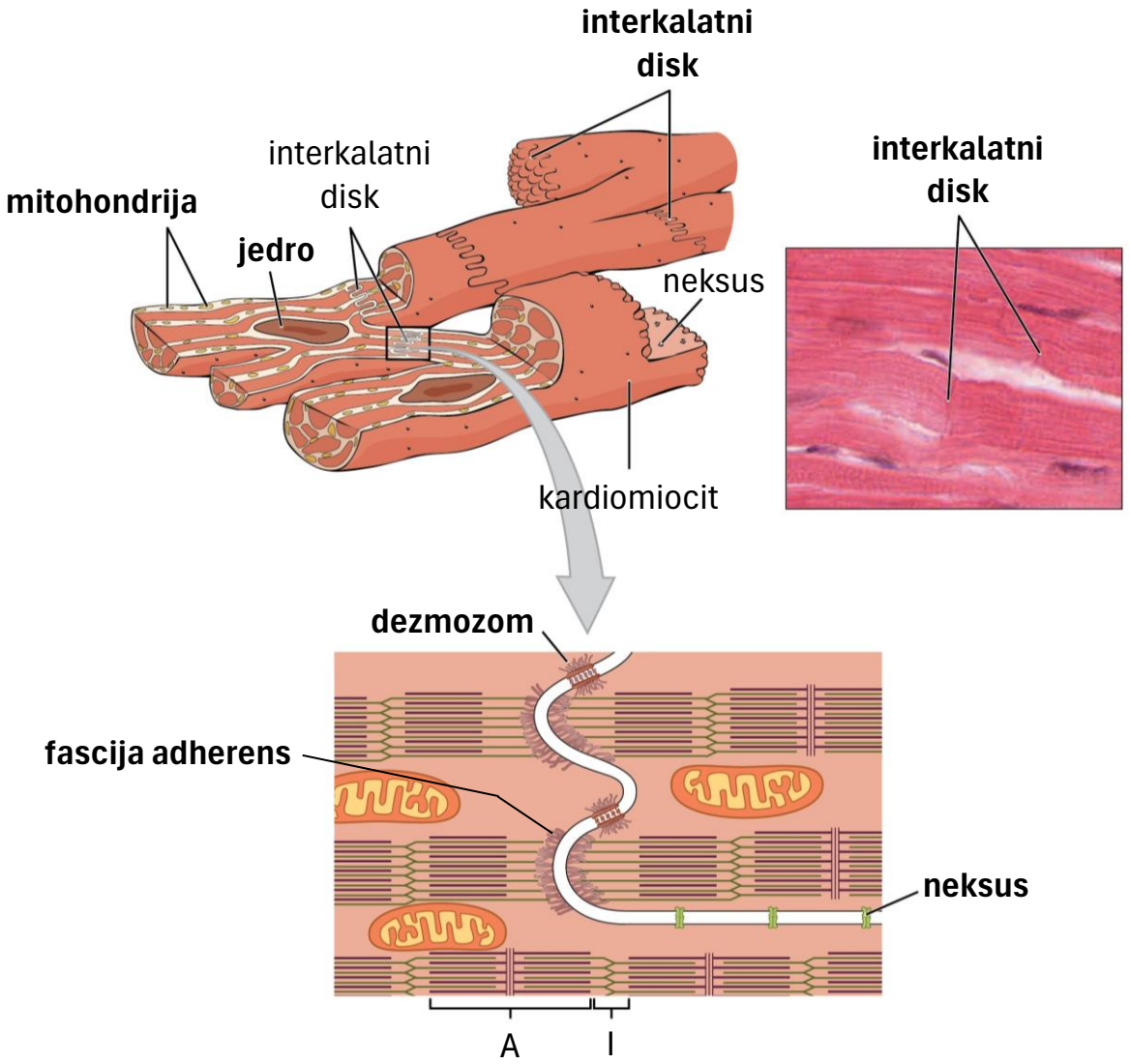
srčani mišić

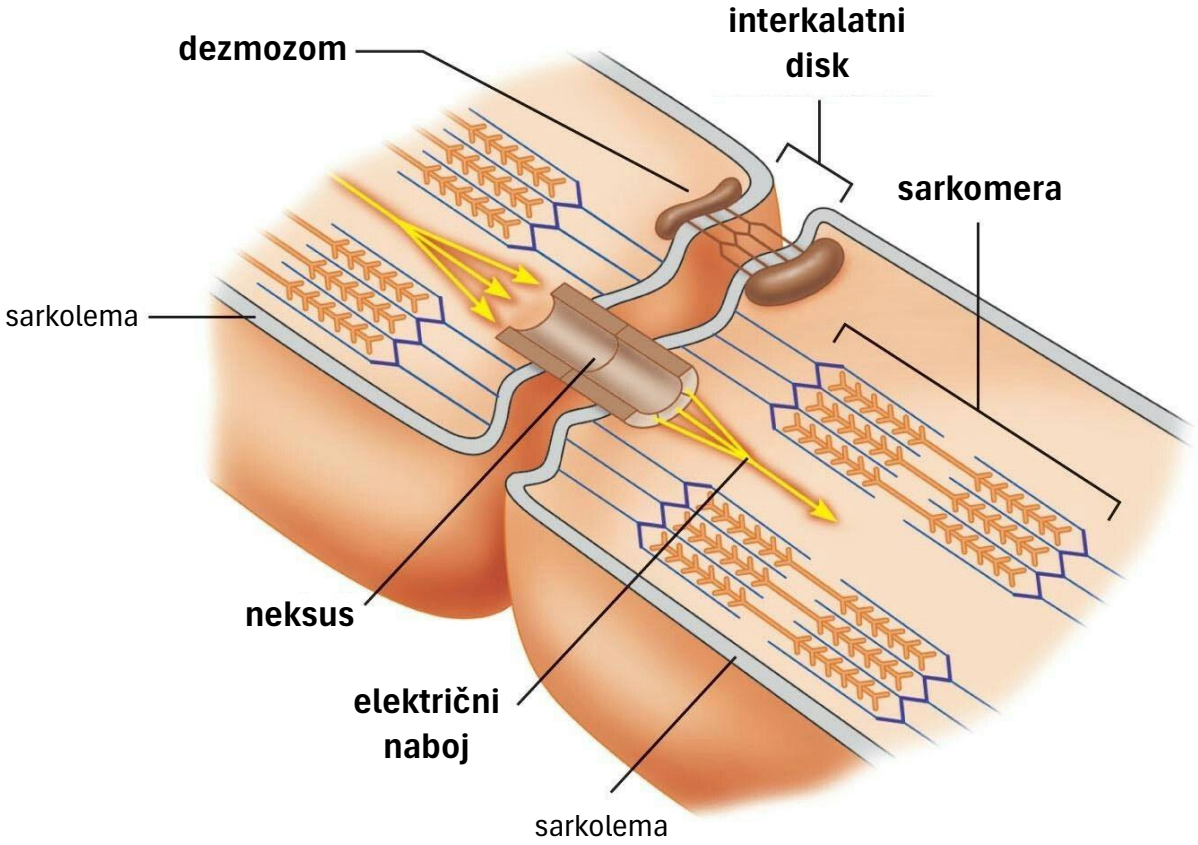
kardiomiociti



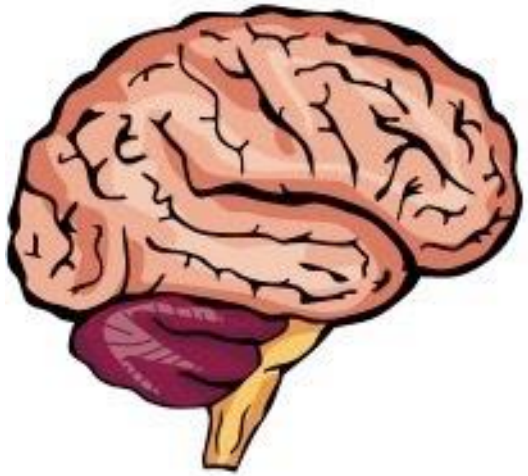


Discus intercalatus



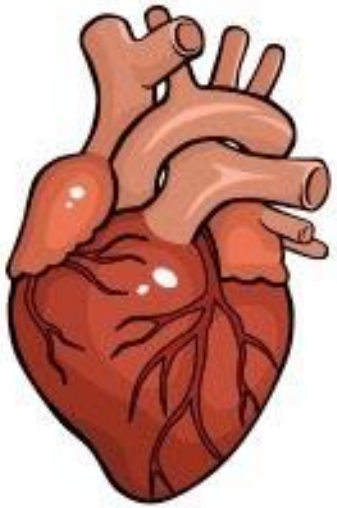


Inervacija srčanog mišića

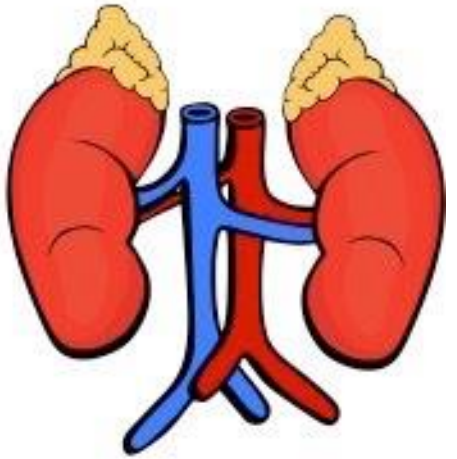


simpatikusna nervna vlakna

nervus vagus

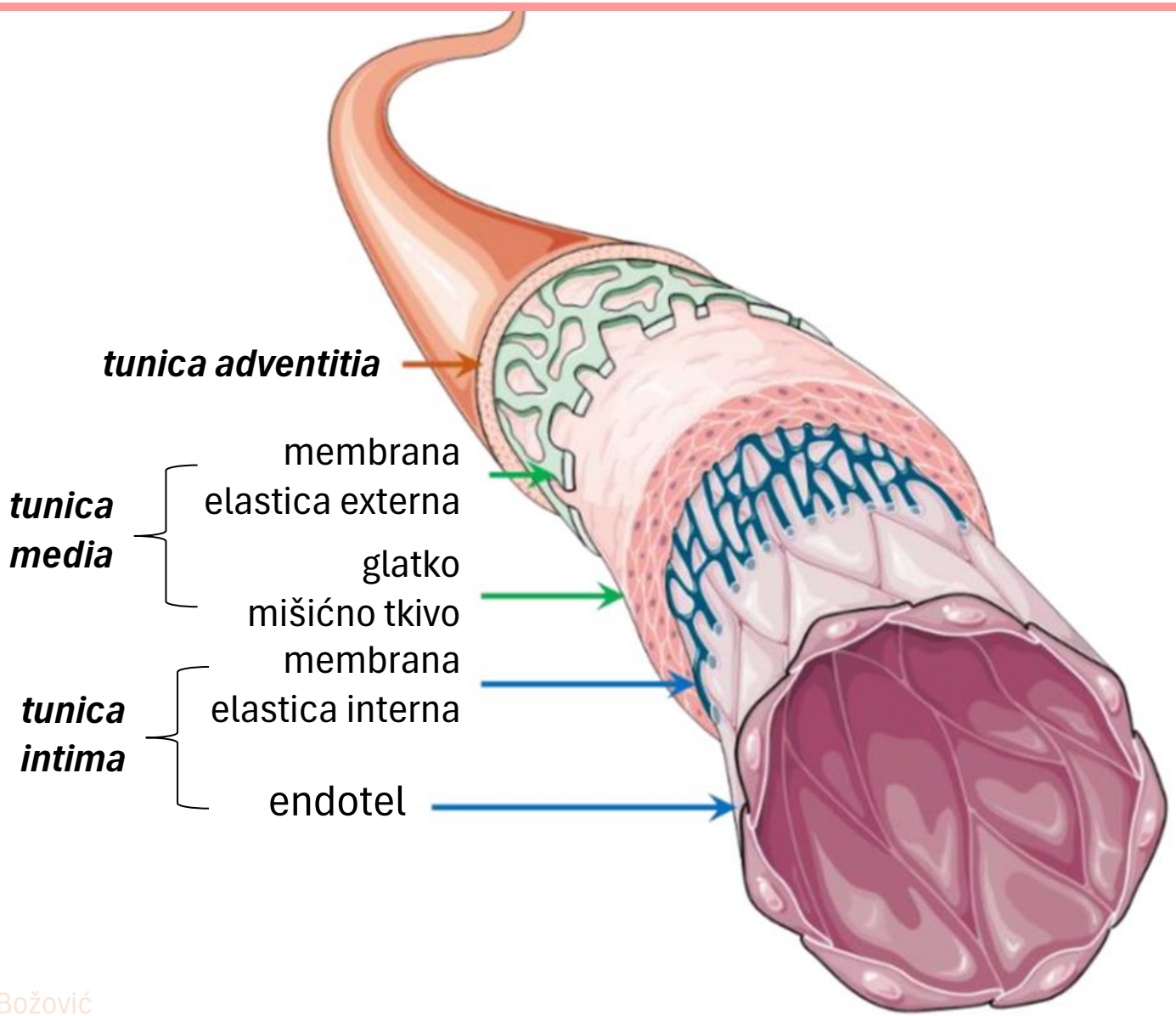


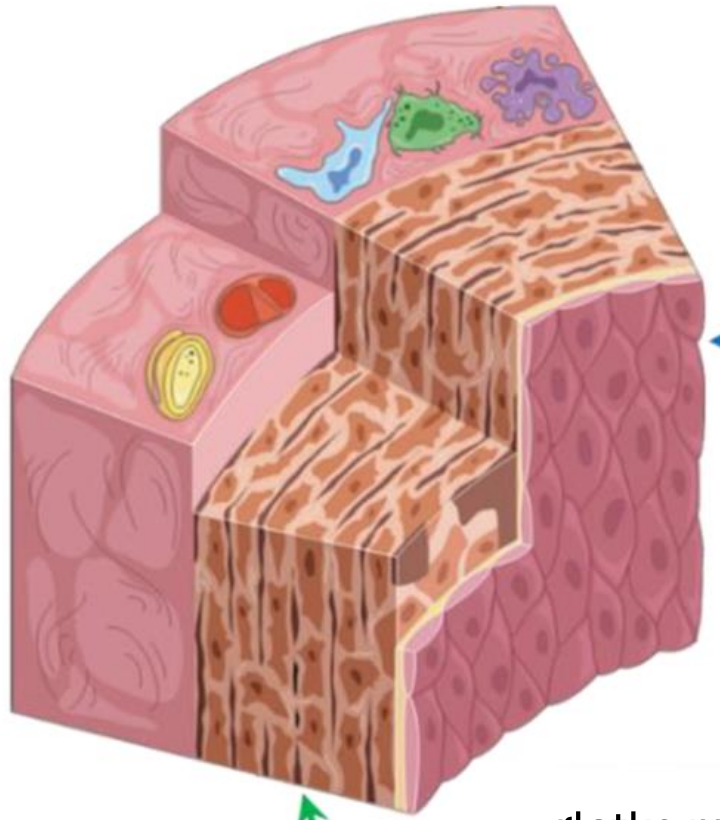
adrenalin i noradrenalin



nadbubrežna žlijezda

Glatko mišićno tkivo



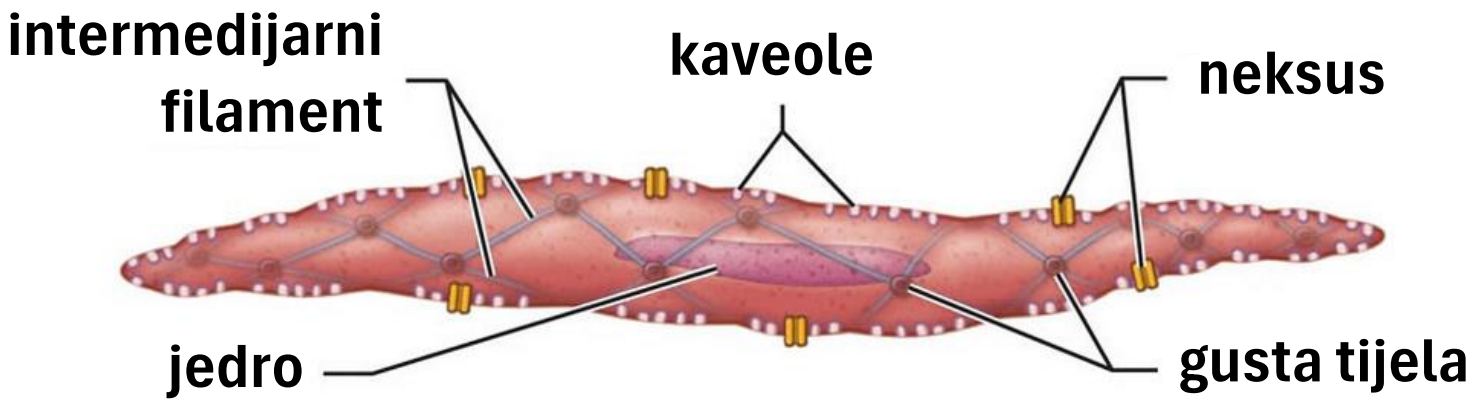


endotel

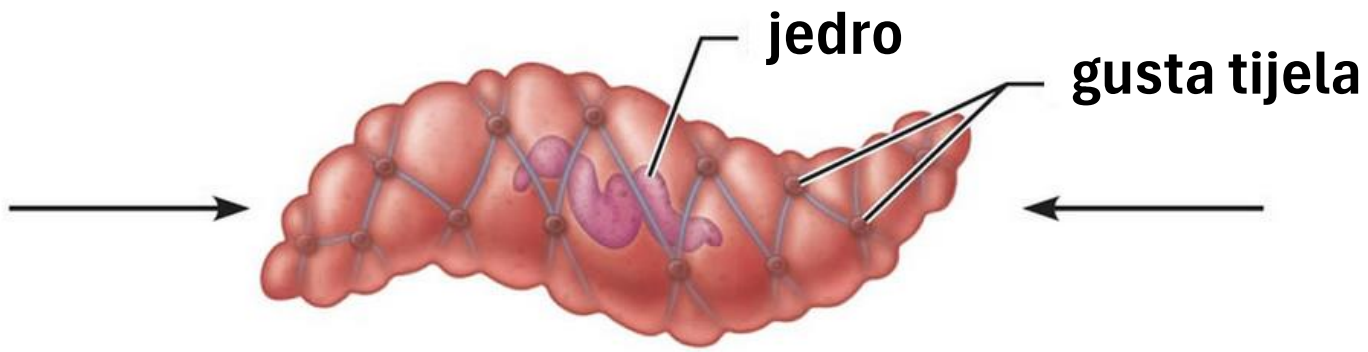
glatke mišićne ćelije

Glatka mišićna ćelija

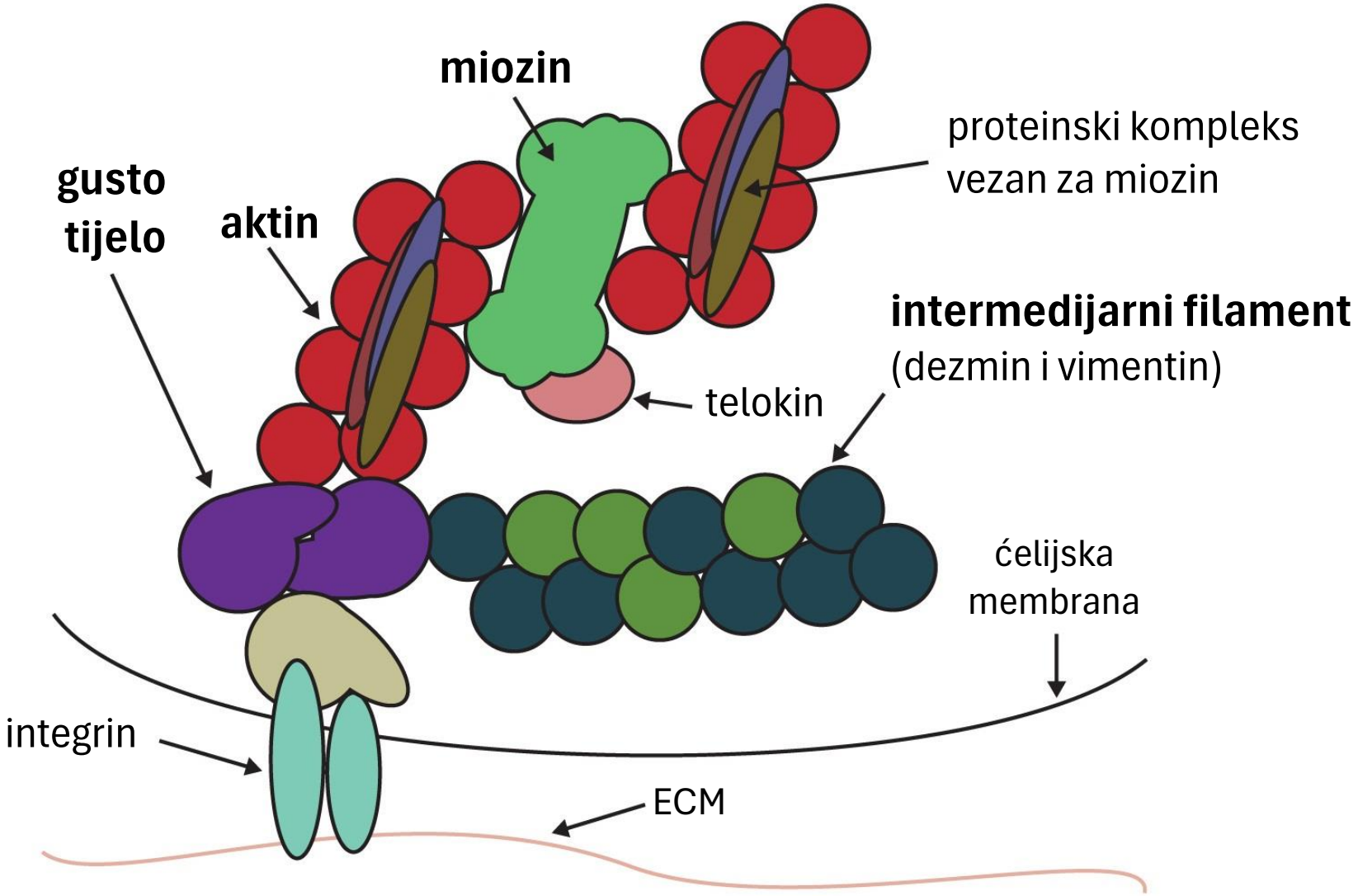
u relaksaciji



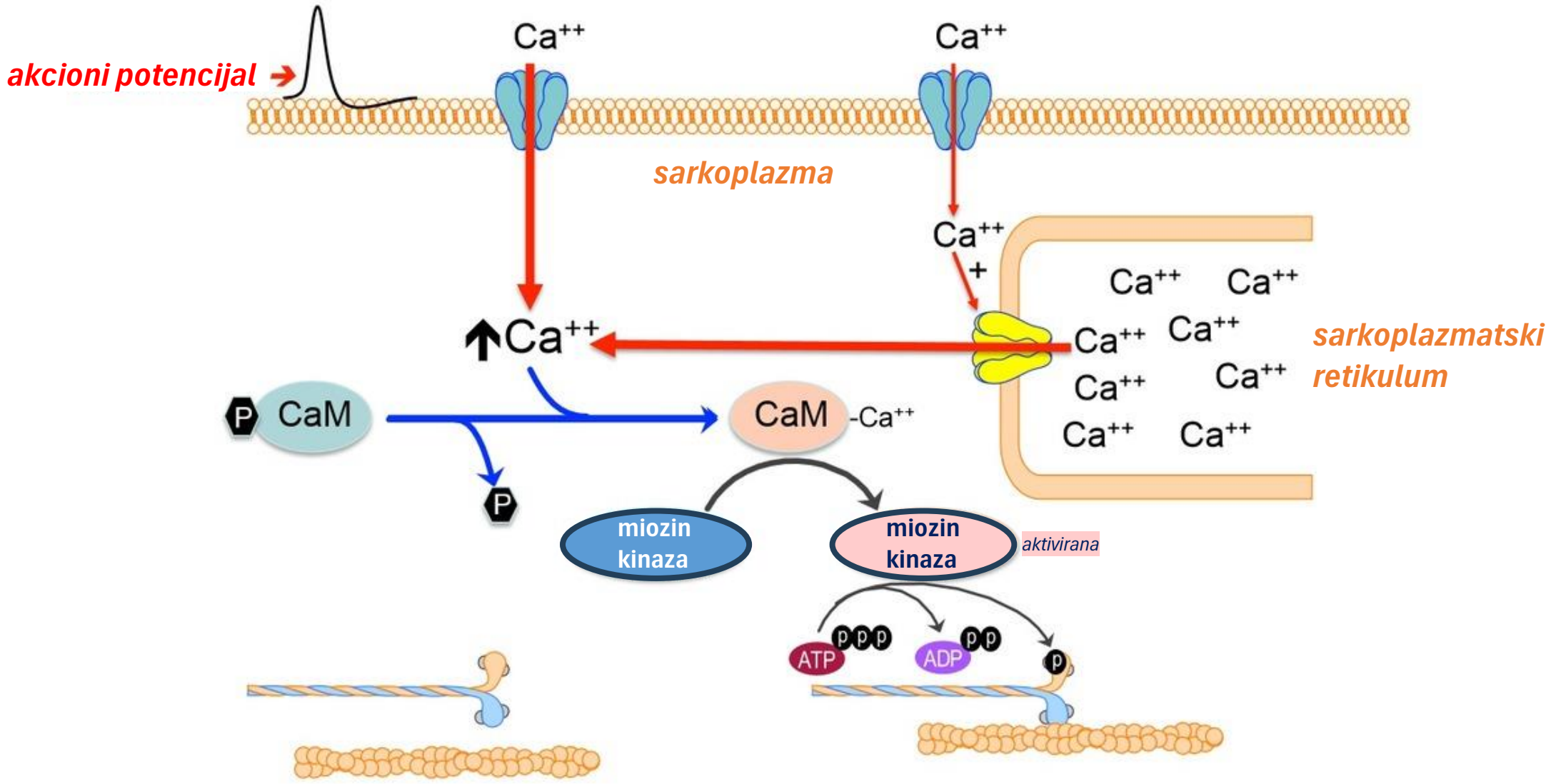
u kontrakciji



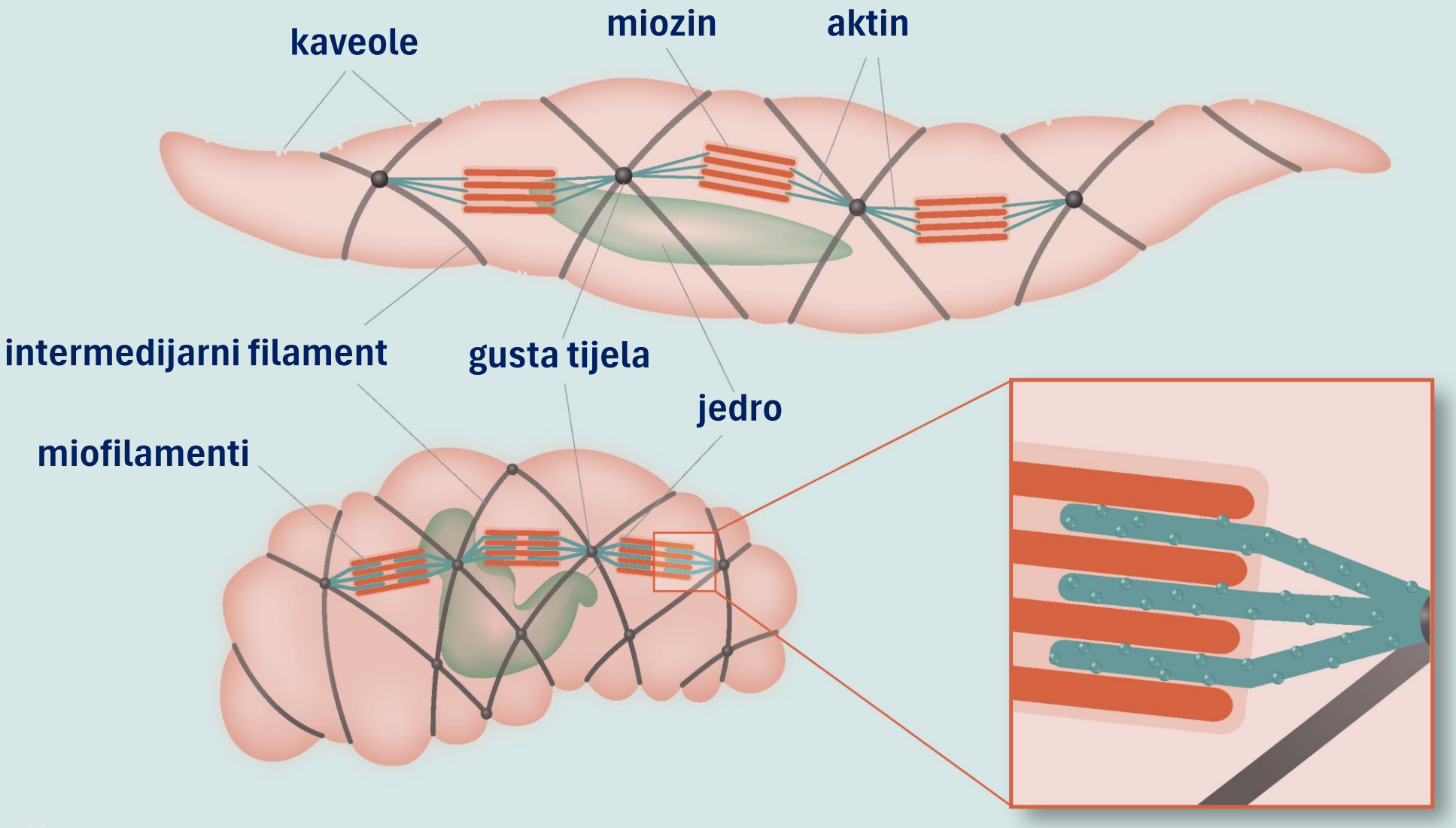
Miofilamenti



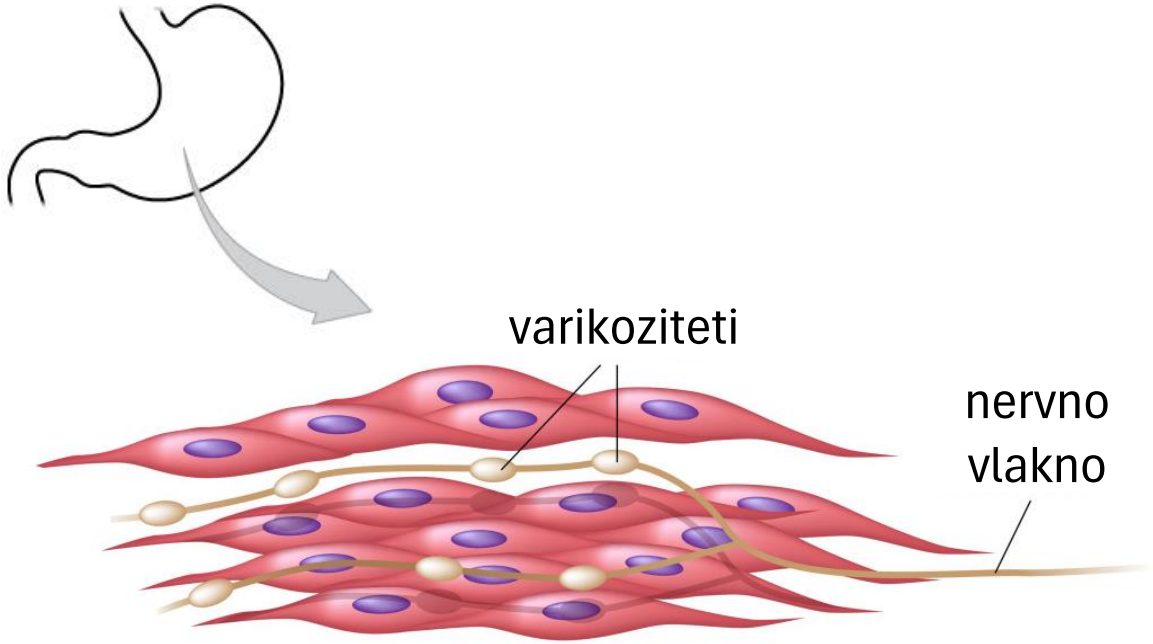
Mehanizam kontrakcije



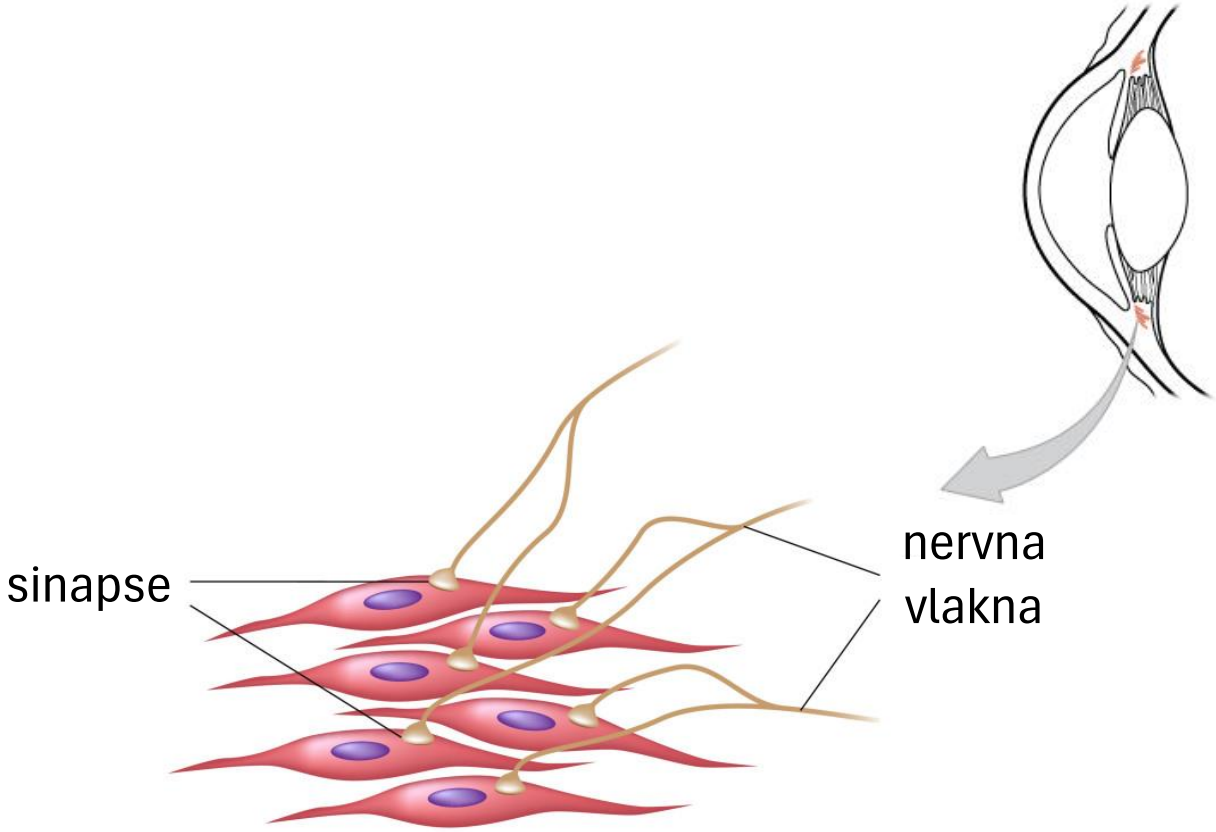
Kontrakcija



Inervacija glatkog mišićnog tkiva

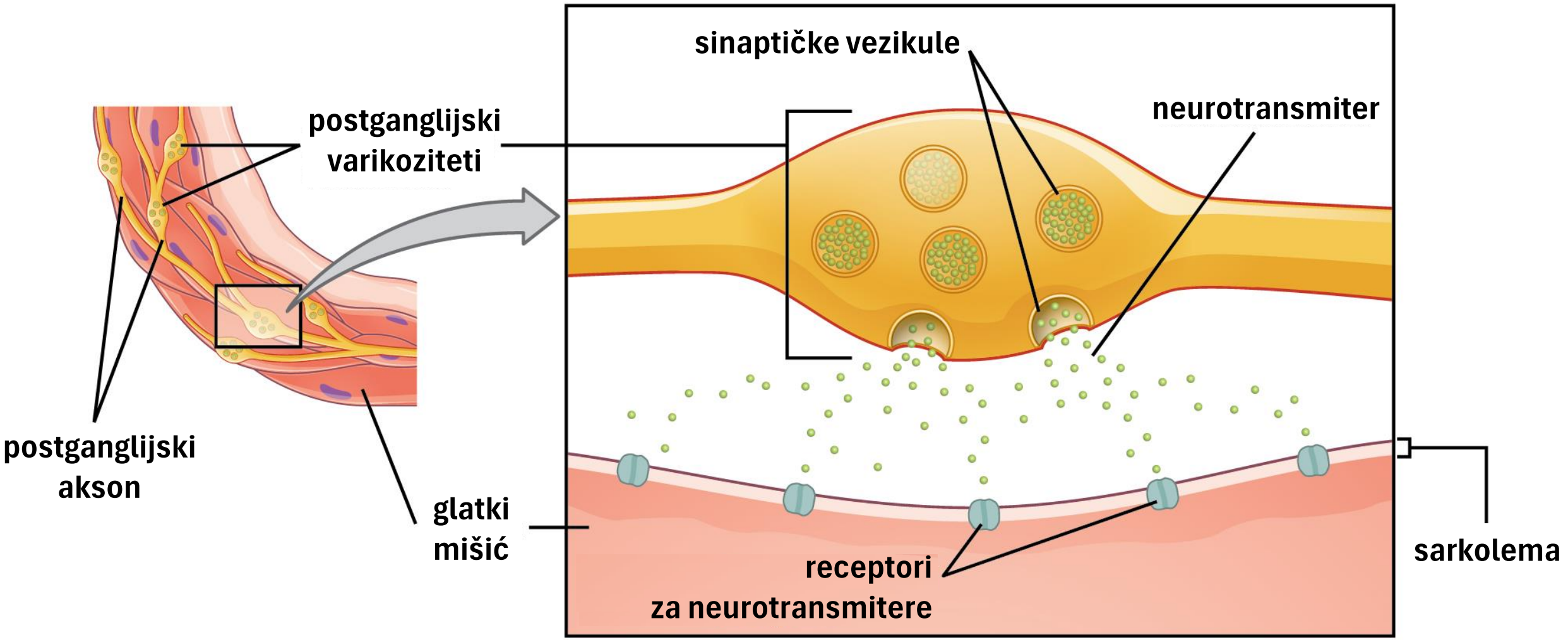


jedinični (visceralni) glatki mišići

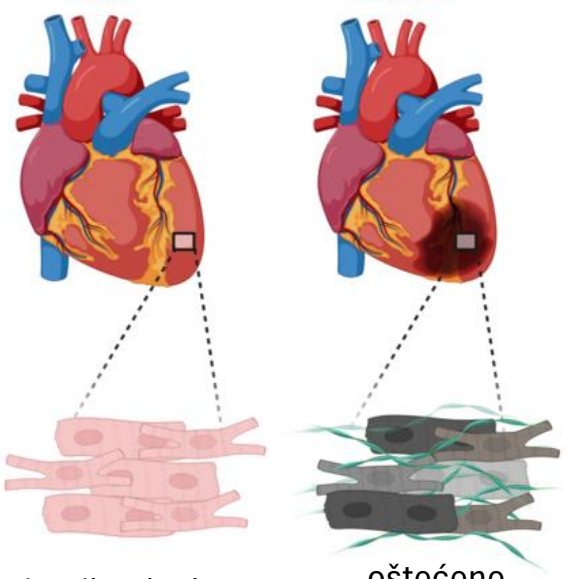


višejedinični glatki mišići

Sinapse na distanci

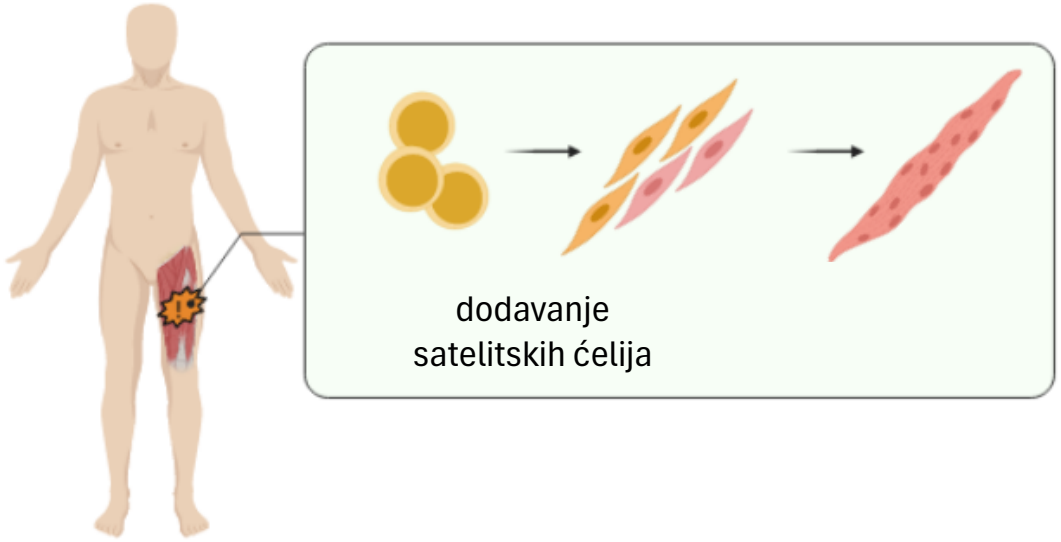


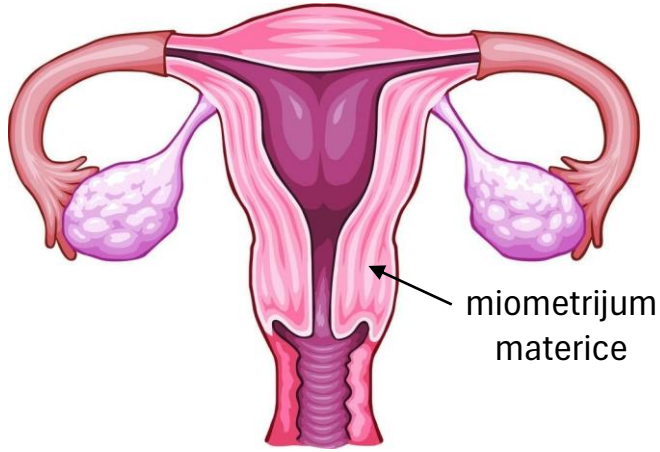
Regeneracija mišićnog tkiva



kardiomiocite zdravog srca

oštećene kardiomiocite i fibrozni ožiljak

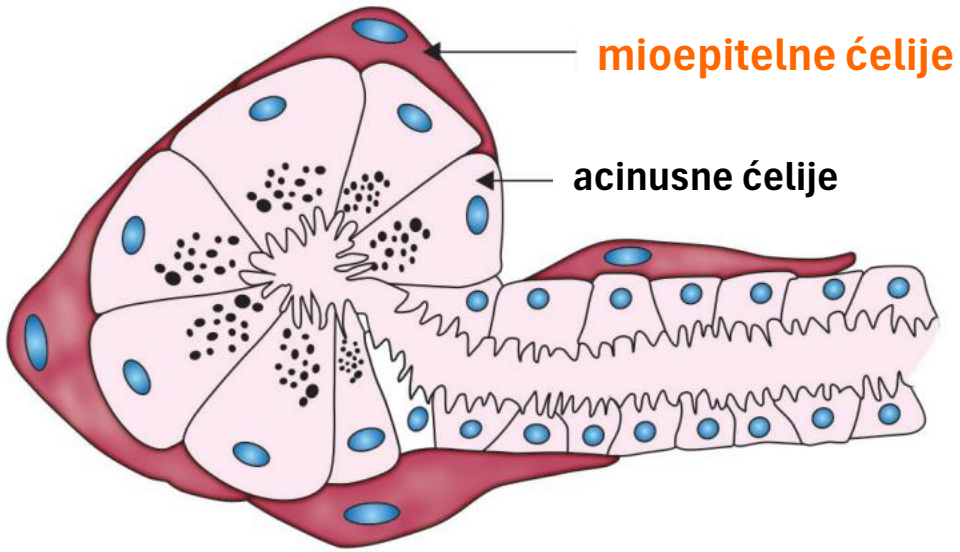




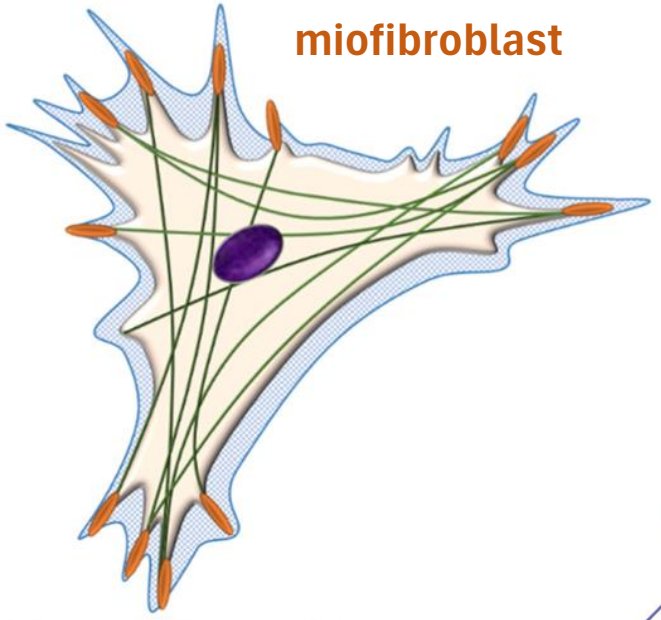
sposobnost diobe diferenciranih glatkih miocita

Nemišićne kontraktilne ćelije

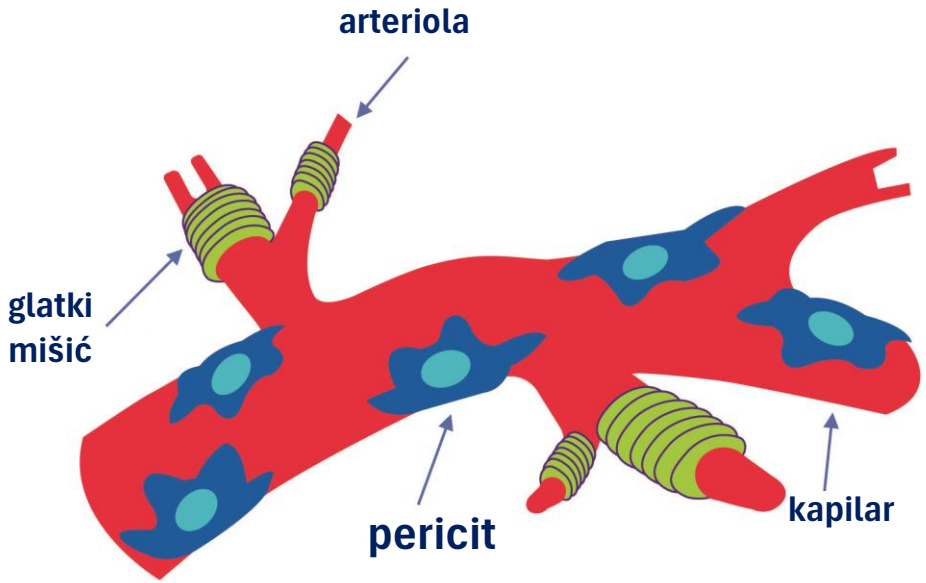
mioepitelne ćelije



miofibroblasti

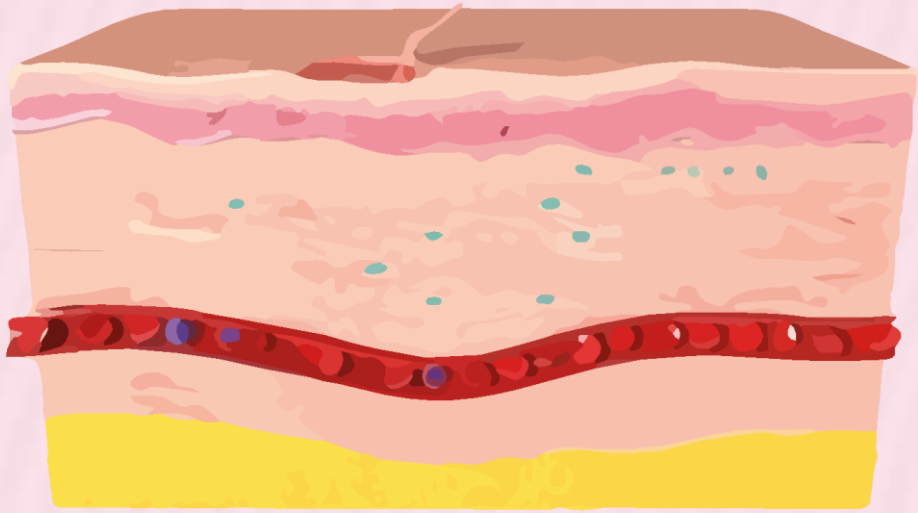


pericити



Citologija i tkiva

Mijat BOŽOVIĆ



PITANJA?