

## Metazoa (Vielzellige Tiere)

### Parazoa (Schwämme)

keine echten Epithelien; keine Nervenzellen.  
Ei- und Samenzellen; Kragengeißelzellen;  
Muskelzellen; u.a.

### Eumetazoa (echte Vielzeller; Gewebetiere)

echtes Epithelgewebe; Nervenzellen

**Radiärsymmetrische Tiere** (z.B. Nesseltiere)

**Bilateria** (alle höheren Tierstämme)

## Stamm: Cnidaria (Nesseltiere)

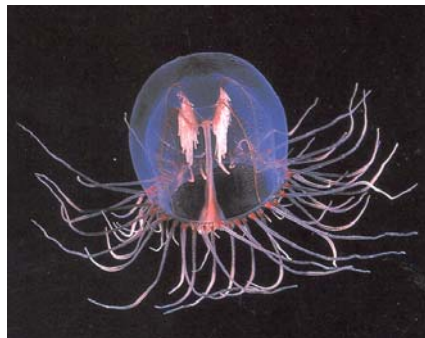
(ehemals „Coelenterata“ Hohltiere zusammen mit Ctenophora- Rippenquallen)

Ca. 9000 rezente Arten

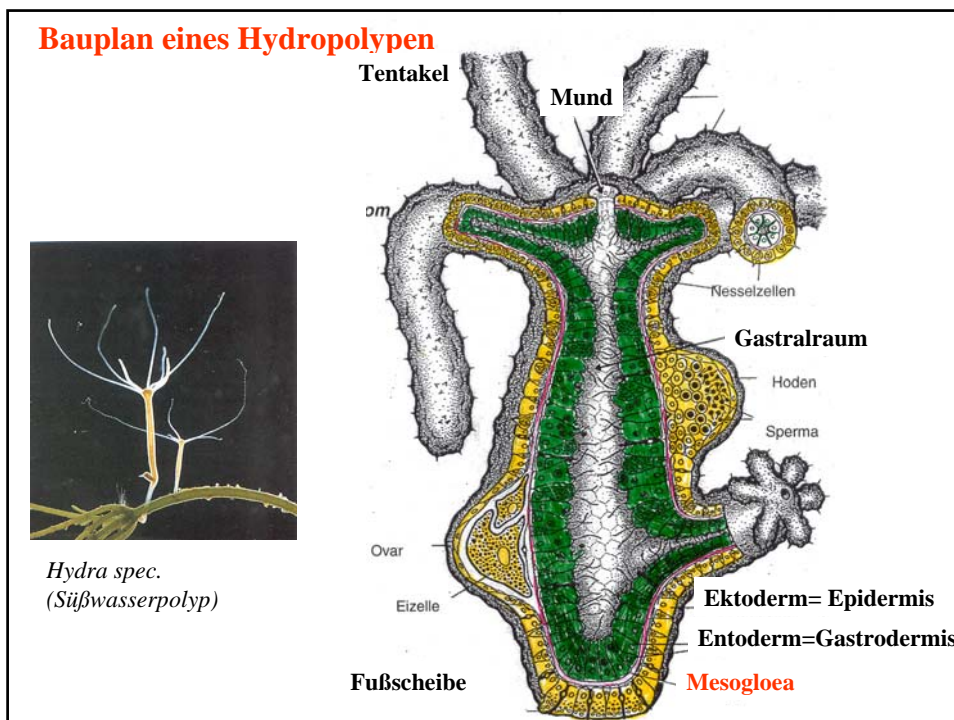
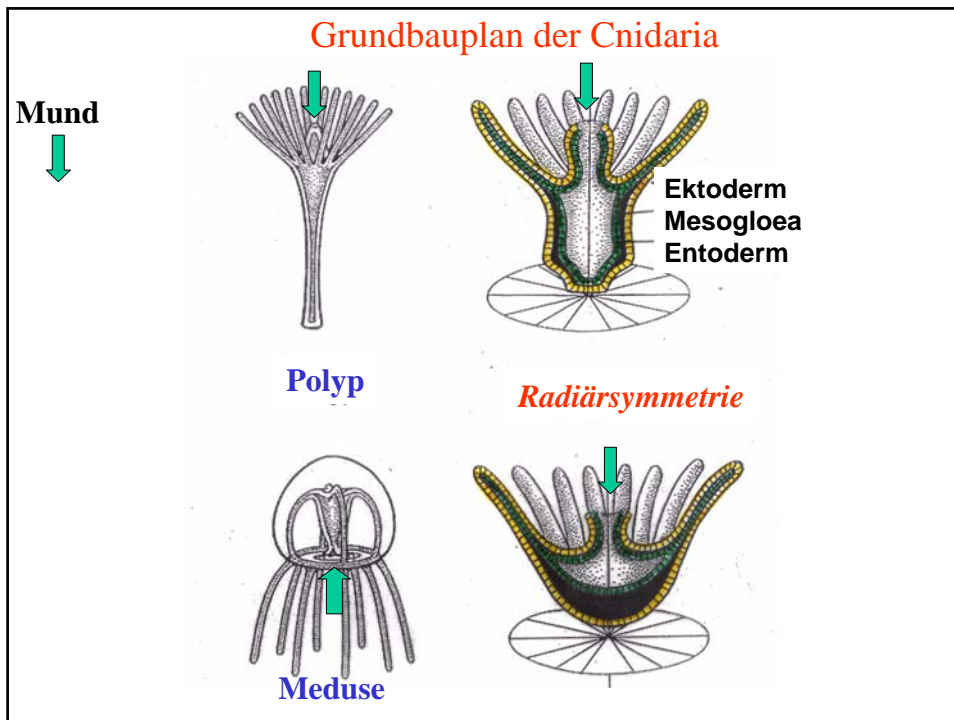
- |                    |                                   |
|--------------------|-----------------------------------|
| - Radialsymmetrie  | Klasse: Hydrozoa                  |
| - 2 Keimblätter    | Klasse: Scyphozoa (Fahnenquallen) |
| - Echte Epithelien | Klasse: Cubozoa (Würfelquallen)   |
| - Nesselzellen     | Klasse: Anthozoa (Korallen)       |

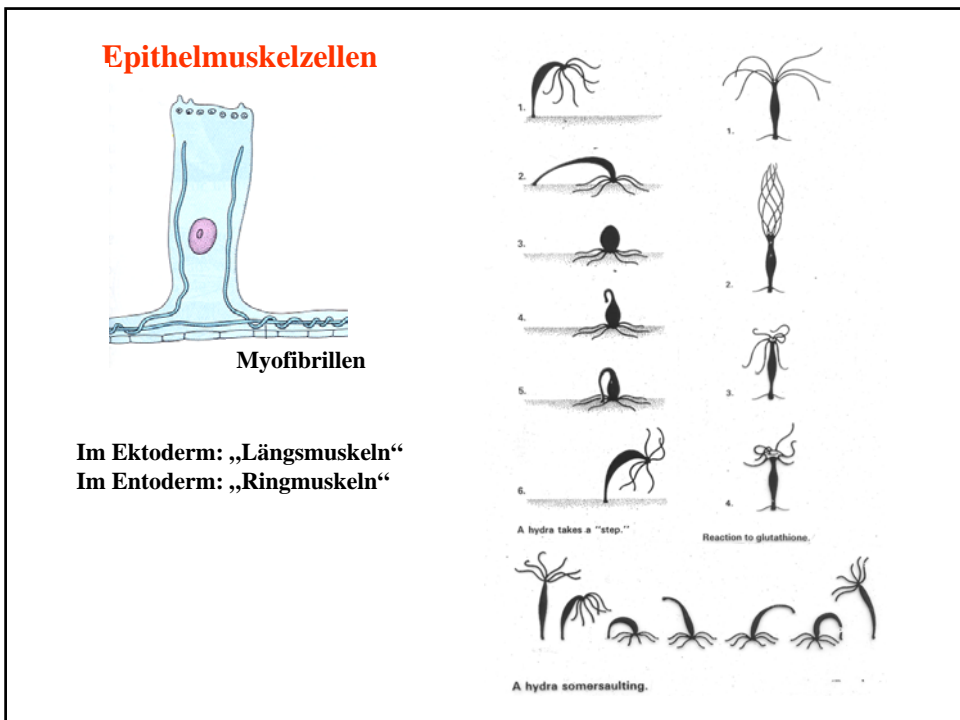
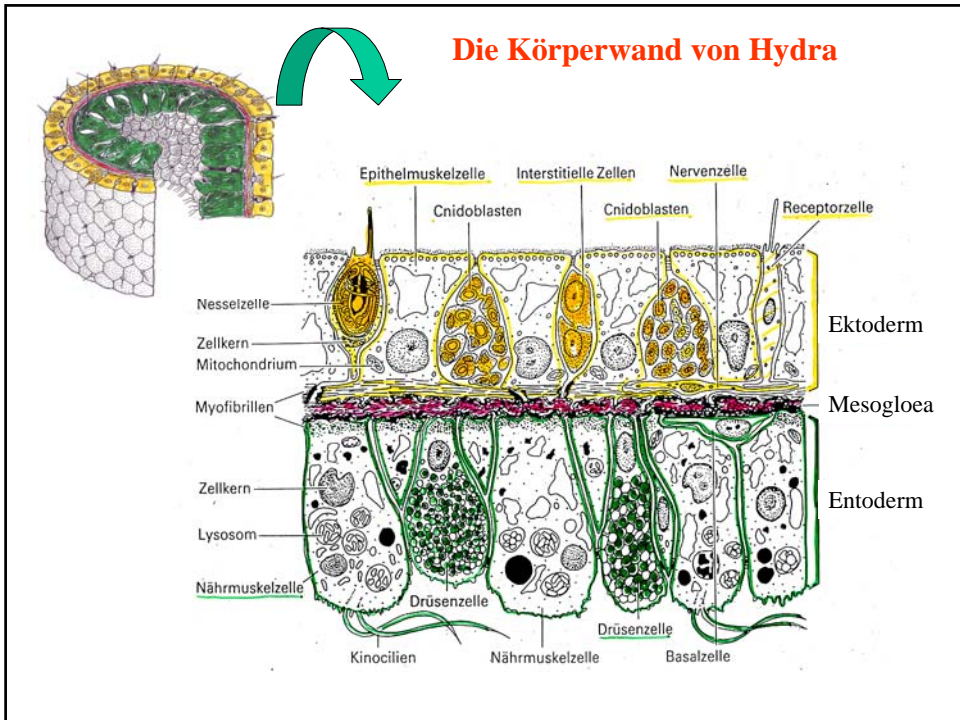


Polyp



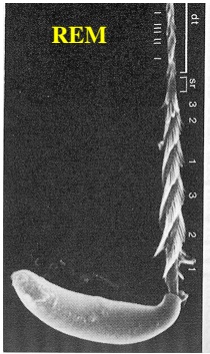
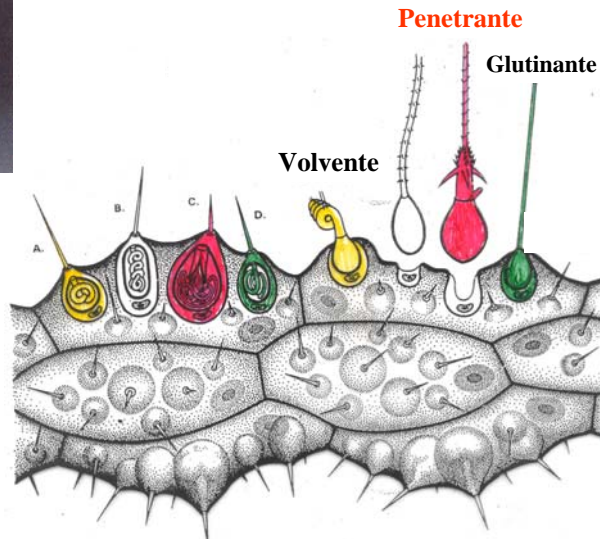
Meduse



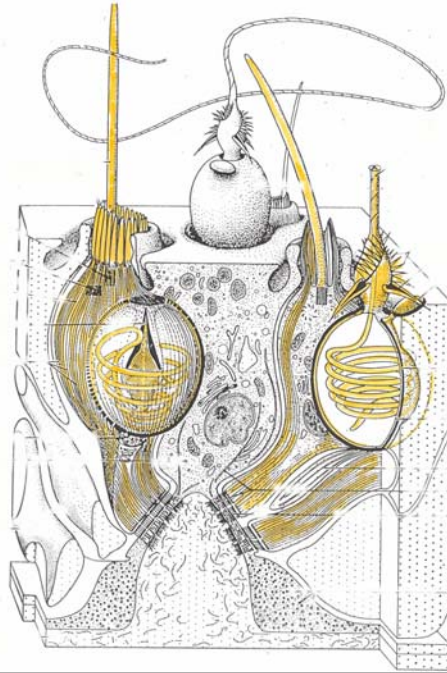




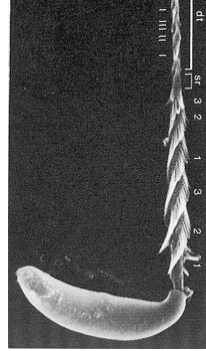
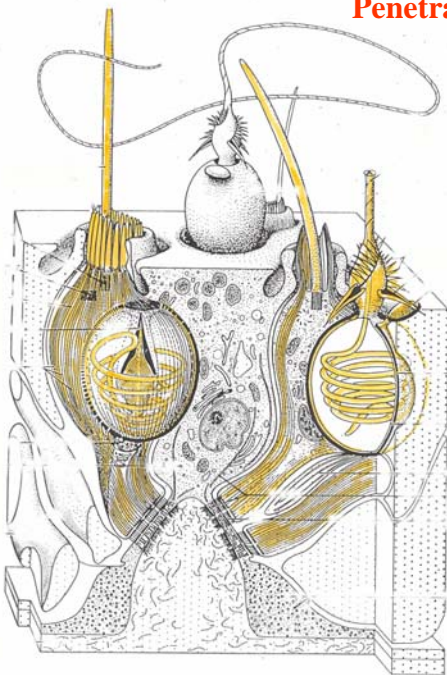
**Nesselkapseln (Cniden; Nematocysten)**  
 = hochspezialisierte Zellorganellen  
 der Nesselzellen (Nematocyten; Cnidozyten)



**Penetranten**

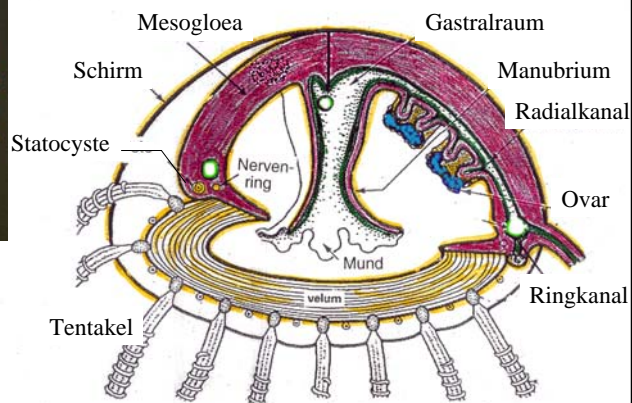
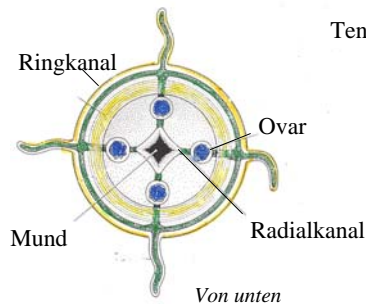
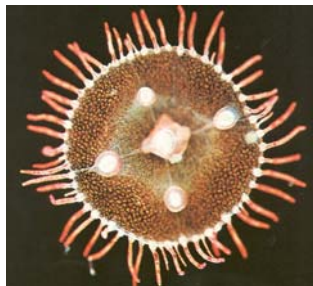


## Penetranten

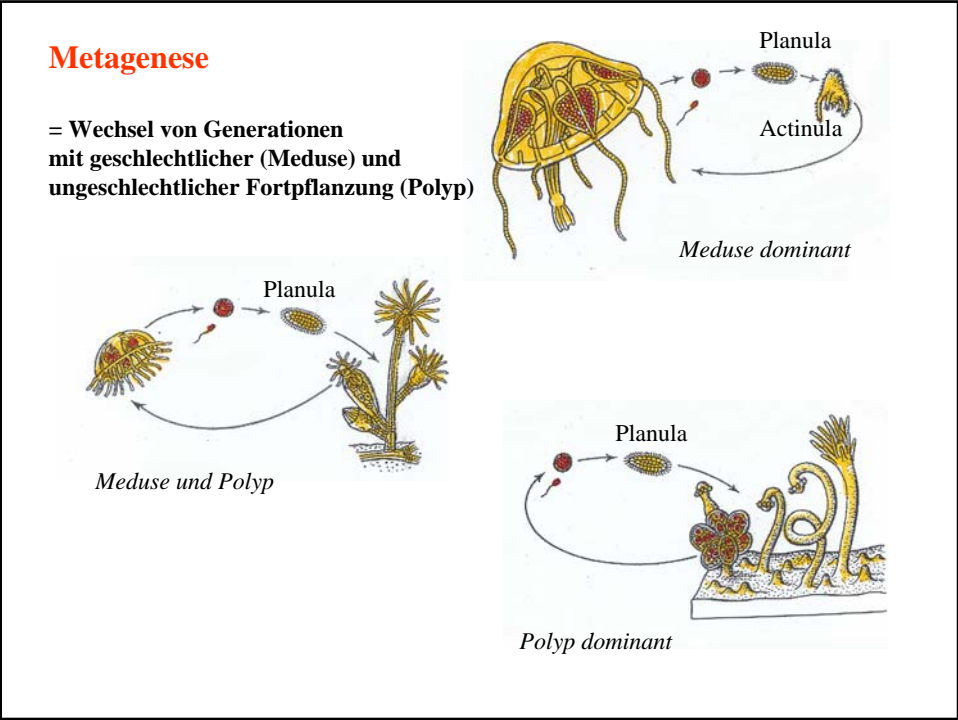
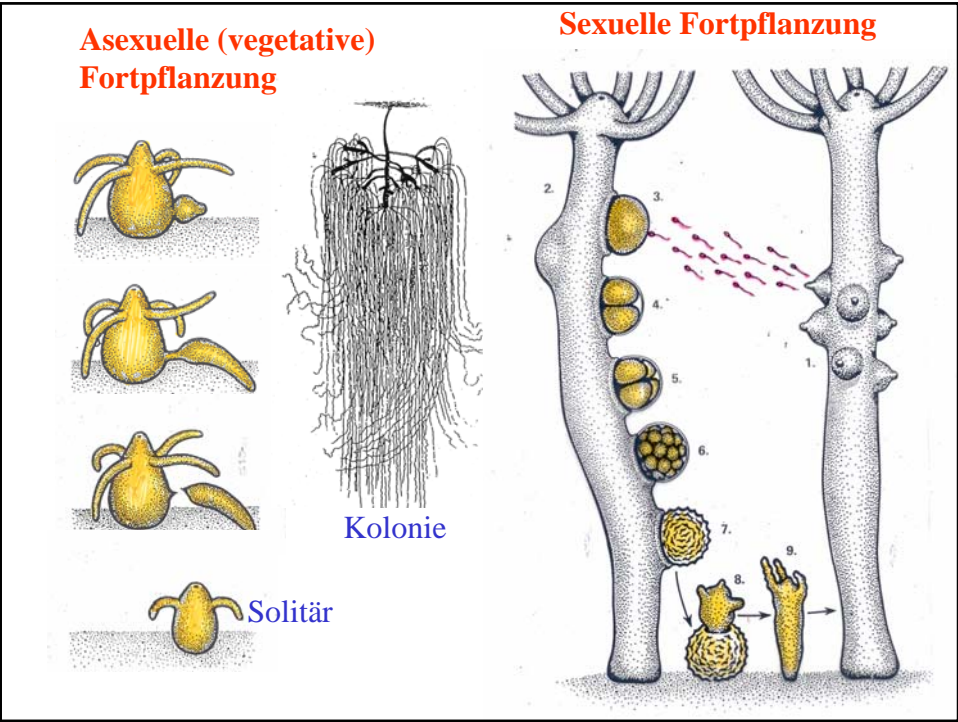


- die komplizierteste tierische Zelle
- Osmotisch hochwirksames Poly-L-Glutamat im Kapselraum bildet „Explosivmasse“
- bei Wassereintritt entsteht ein Druck von 150 bar
- Stilet wird mit Beschleunigung von 40 000 g ausgefahren

## Bauplan der Medusen



- verzweigtes Gastrovaskularsystem
- dicke Mesogloea
- Nervenring + diffuses Ns
- Sinnesorgane (Statocysten; manchmal Linsenaugen)
- Velum (muskulöser Ring)



## Staatsquallen (Siphonophora)

Schwimmende Tierkolonien mit „Gasflaschen“;  
Tentakel aus Achsenfäden mit dransitzenden  
Polypen.



*Physophora*



*Portugiesische Galeere*

Hochgiftig!! 50 m lange Tentakel

## Scyphozoa

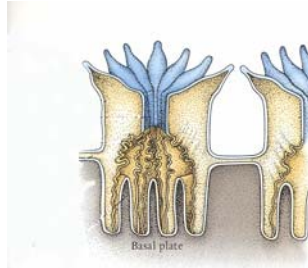


*Cotylorhiza tuberculata*  
(Gelbe Wurzelmundqualle)

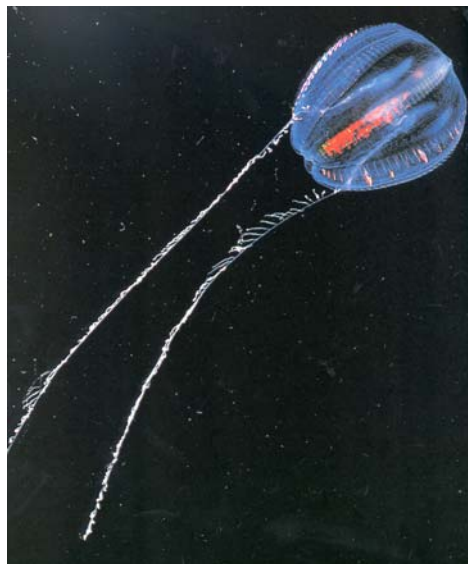


*Aurelia aurita* (Ohrenqualle)

## Anthozoa (Korallen)



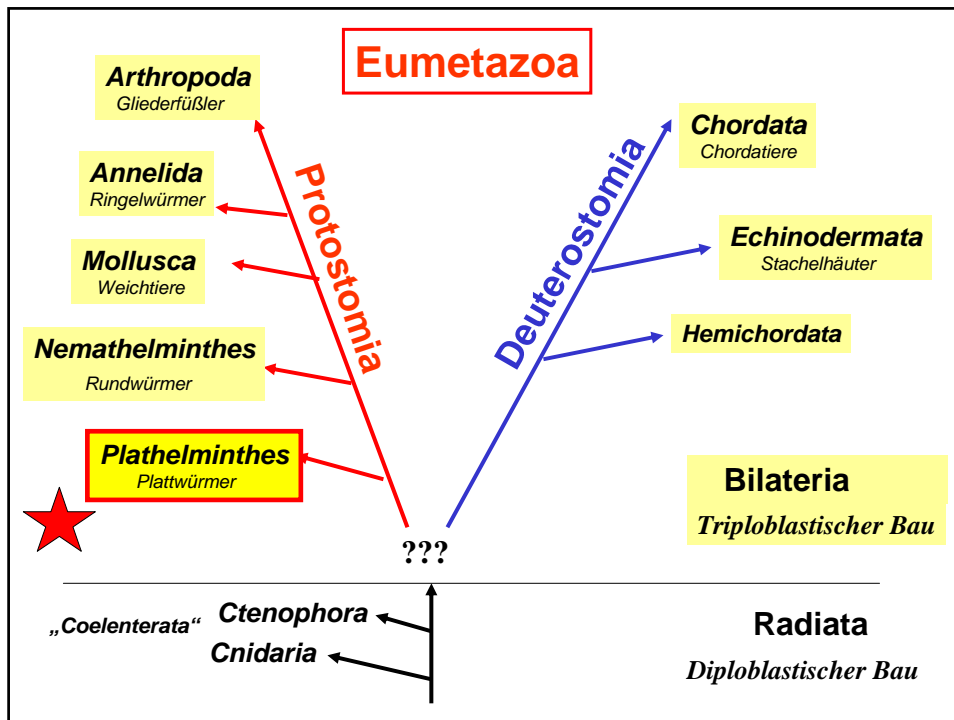
## Ctenophora (Rippenquallen)



- Ansätze zu Bilateralsymmetrie
- Keine Nesselzellen, aber  
Spez. Colloblasten
- Mesogloea mit Muskelzellen

Früher als „Acnidaria“ mit  
Cnidaria zusammen als  
Coelenterata (Hohltiere)  
zusammengefaßt





Stamm: **Plathelminthes**  
(**Plattwürmer**)

**Bilateralsymmetrie**  
**3 Keimblätter**  
**Organe**



Klasse: **Turbellaria** (Strudelwürmer)

Klasse: **Trematodes** (Saugwürmer)

Klasse: **Cestodes** (Bandwürmer)

Leibeshöhle mit Mesenchym gefüllt = **parenchymatöse Acölomata**

After, Blutgefäße und spezielle Atmungsorgane fehlen

Exkretionsorgane sind Protonephridien

Fast immer Zwitter

**Stamm: Plathelminthes (Plattwürmer)**

**Turbellaria**



Strudelwürmer

**Trematodes**

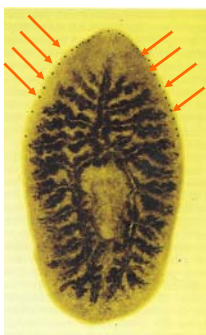


Saugwürmer

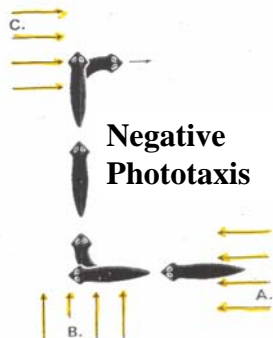
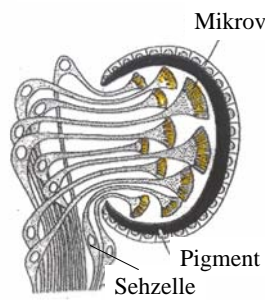
**Cestodes**



Bandwürmer



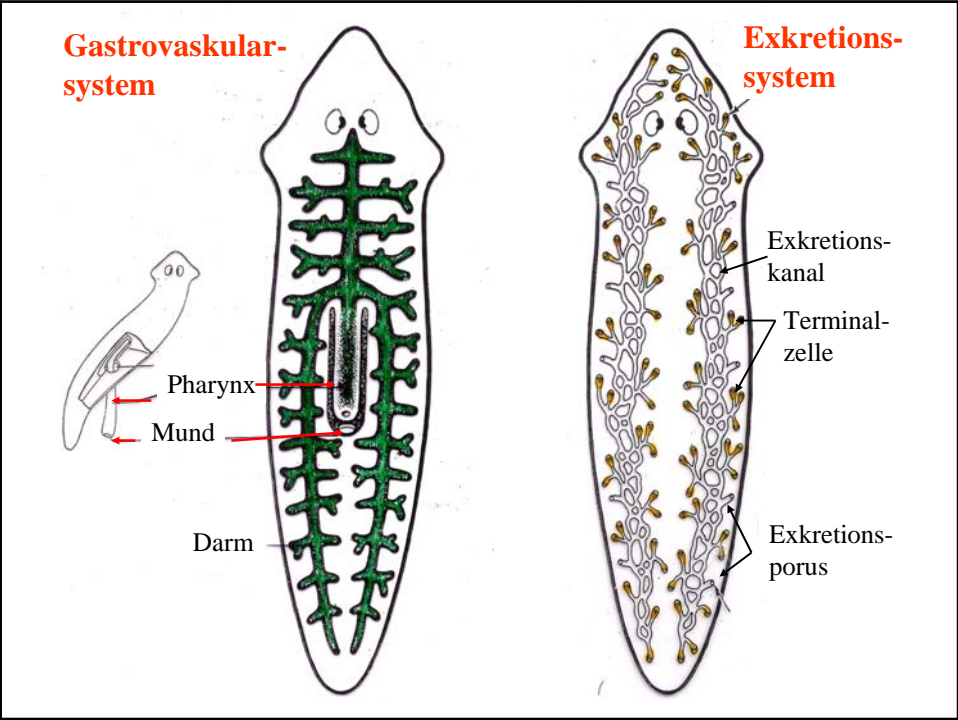
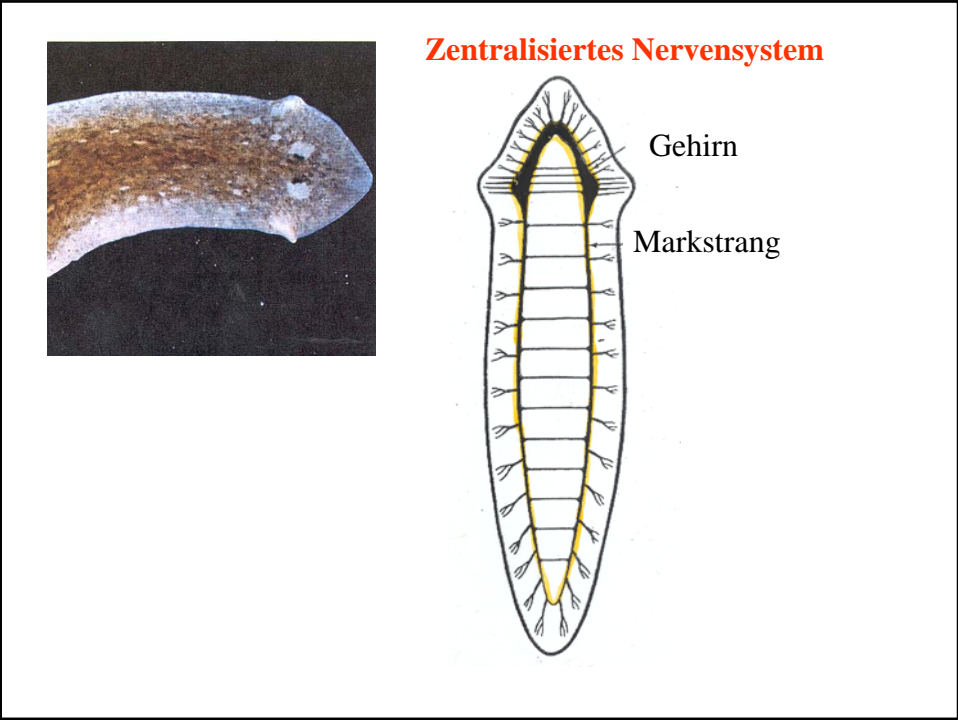
**Pigmentbecherocellus**

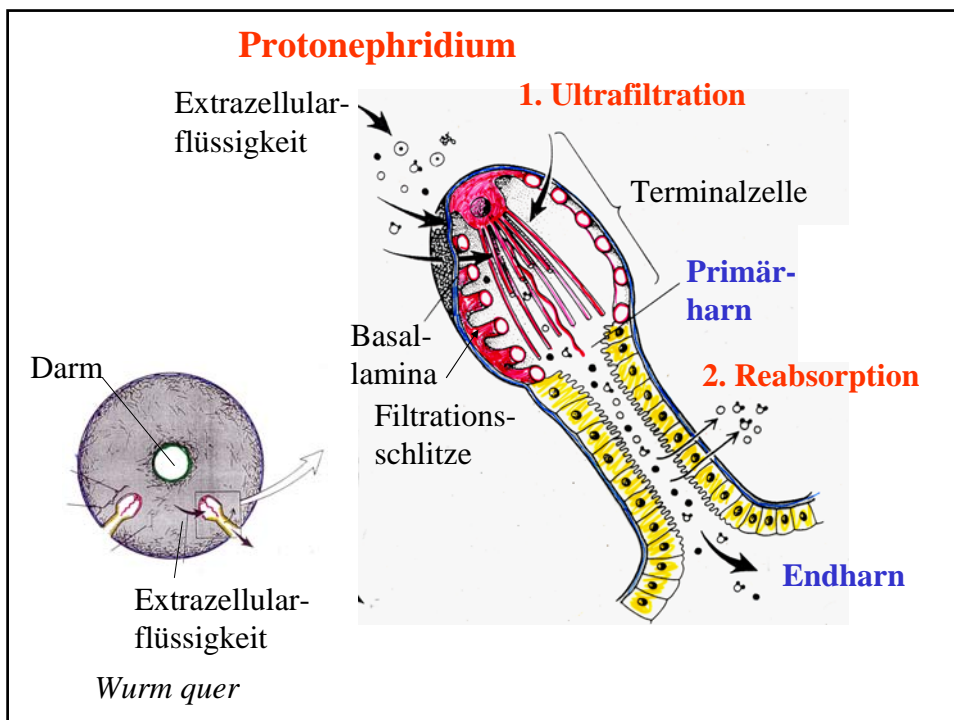
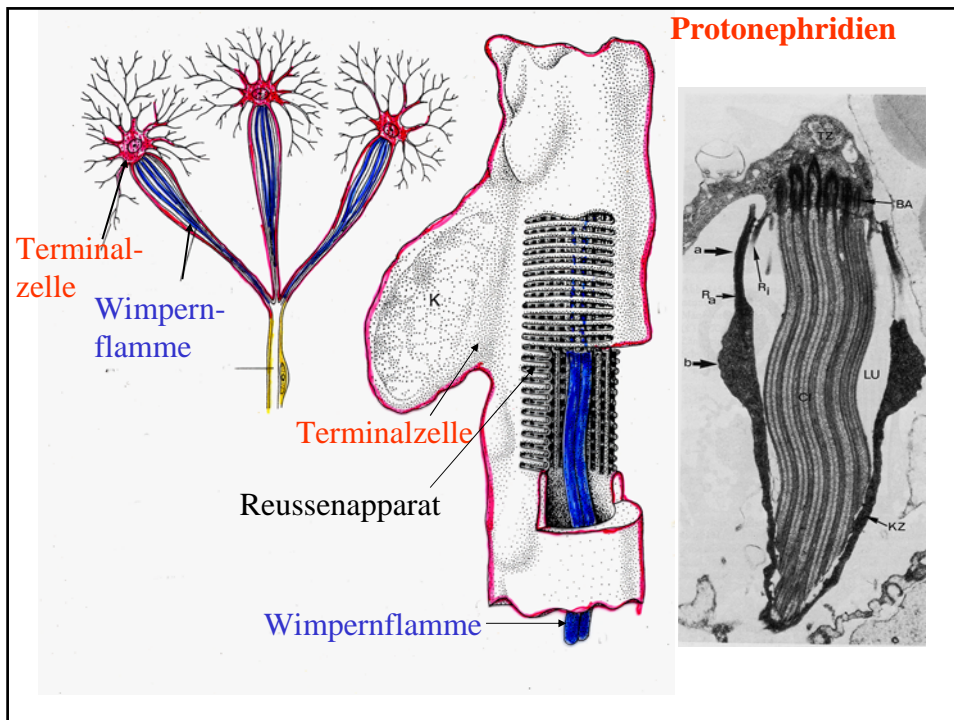


**Turbellaria**

**Richtungssehen**



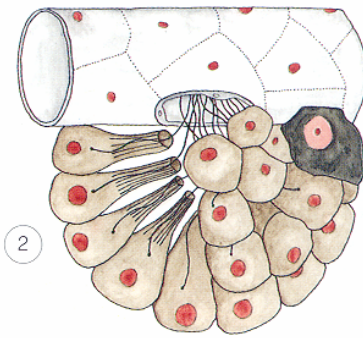




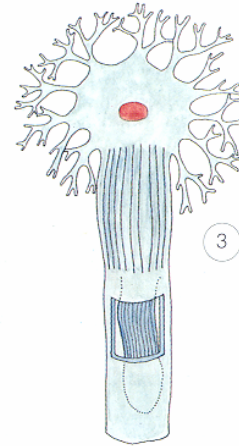
### Mögliche evolutive Zusammenhänge



Choanoflagellat

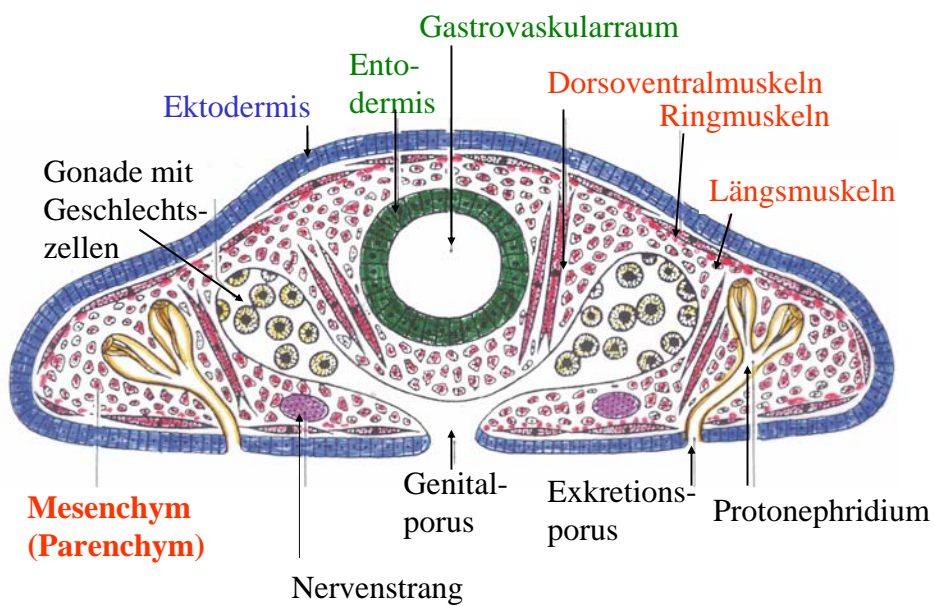


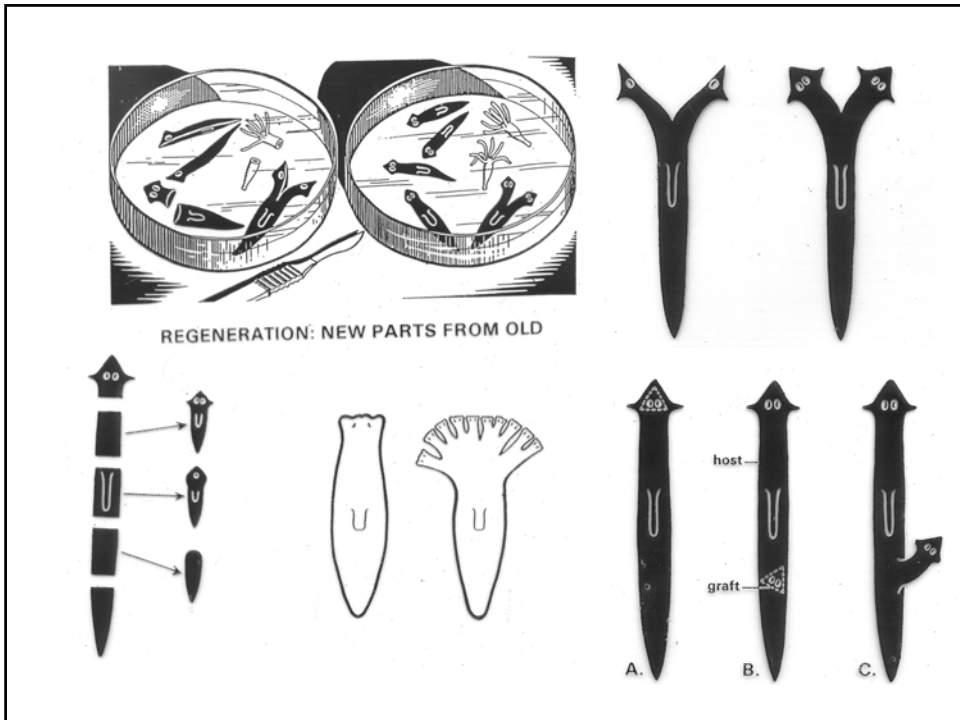
Kragengeißelzellen  
Schwämme



Protonephridium

### Schematischer Querschnitt durch einen Plathelminthen

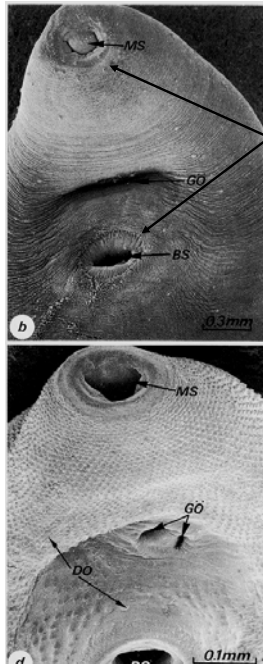




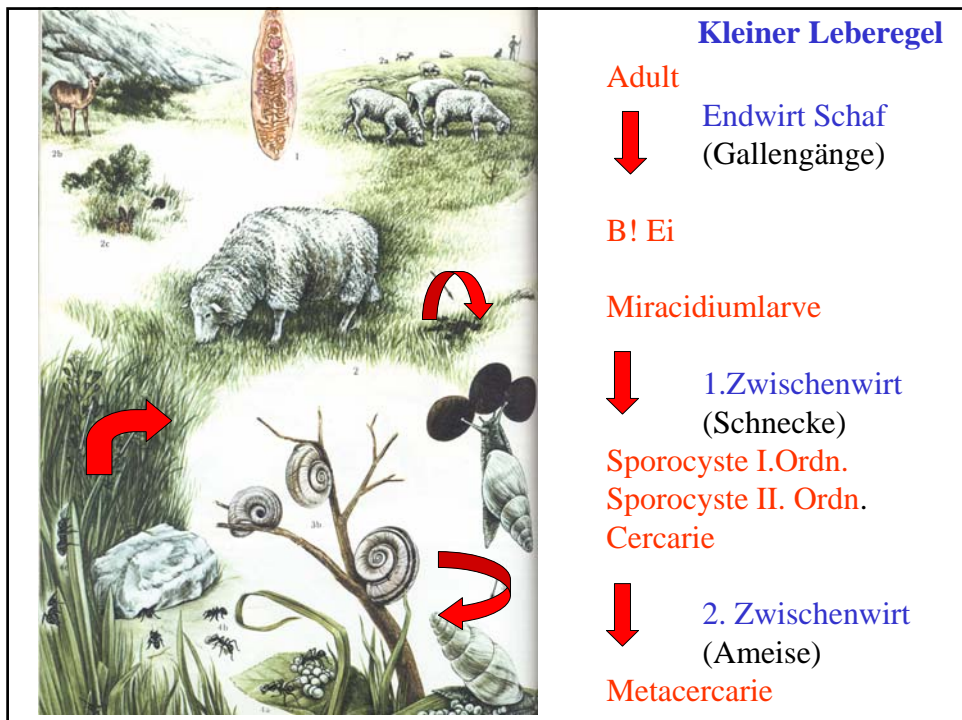
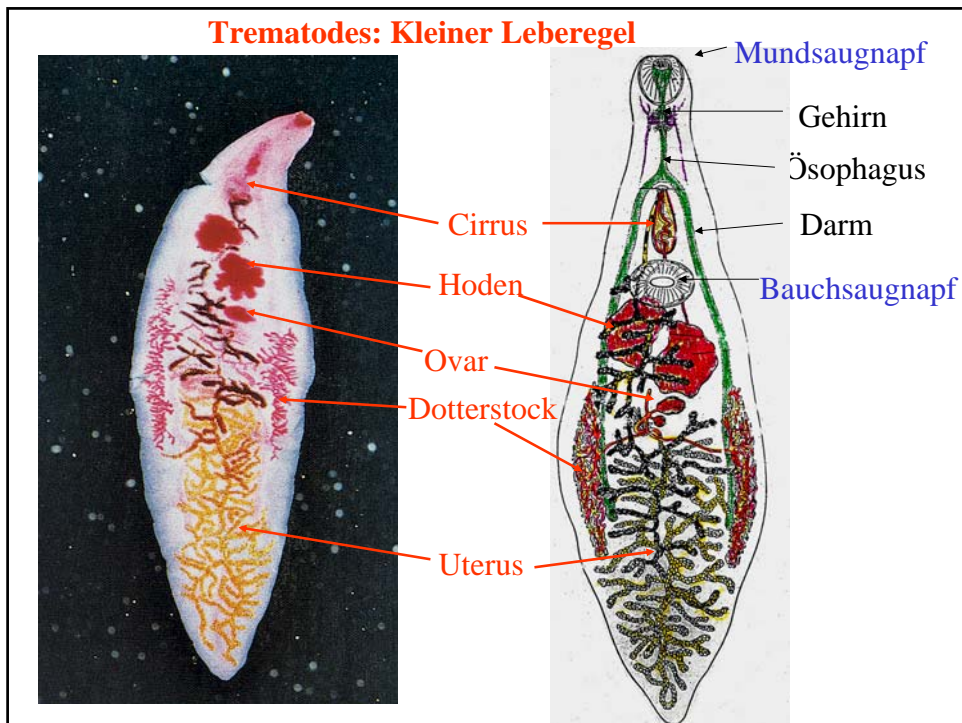
Plathelminthes:  
**Kl. Trematodes (Saugwürmer)**



*Großer Leberegel (Fasciola hepatica)*



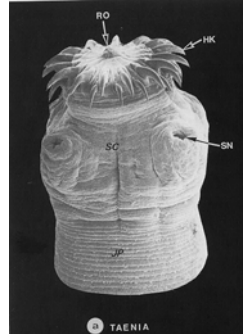
Saug-  
 näpfe



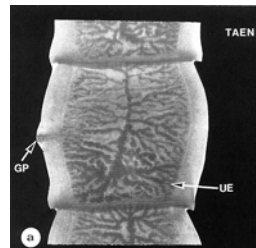
Plathelminthes: **Kl. Cestodes (Bandwürmer)**



Rinderbandwurm (*Taenia saginata*)  
Länge: bis zu 10m

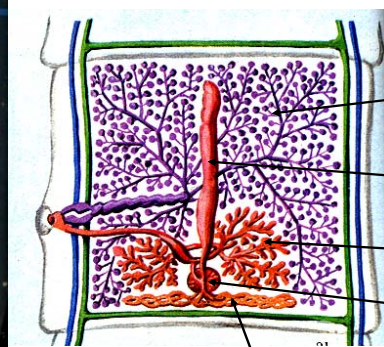


Kopf  
(Scolex)



Proglottid

**Bau der Bandwurmproglottide**



Hoden

Uterus

Ovar

Receptaculum  
seminis

Dotterstock



## Entwicklungszyklus des Schweinebandwurms (*Taenia solium*)

