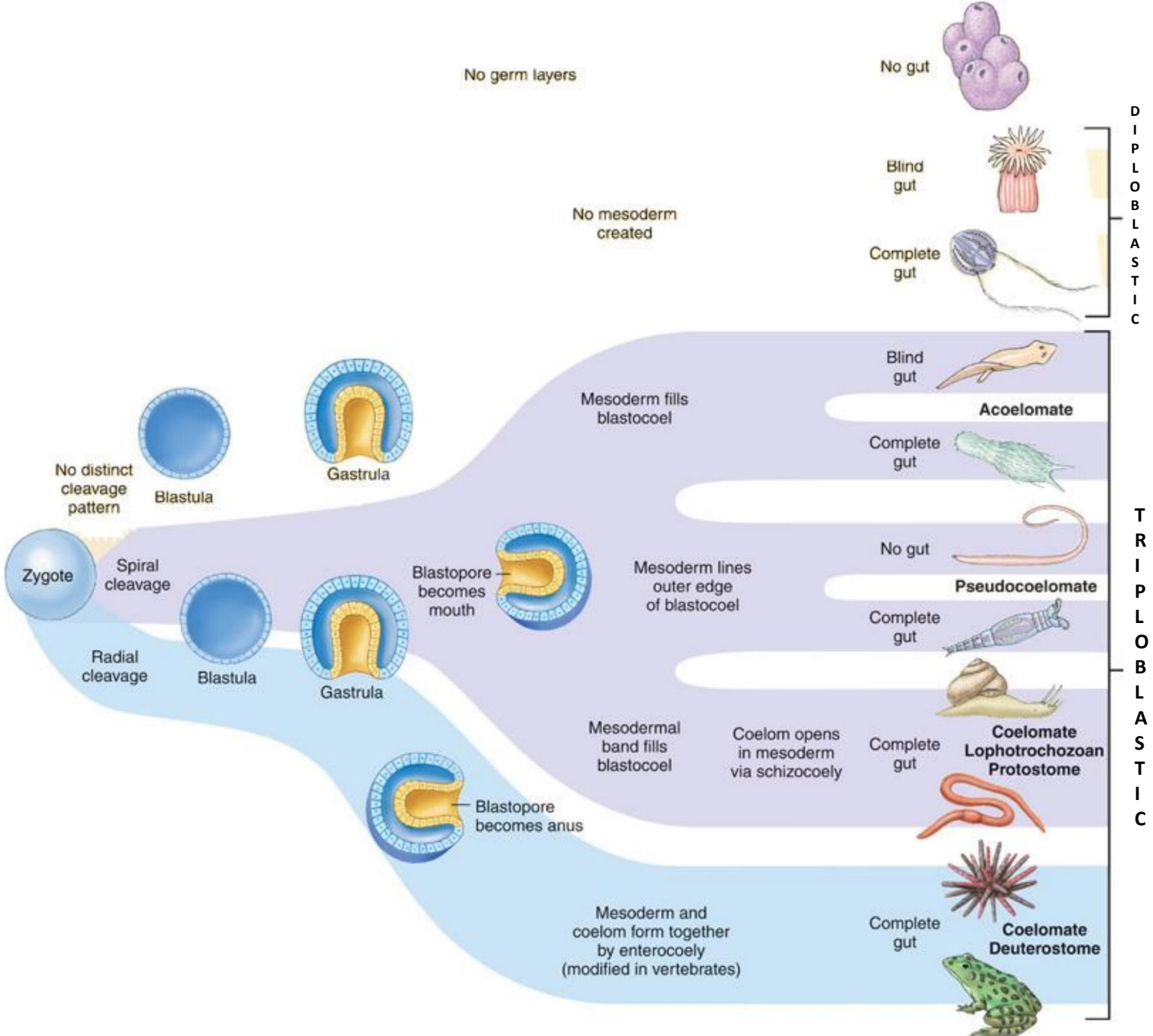
PLATYHELMINTHES (PLOŠNJACI)





Tjelesne šupljine

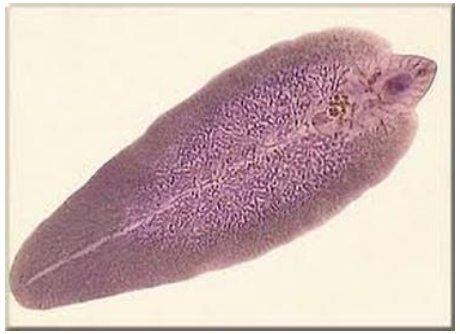
- **blastocelom**
- **coelom**
  - Acoelomata
  - Blastocoelomata
  - Coelomata

Koljeno: Platyhelminthes - plošnjaci

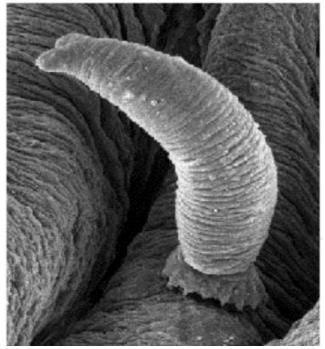
Turbellaria - virnjaci



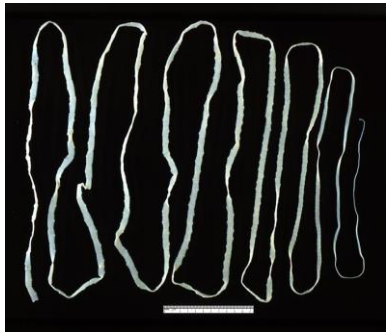
Trematoda - metilji



Monogenea - jednorodni metilji



Cestoda - trakavice



Zajedničke osobine svih plošnjaka

- bilateralna simetrija
- triploblastičnost (primarna tjelesna šupljina – BLASTOCEL ispunjen parenhimom)
- shizocel
- dorzoventralno spljošteno tijelo
- nedostatak dišnog i optjecajnog sustava
- organi za ekskreciju – protonefridiji
- većinom dvospolci



Razred: Turbellaria – virnjaci

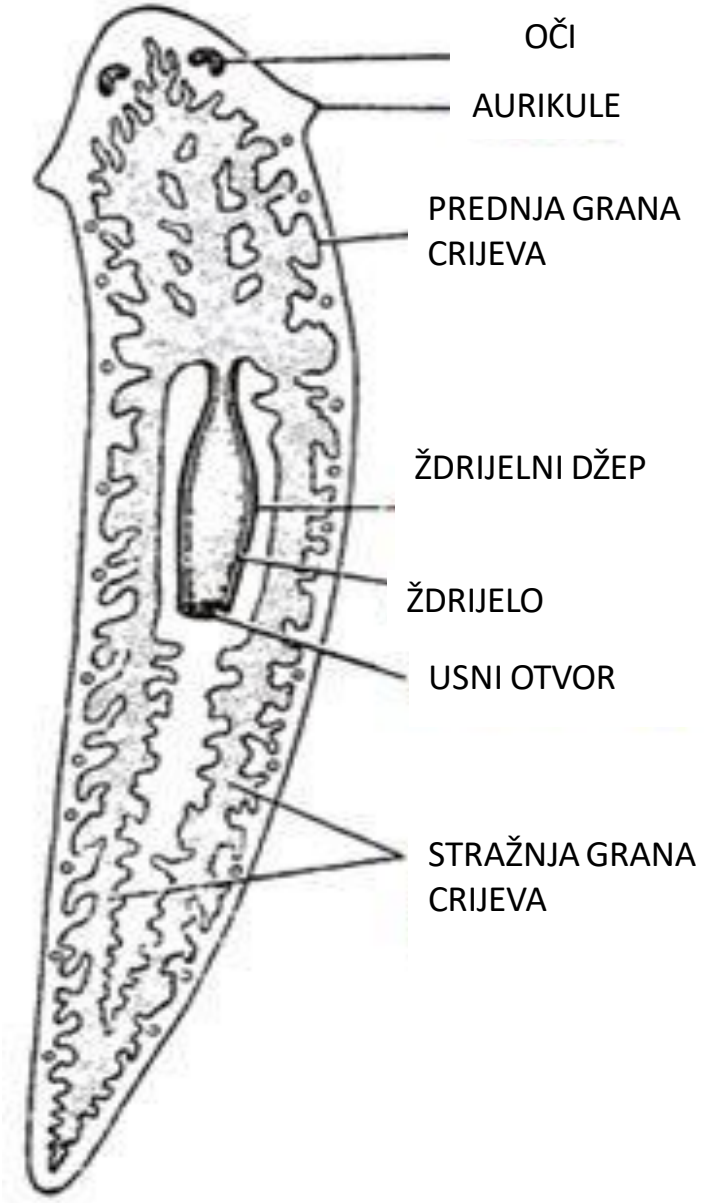
Red: Tricladida – trocrijevci

- rabdoidi = žljezdani produkti (zaštitna uloga)
- dvospolci, sposobnost regeneracije

1. *Polycelis felina* – mnogooka puzavica

oči, aurikule (bočni izdanci s osjetnim stanicama),

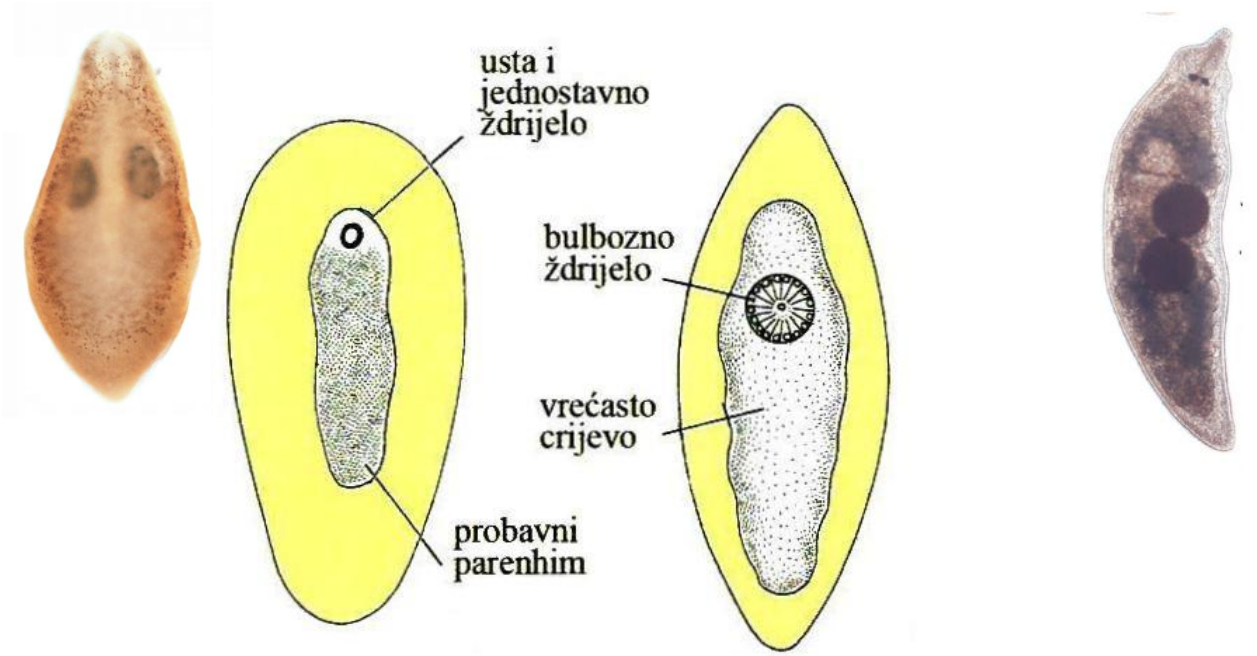
(spolni otvor)

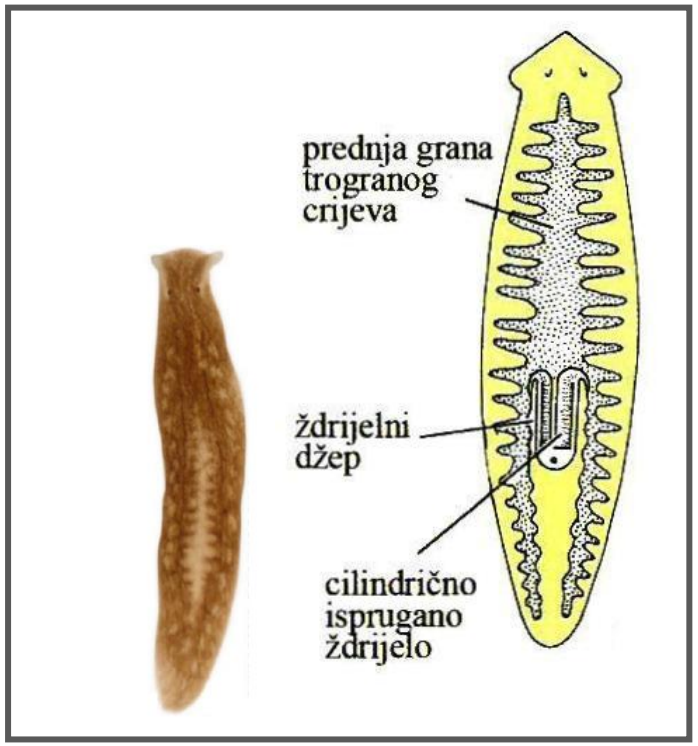


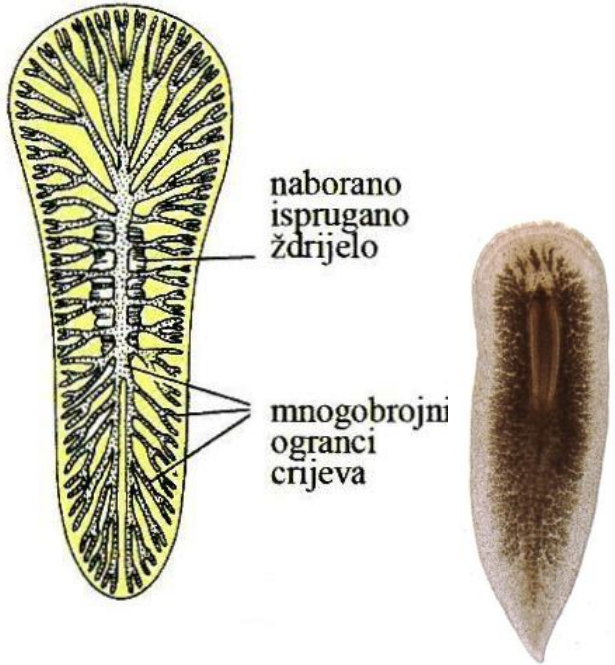


Razred: Turbellaria

- građa neprohodnog probavila – determinacija:
  - ravnocrijevci (Rhabdocoela)
  - trocrijevci (Tricladida)
  - mnogocrijevci (Polycladida)
  - bescrijevci (Acoela)

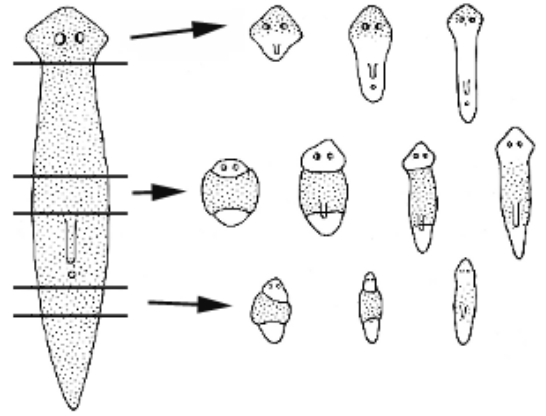


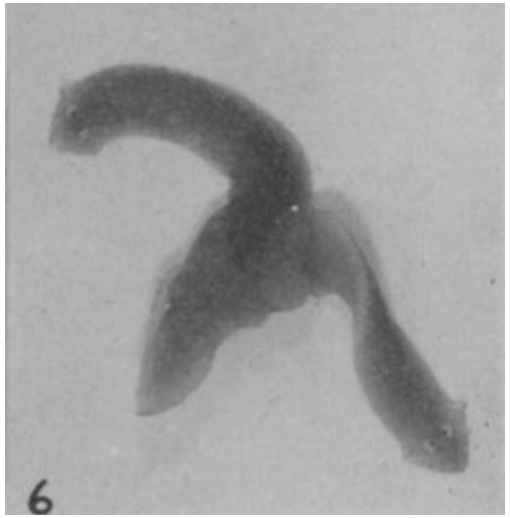


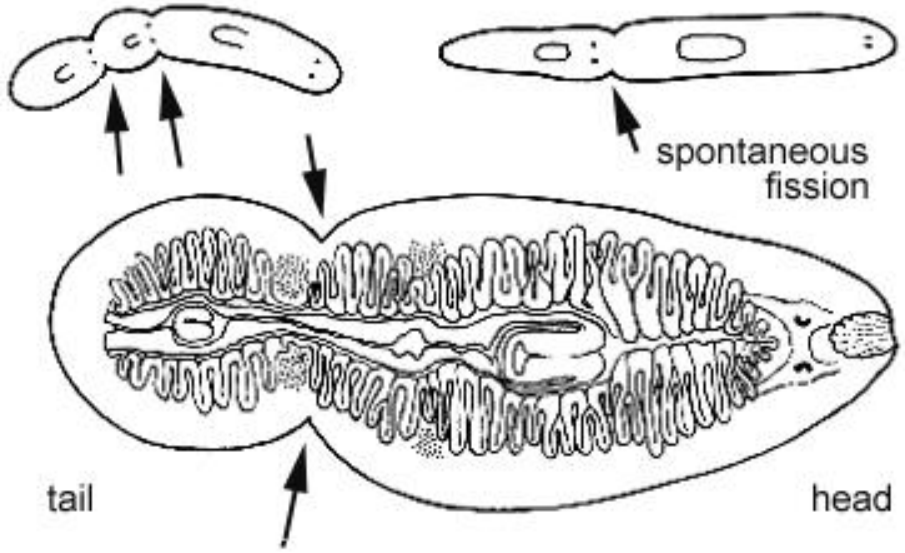


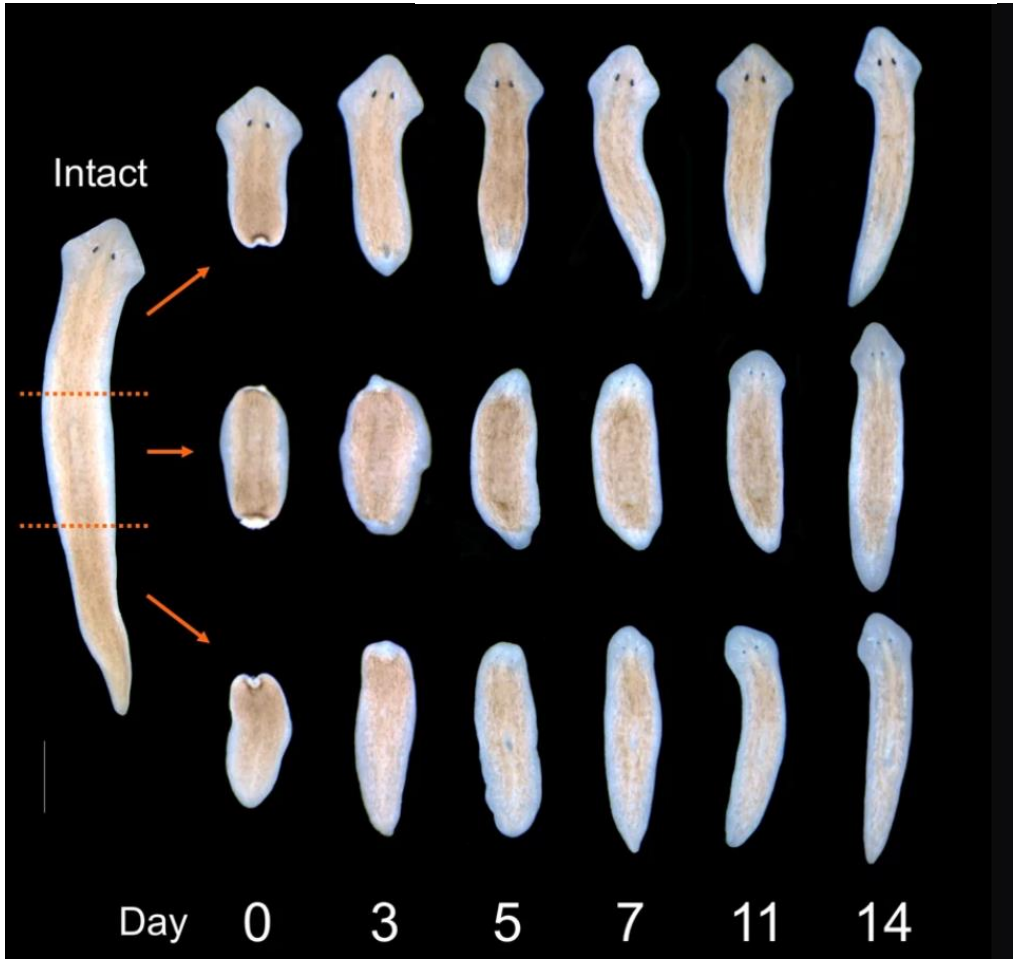
Razred: Turbellaria

- razmnožavanje:
  - nespolno – poprečno dijeljenje tijela → **regeneracija**
  - spolno – dvospolci







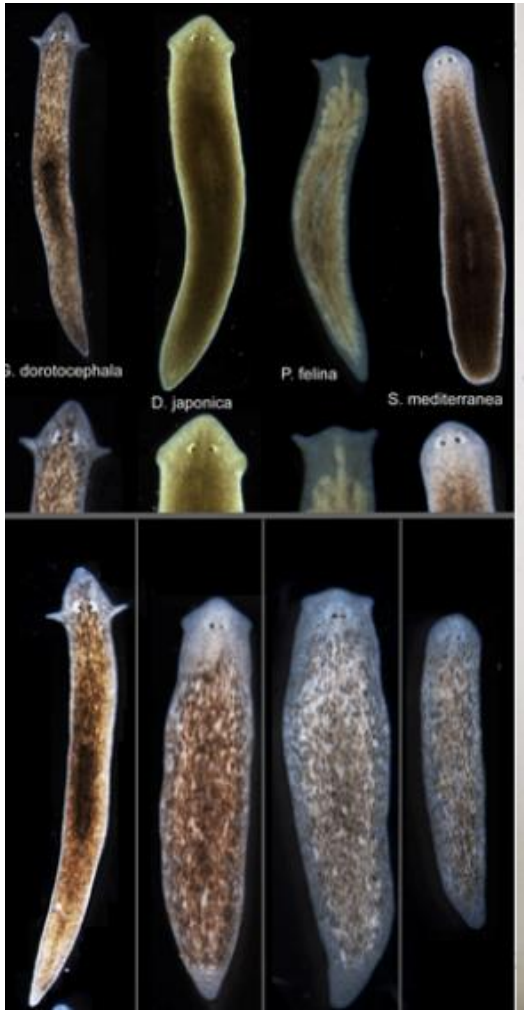


Razred: Turbellaria

- vodene životinje:
  - more
  - slatke vode
  - vlažna kopnena staništa

→ planarije (puzavice)



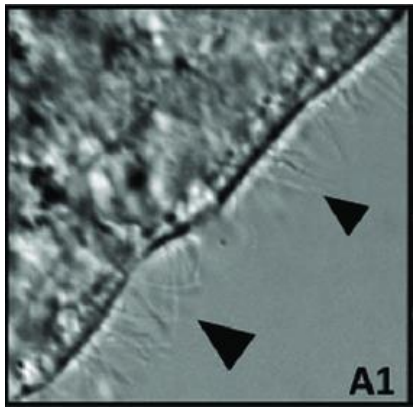






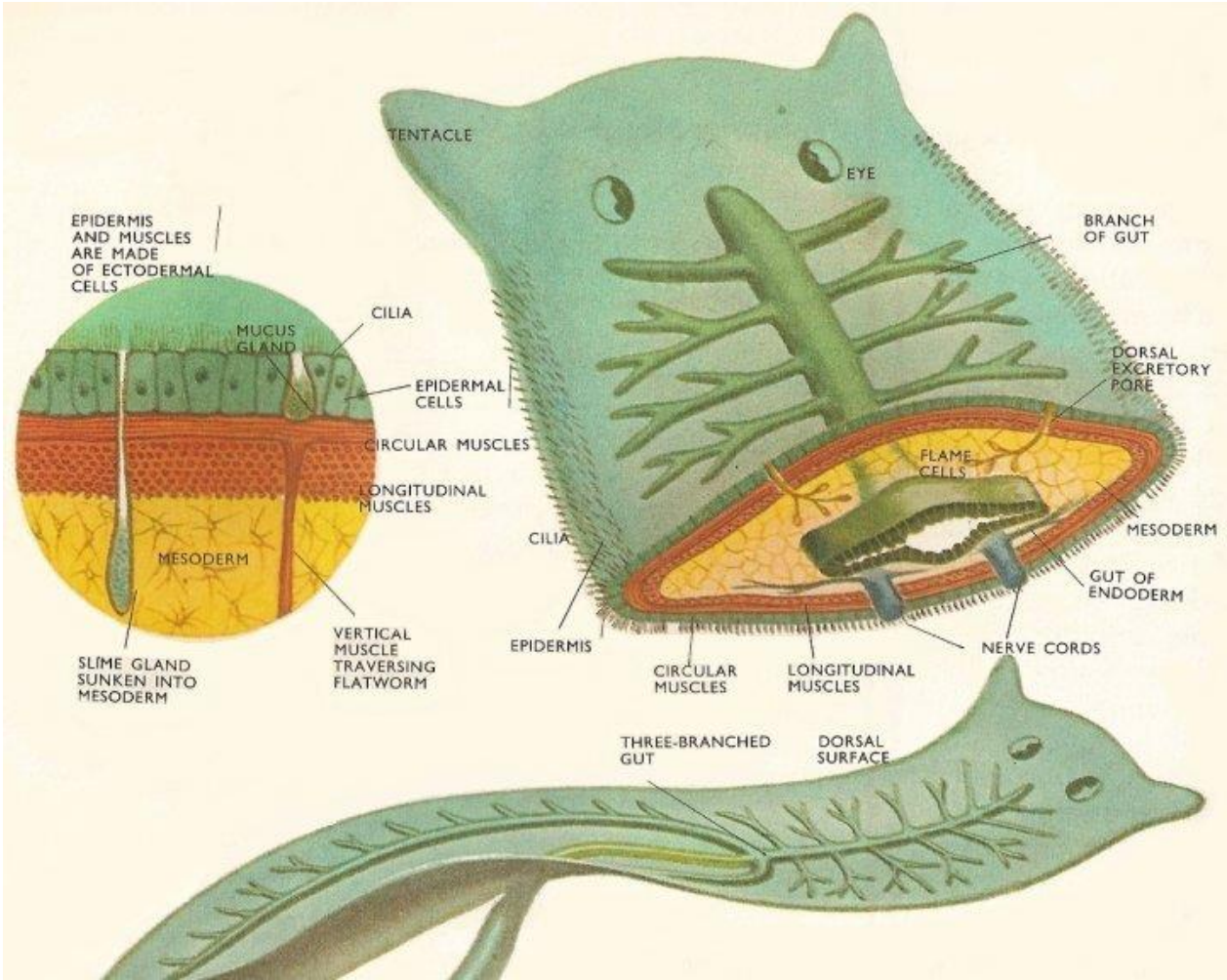
Razred: Turbellaria



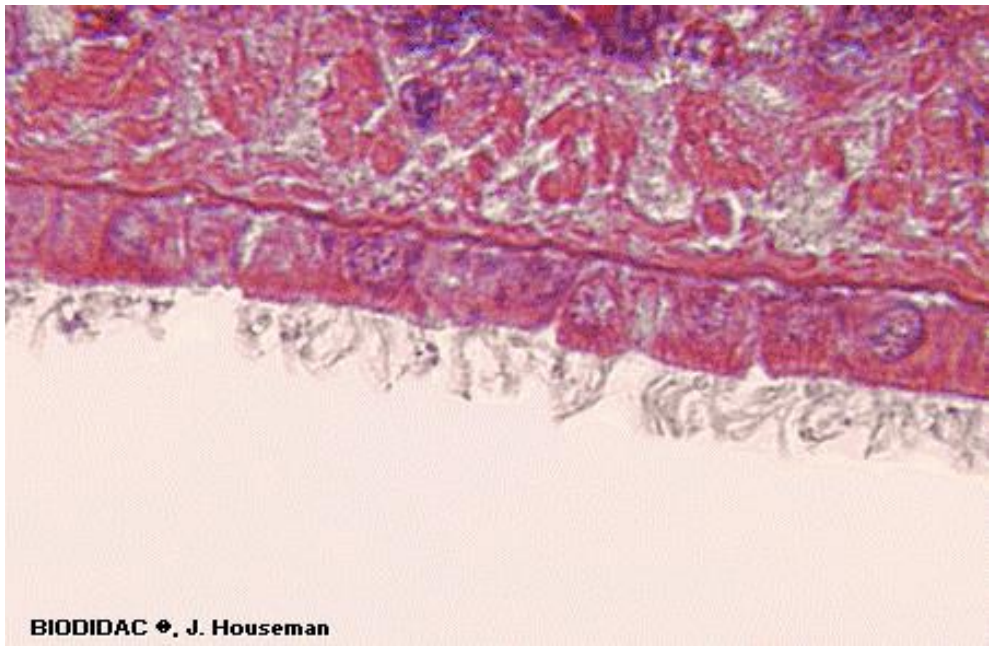


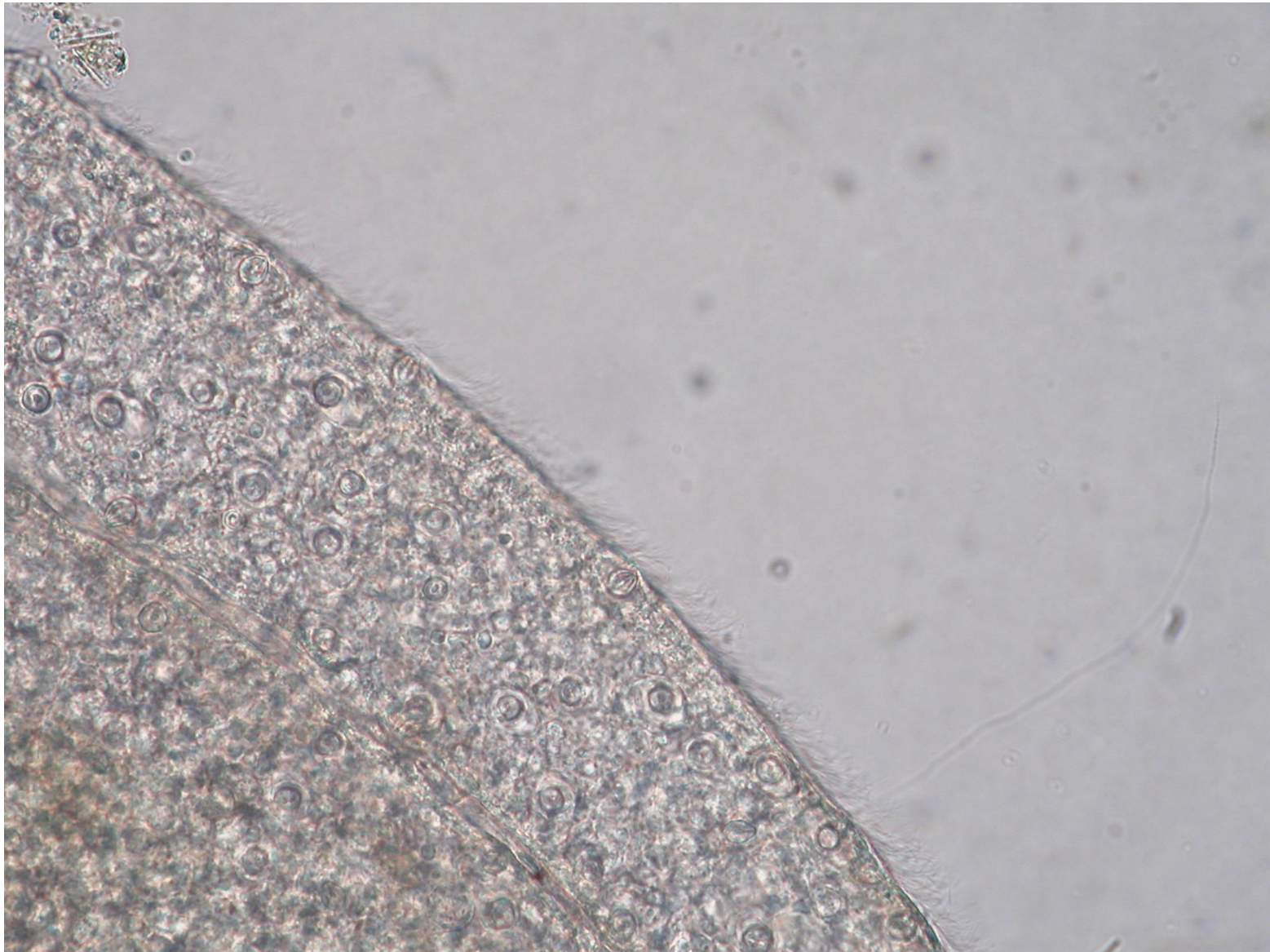
- pokrovni sustav:
  - jednoslojna **trepetljikava** epiderma

    + **žljezdane stanice** – nakupine na prednjem dijelu – frontalna žlijezda
  - **rabdoidi** – stvaranje sluzi
- osjetila:
  - mehanoreceptori
  - kemoreceptori
  - statociste
  - fotoreceptori



Razred: Turbellaria

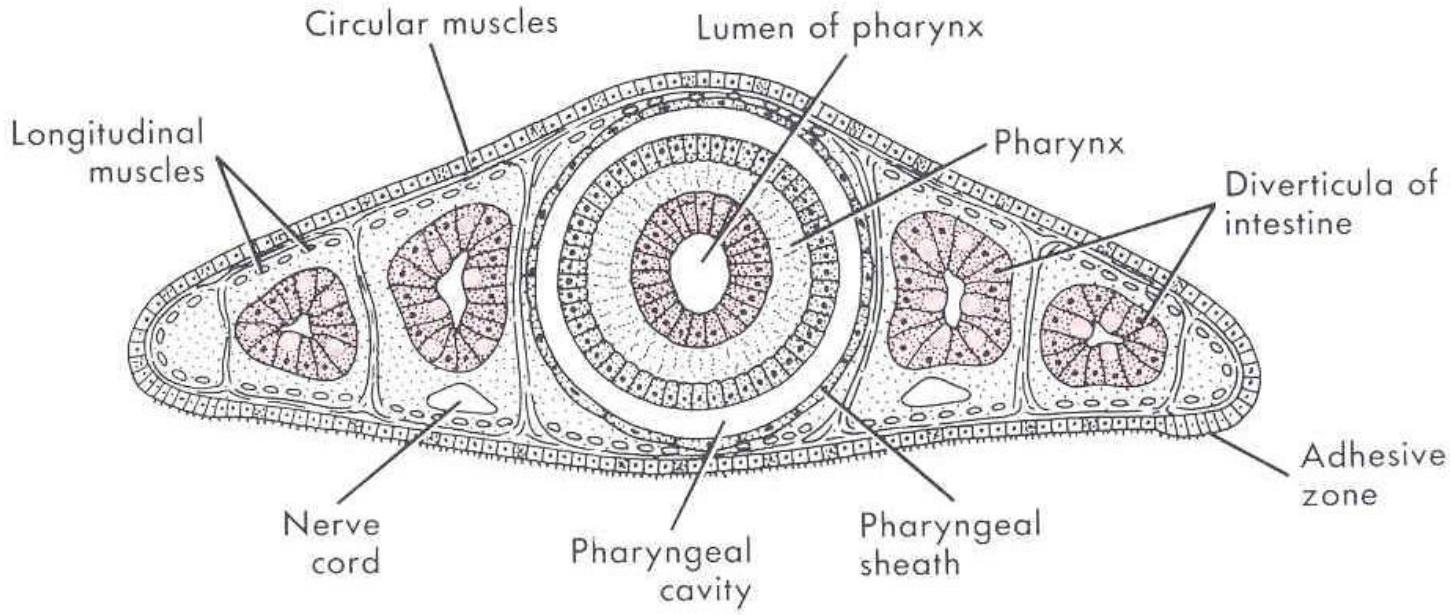


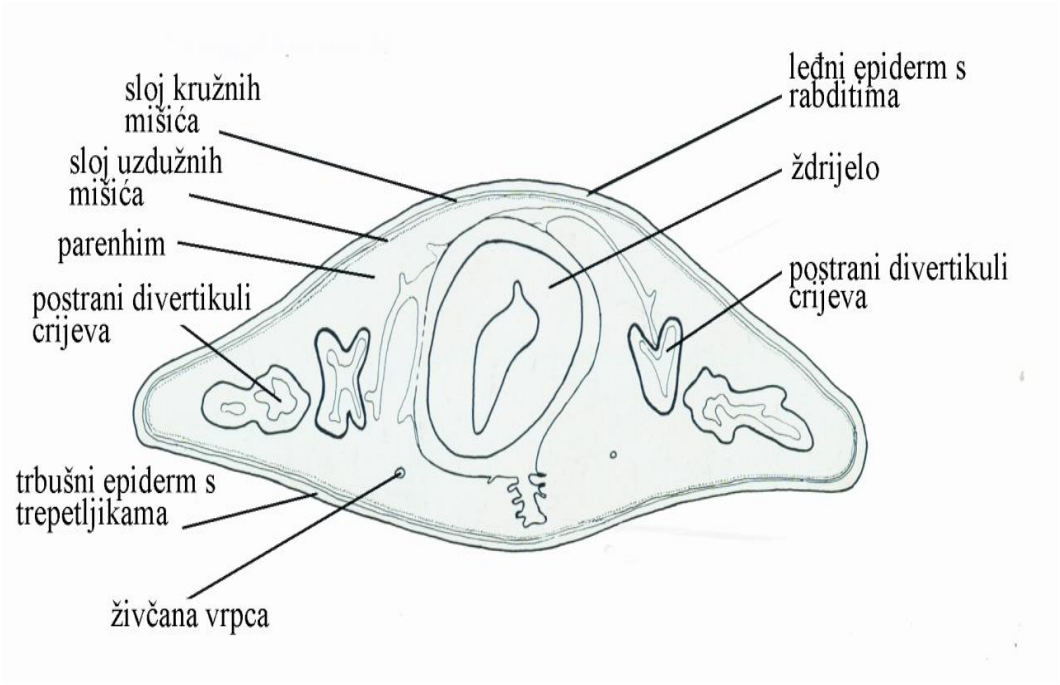


Razred: Turbellaria

Polycelis felina (mnogooka puzavica)

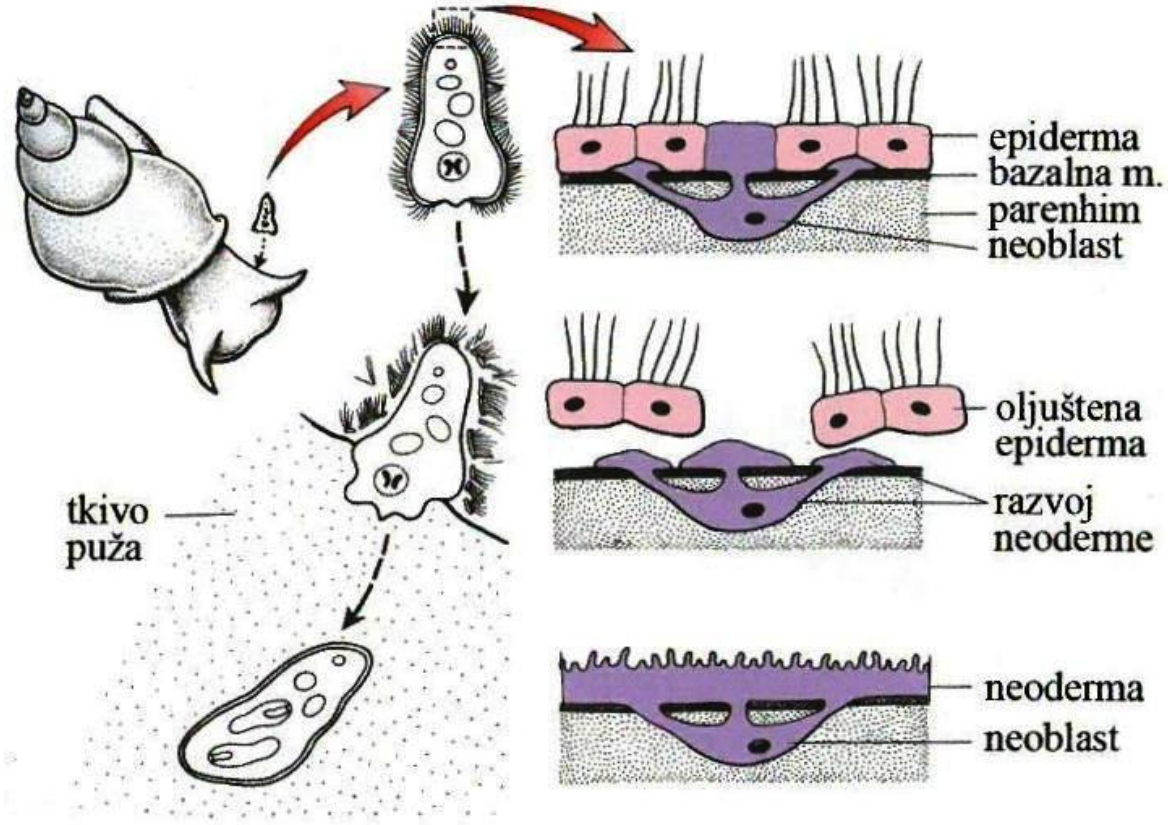
- poprečni presjek kroz tijelo u visini ždrijela:
  - **JEDNOSLOJNI EPITEL**
  - **EPITELNO-MIŠIĆNI SLOJ**
    - **SLOJ PRSTENASTIH MIŠIĆA**
    - **SLOJ UZDUŽNIH MIŠIĆA**
    - **DIJAGONALNI MIŠIĆI**
    - **DORZO-VENTRALNI MIŠIĆI**
  - **MEZODERMALNI PARENHIM (MEZENHIM)**
  - **ŽDRIJELO**
    - **ŽDRIJELNI DŽEP**
  - **OGRANCI CRIJEVA (DIVERTIKULI)**
  - **RABDOIDI (RABDITI)**
  - **ŽLIJEZDANA STANICA**





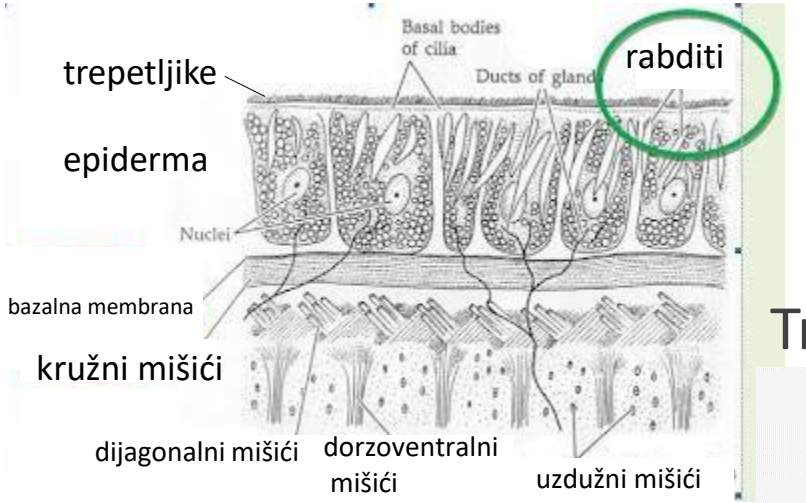
Razredi: **Trematoda** (metilji), **Monogenea** (jednorodni metilji) i **Cestoda** (trakavice)

- NEODERMATA
  - zamjena trepetljikave epiderme s netrepetljikavim, sincitijalnim slojem – **neoderma**

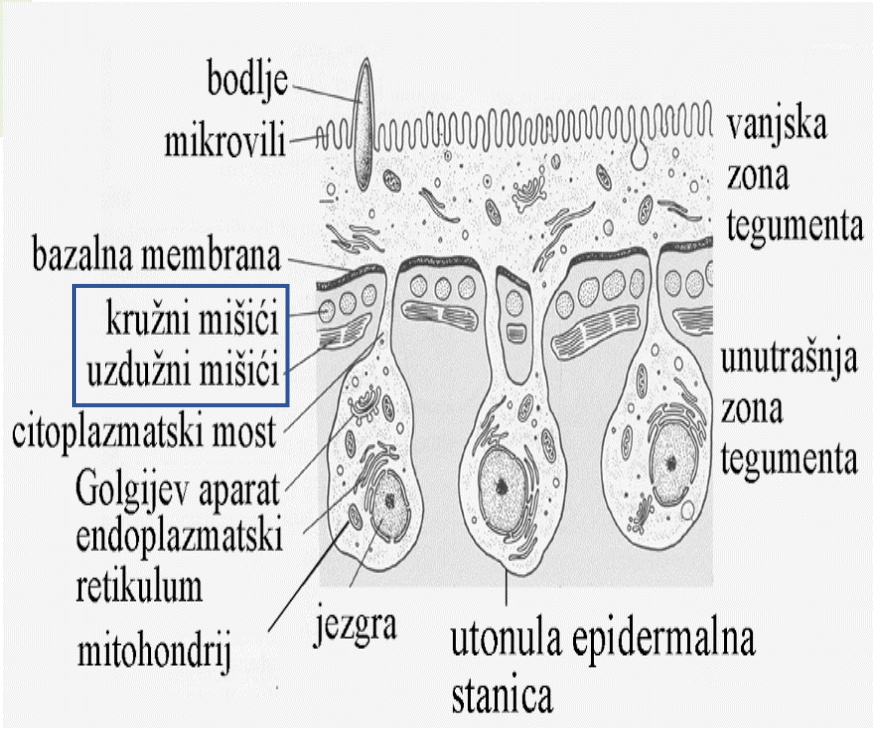


- EPITELNO-MIŠIĆNI SLOJ
  - razlike između slobodno-živućih i nametničkih

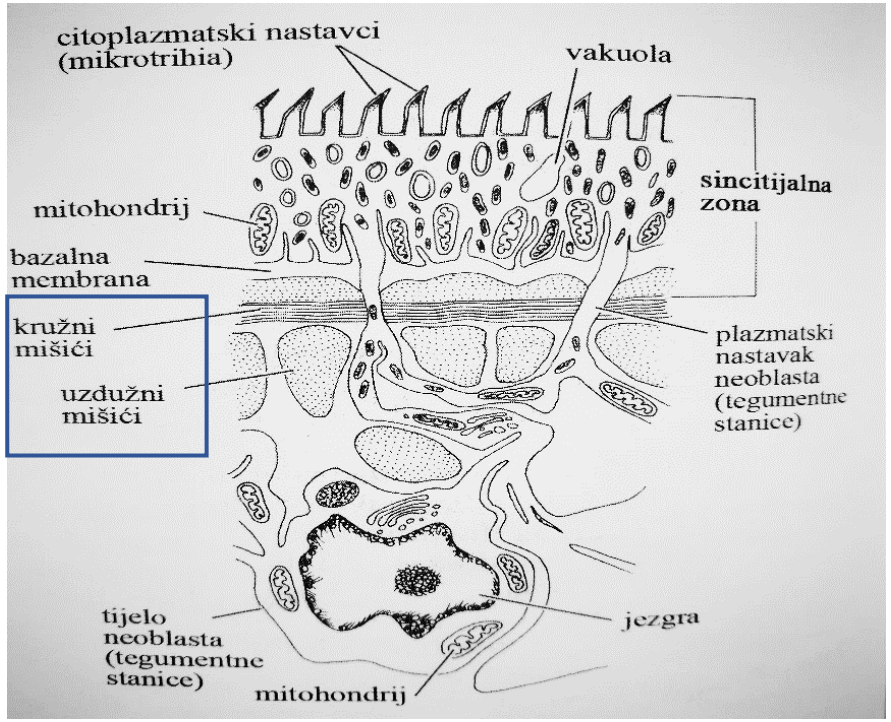
Turbellaria



Trematoda



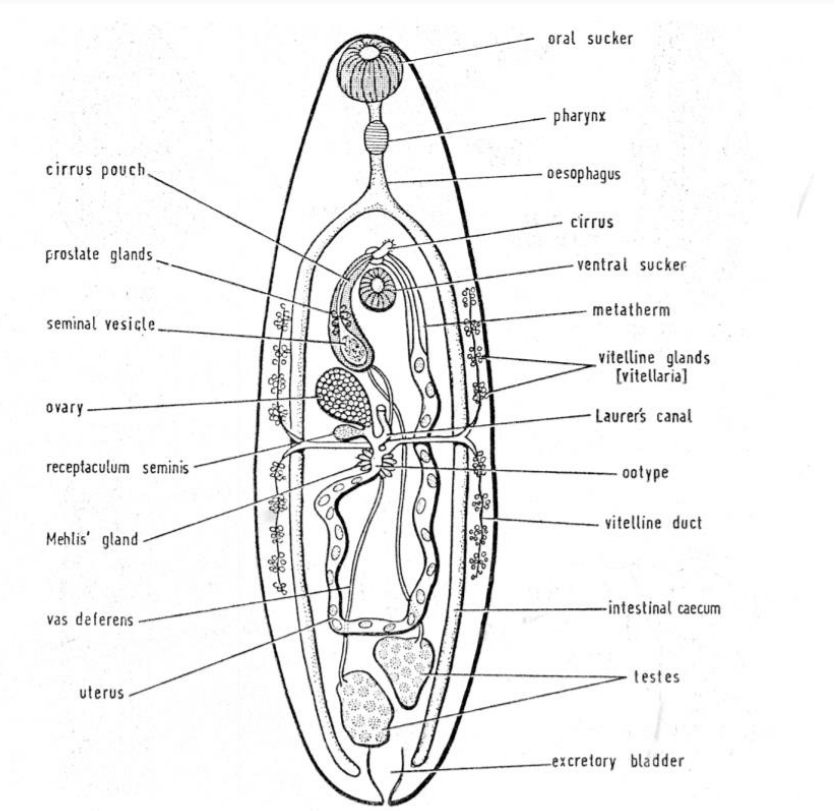
Cestoda

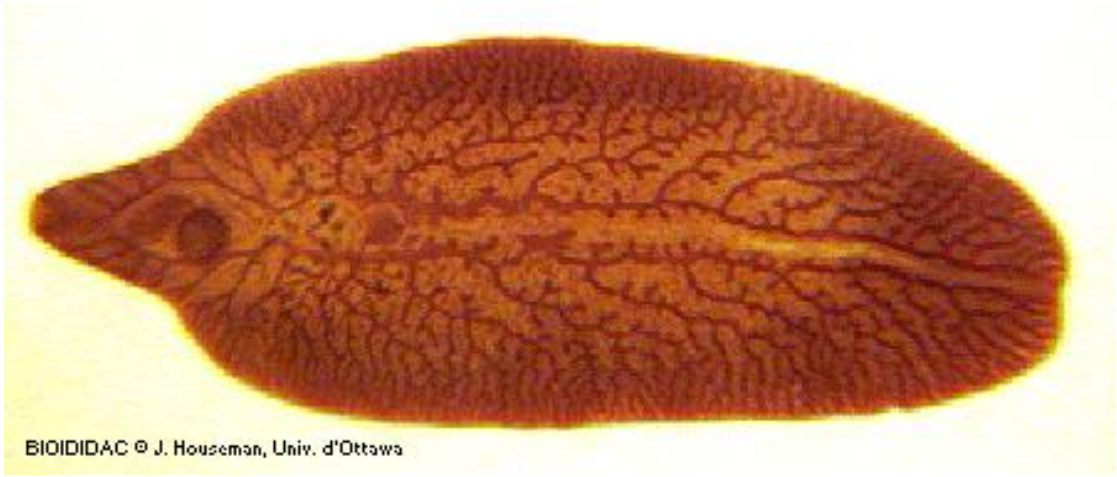


Razred: Trematoda (metilji)

Podrazred: Digenea (dvorodni metilji)

- usta okružena usnom (oralnom) **prianjaljkom**
  - + trbušna prianjaljka (acetabulum)
- **nametnički način života**:
  - slabo pokretni – **ličinački stadiji** (miracidij i cerkarija) su pokretni
  - slabo razvijena osjetila
  - prehrana krvlju, tkivima ili hranom iz crijeva domaćina





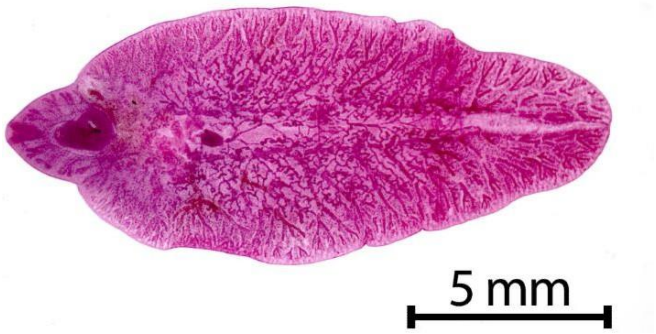
Razred: Trematoda – metilji

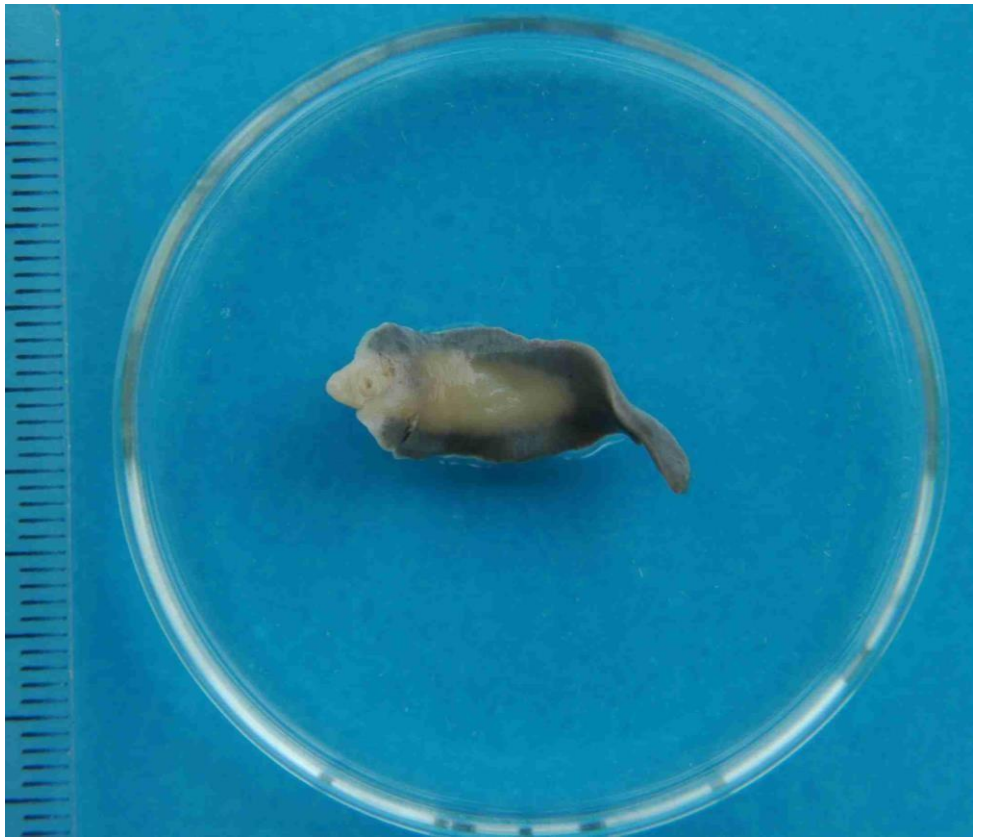
Podrazred: Digenea - dvorodni metiji

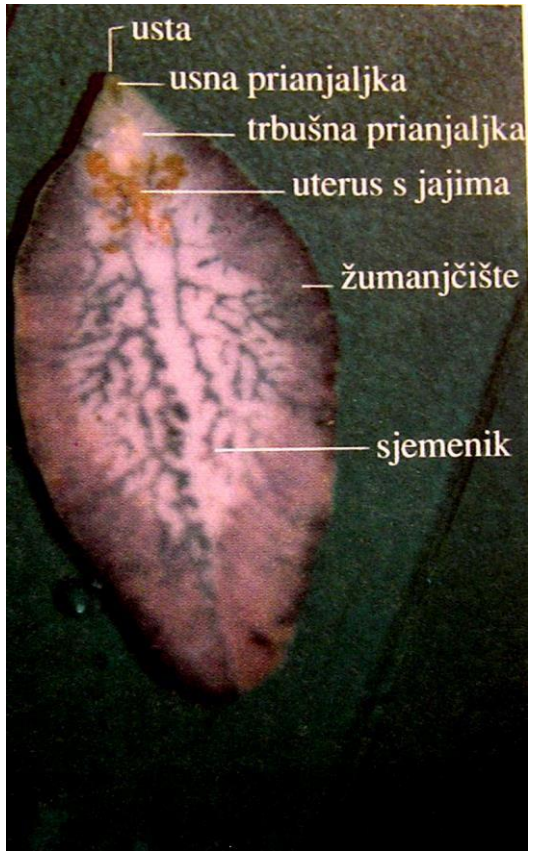
Fasciola hepatica – ovčji metilj

VANJSKI IZGLED (crtež)

usna prijanjaljka, trbušna prijanjalka, spolni otvor, cirus (kopulatorni organ), neoderma

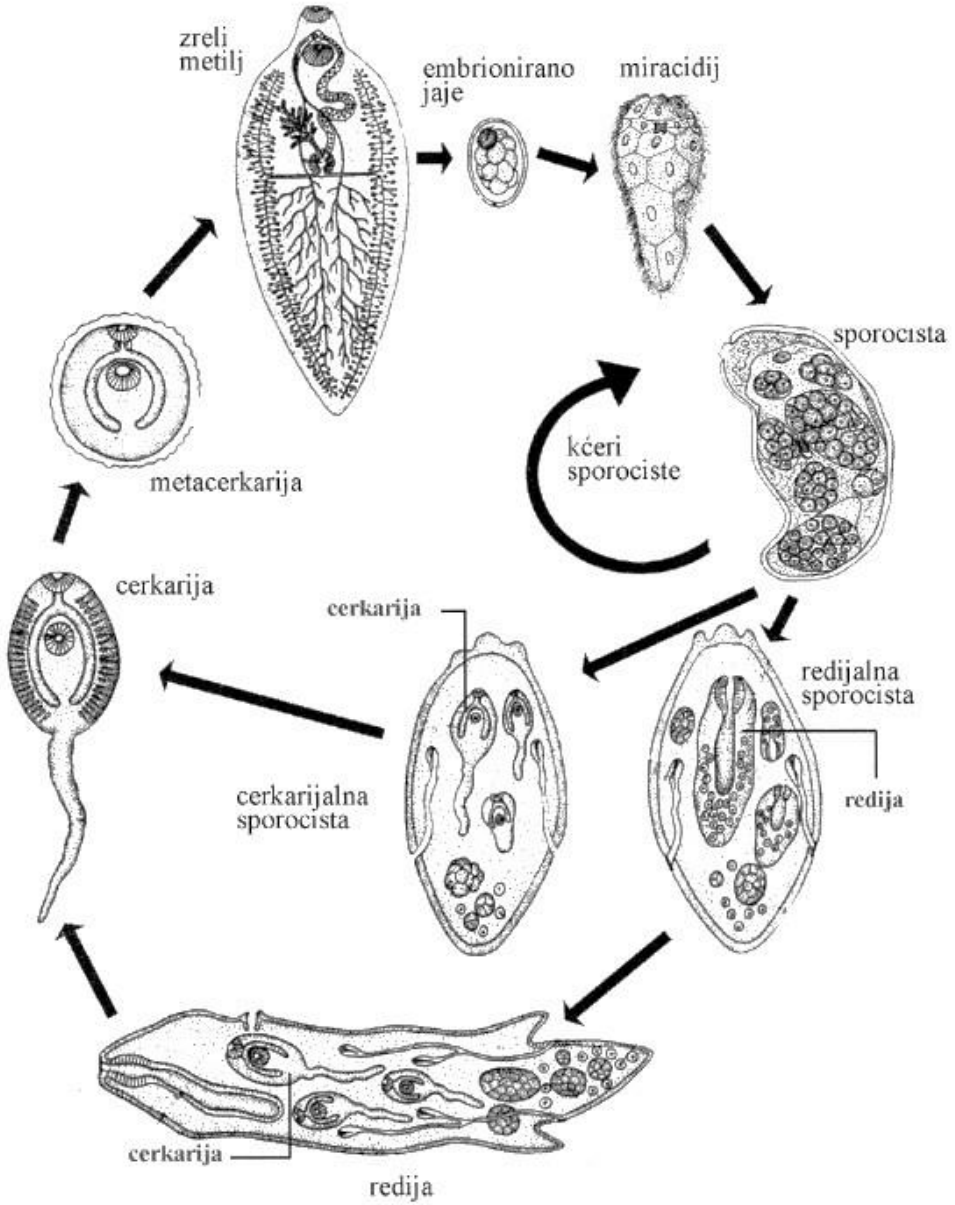






Unutrašnja građa

Životni ciklus ovčjeg metilja (*Fasciola hepatica*)



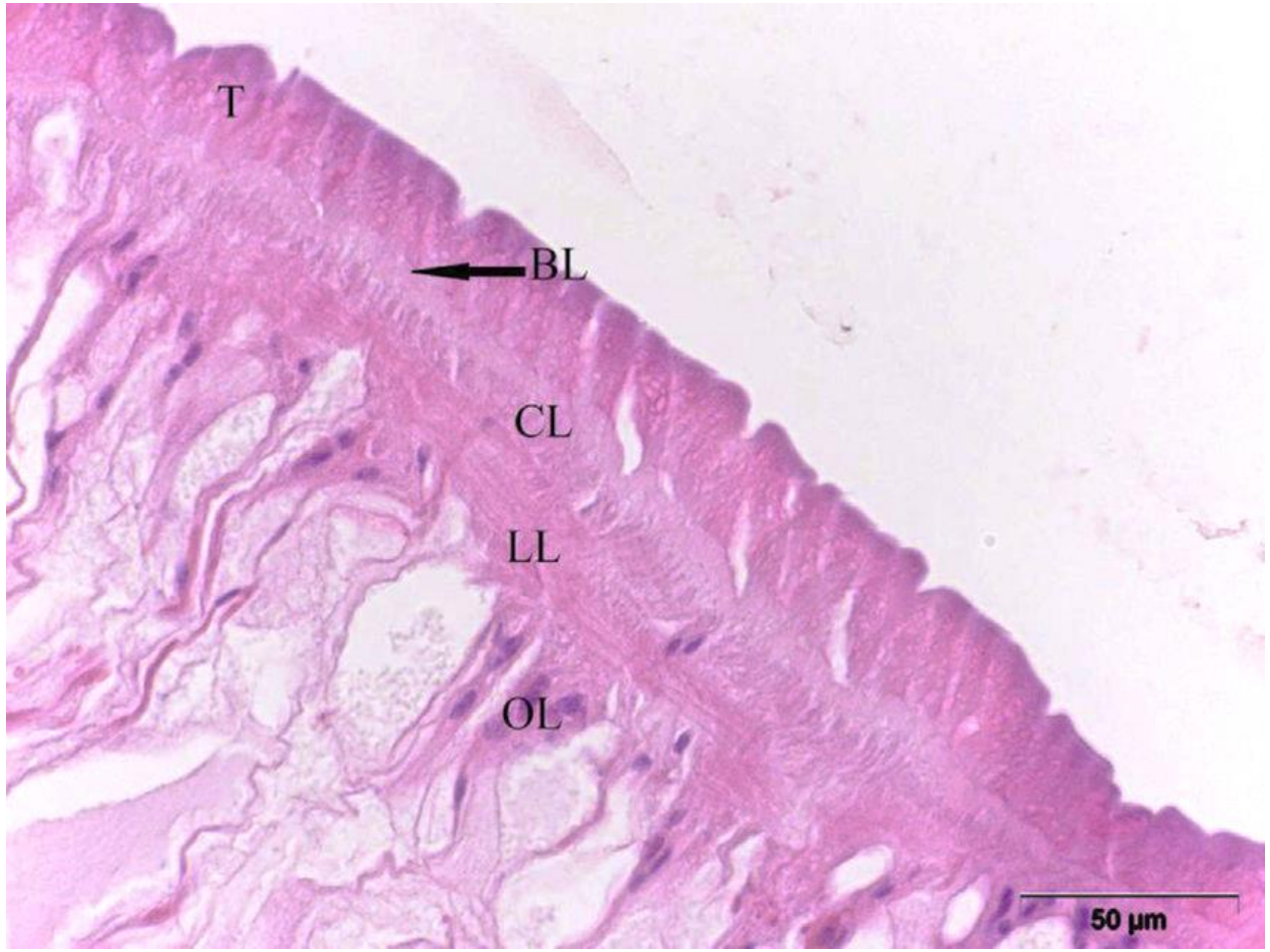


Lymnaea stagnalis (puž barnjak)

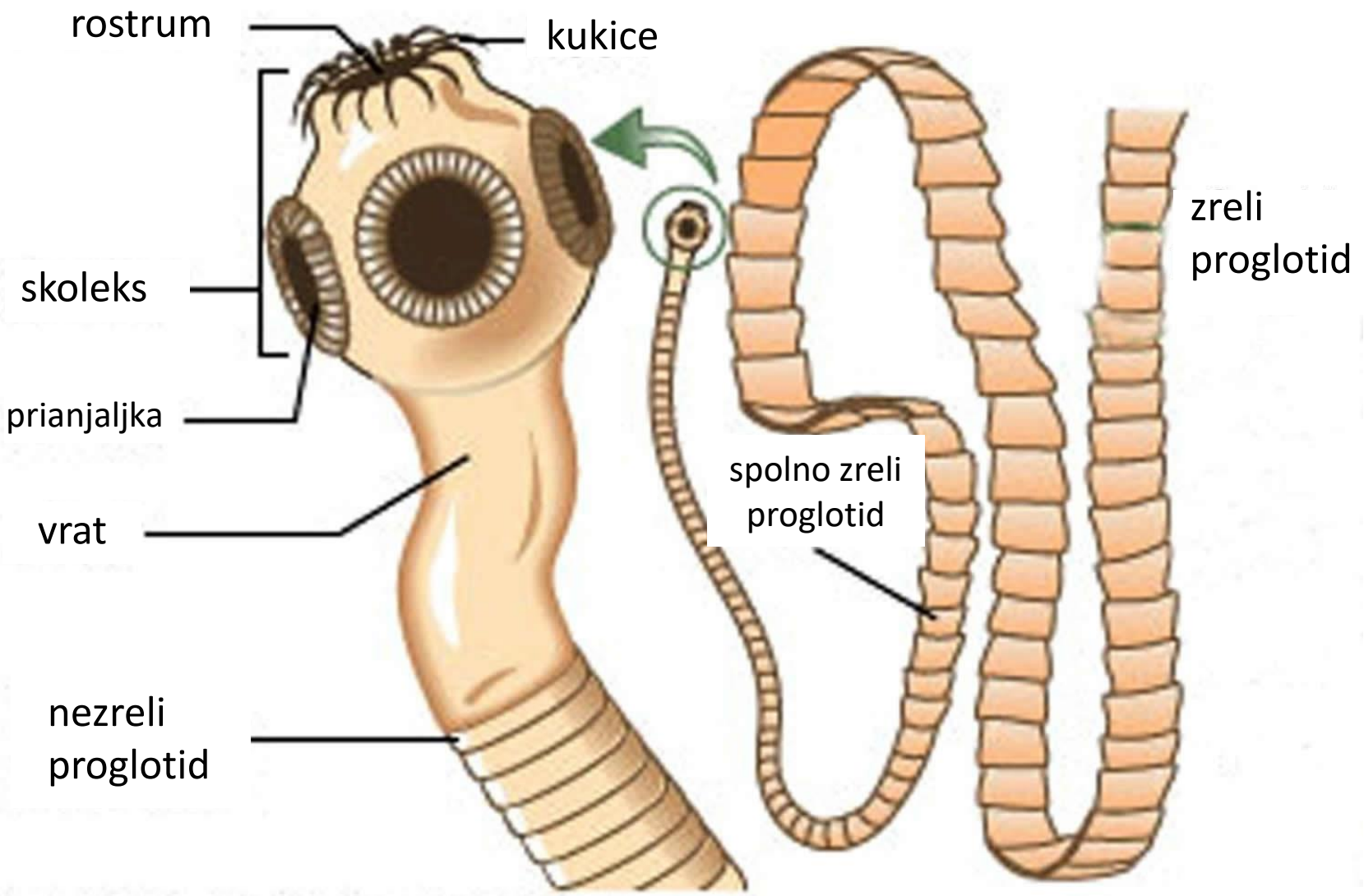
Razred: Trematoda

Podrazred: Digenea (dvorodni metilji)

- *Fasciola hepatica* (ovčji metilj)
  - **NEODERMA (TEGUMENT)**
    - **VANJSKA ZONA NEODERME**
    - **UNUTRAŠNJA ZONA NEODERME**
  - **SLOJ PRSTENASTIH MIŠIĆA**
  - **SLOJ UZDUŽNIH MIŠIĆA**
  - **MEZENHIM**
  - **TIJELO NEOBLASTA**
  - **BODLJA**

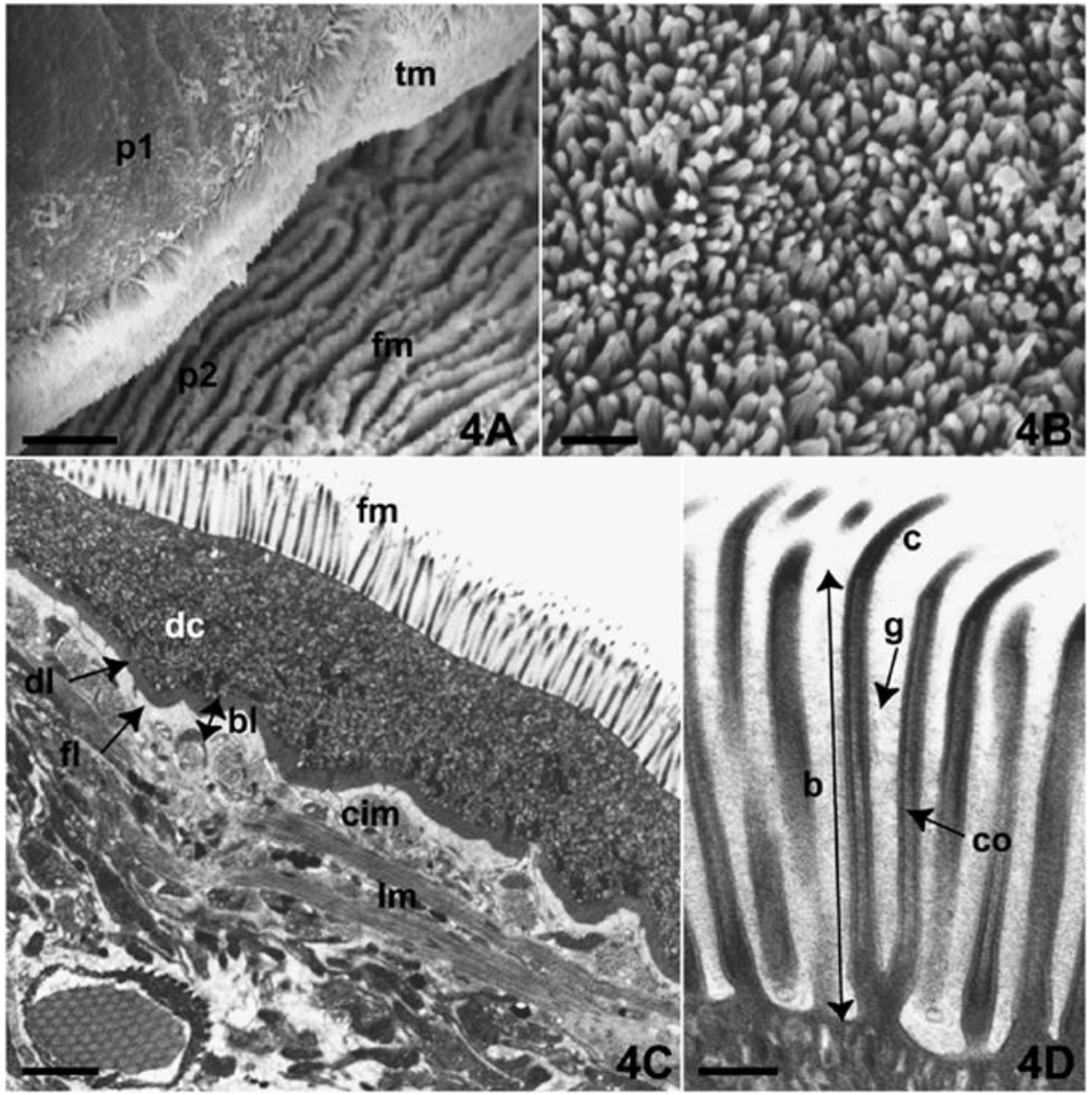


Razred: Cestoda (trakavice)



Razred: Cestoda

- podjela tijela na:
  - **skoleks** – za pričvršćivanje, često ima prianjaljke:
    - botrij,
    - botridij,
    - acetabula (+ rostelum s vijencem kukica);
  - **vrat**,
  - **strobila** (proglotidi)
- neoderma sadržava citoplazmatske nastavke – **mikrotrihia**



Razred: Cestoda

Podrazred: Eucestoda (prave trakavice)

- nametnici tankog crijeva kralježnjaka
  - *Taenia saginata* (goveđa trakavica)
  - *Taenia solium* (svinjska trakavica)
  - *Echinococcus granulosus* (pasja trakavica)

Taenia saginata



Taenia solium

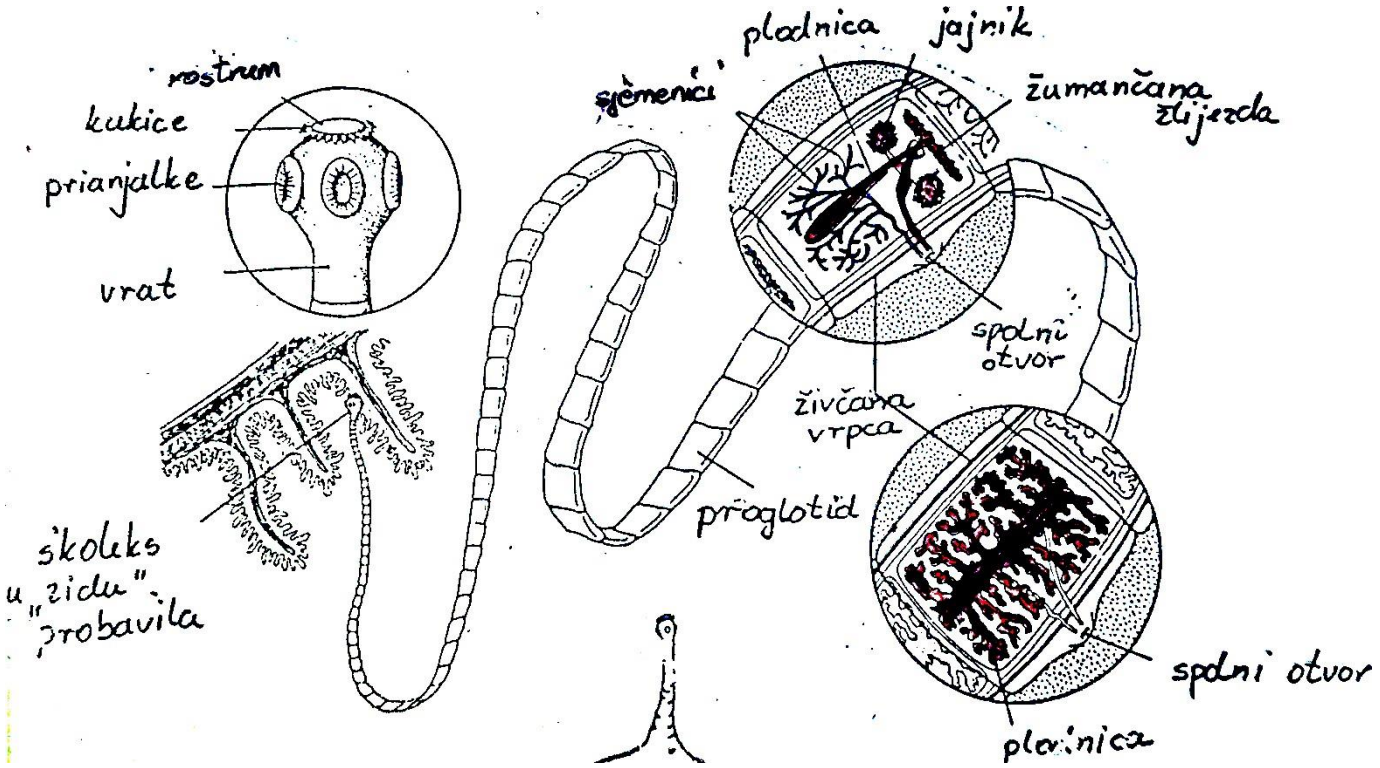


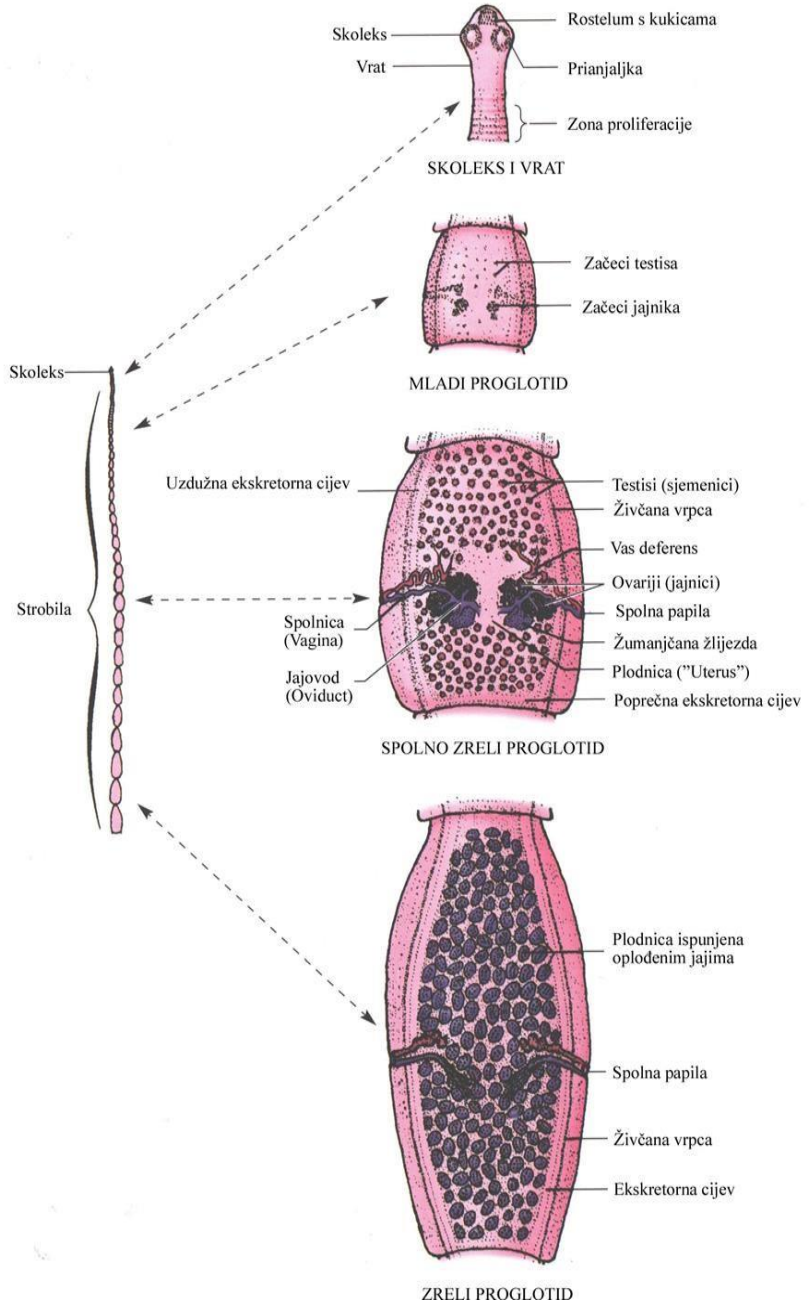
Echinococcus granulosus



Razred: Cestoda

Podrazred: Eucestoda (prave trakavice)

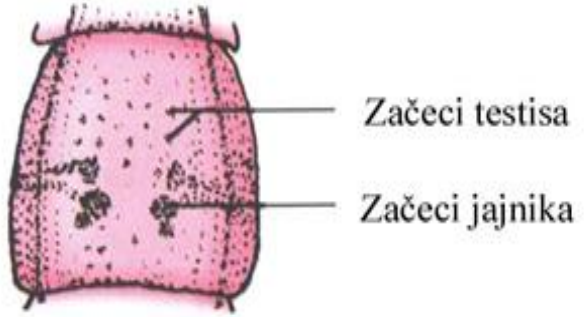




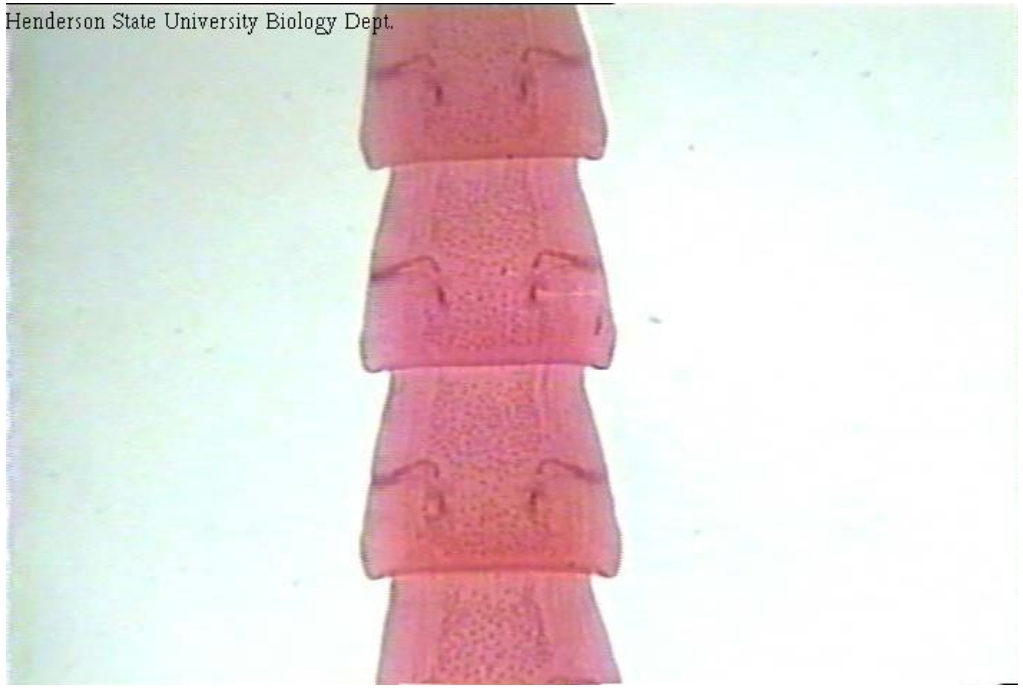
Razred: Cestoda

Podrazred: Eucestoda

- *Taenia* sp.
  - unutrašnja građa spolno nezrelog proglotida:
    - **MEZODERMALNI PARENHIM (MEZENHIM)**
    - **UZDUŽNA EKSKRETORNA CIJEV**
    - **POPREČNA EKSKRETORNA CIJEV**
    - **UZDUŽNE ŽIVČANE VRPCE**



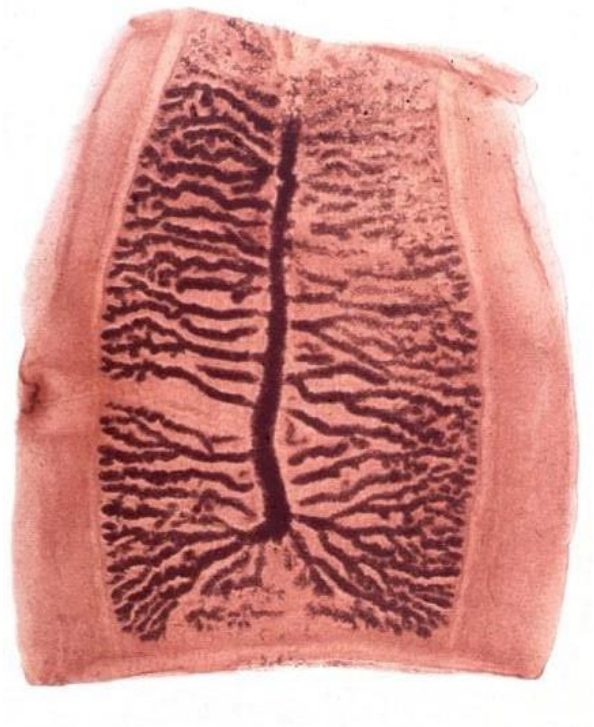
MLADI PROGLOTID

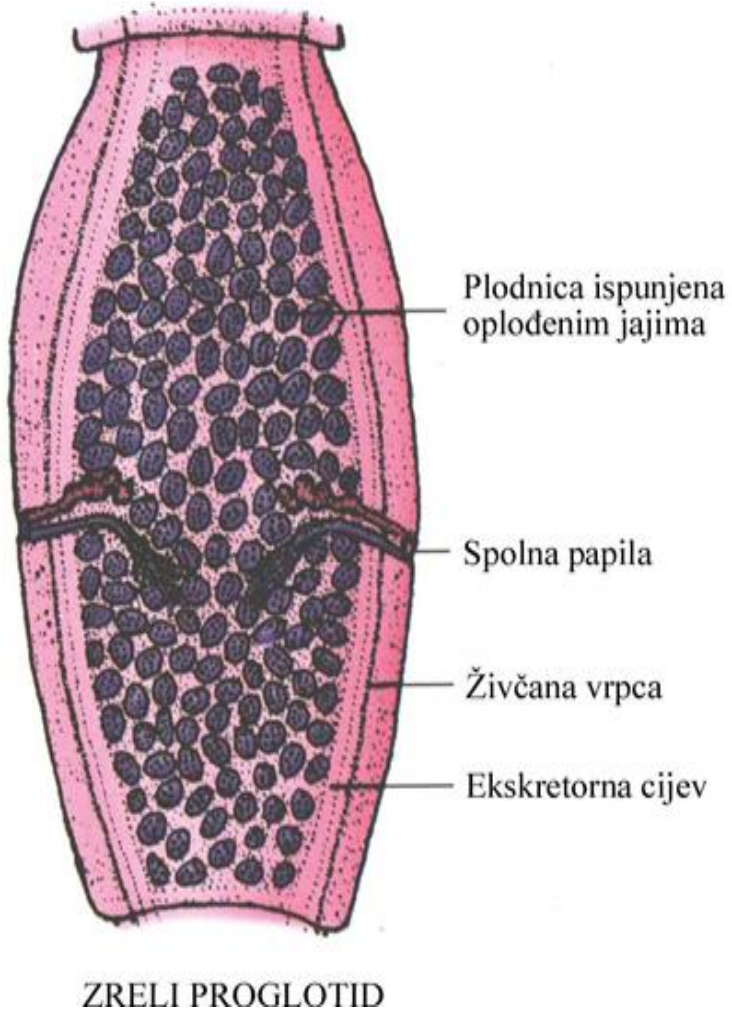


Razred: Cestoda

Podrazred: Eucestoda

- *Taenia* sp.
  - unutrašnja građa spolno zrelog proglotida:
    - **RAZGRANJENI "UTERUS"**
    - **OPLOĐENA JAJA**





ZRELI PROGLOTID

Razred: Cestoda

Podrazred: Eucestoda

- *Echinococcus granulosus*
  - vanjska građa:
    - **SKOLEKS**
    - **ROSTRUM S KUKICAMA**
    - **ACETABULUM (4)**
    - **VRATNI DIO**
    - **STROBILA**
    - **PROGLOTID**



