

ZOOLOGY

Quick Study
ACADEMIC

parazoa

What is an animal? A multicellular, eukaryotic, heterotrophic organism lacking cell walls

CLASSIFICATION OF THE METAZOAN KINGDOM



METAZOAN CHARACTERISTICS

- Advantages
 - Larger size
 - Increased mobility
 - Internal homeostasis
 - Relative independence from environment

Symmetry

- Radial - Circular arrangement with numerous planes creating equal halves; no front/back or left/right sides; possess top/bottom or oral/aboral surfaces (1)
 - Sessile or pelagic forms
- Bilateral - Possess left/right sides (2)
 - "Cephalization" or concentration of sensory structures in the head
 - Unidirectional, active movement using head for orientation

1 RADIAL



2 BILATERAL



Embryology

- Zygote → 2 cell → 4 cell → 8 cell → 16 cell → Morula (solid ball of cells) → Blastula w/ blastocoel chamber → Gastrula w/ blastopore and archenteron (embryonic gut) (3)

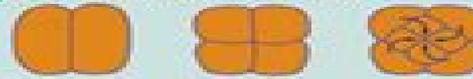


- Three germ layers (from which all tissues develop) in place during gastrula phase: Endoderm, Mesoderm, Ectoderm
- Diploblastic - Organisms produce only ectoderm and endoderm
- Triploblastic - organisms produce all three layers

3. Protostome/deuterostome classification

- Cleavage patterns
 - Spiral cleavage - New cells placed at junction between previous cells; protostome feature (4)
 - Radial cleavage - New cells placed directly beside or on top of previous cells; deuterostome feature (5)

4 SPIRAL CLEAVAGE (TOP VIEW)



5 RADIAL CLEAVAGE (TOP VIEW)



- Developmental fate of cells
 - Determinate - Fate of cells determined early; separated early cells incapable of developing into entire organism; protostome feature
 - Indeterminate - Fate of cells determined relatively late; separated early cells can develop into entire organism; allows for "twinning" or genetically identical individuals; deuterostome feature
- Coelom formation - Body cavity lined by mesodermal tissues
 - Schizocoely - Derived from split in mesoderm; protostome feature (6)
 - Enterocoely - Derived from outgrowth of archenteron; deuterostome feature (7)

- 6 SC COECEL
 - 7 ENTEROCOEEL
-
- Blastopore fate
 - Mouth; a second opening in embryo forms anus; protostome feature
 - Anus; a second opening in embryo forms mouth; deuterostome feature
 - Body plans
 - Acoelomates - No cavity between body wall and organs (1)
 - Pseudocoelomates - Embryonic blastocoel persists as body cavity (2)
 - Coelomates - Body cavity lined with mesodermal tissues (3)



Zoology Study Guides

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