

## **PHYLUM CNIDARIA (Ch. 18)**

### **1. INTRODUCTION**

diversity - 9k species, size mm to 2 m

- formerly part of *Coelenterata* (includes comb jellies)

- tissue grade - epidermis & gastrodermis
- radial symmetry - divisible by many planes
- blind sac - digestive cavity (single opening)
- nervous system - nerve net
- dioecious - sexes separate

ecology - shallow marine, predator or scavenger, commensalism

evolution - side-branch to animals

### **2. DIMORPHISM**

dimorphism - 2 different body forms

- not alternation of generations (in plants only)
- some exhibit both forms, most only one form

polyp stage - sessile, thin tube-shaped

- oral surface on top, aboral below
- thin mesoglea, specialized in colonies

medusa stage - free-swimming, flat & inverted

- oral surface below, aboral on top, thick mesoglea

### **3. CLASSES**

1. hydrozoans - Hydra, small & plant-like

- most colonial, mostly polyp (medusa reduced)
- thin mesoglea, round gonads

2. true jellyfish (scyphozoans) - thick mesoglea

- polyp in larvae, medusa in adults, c-shaped gonads

3. anthozoans - sea anemones & corals

- polyp only (no medusa), most colonial
- fibrous & muscular mesoglea

#### **4. NUTRITION**

nematocysts - stinging capsules

- in tentacles & digestive cavity
- filament hooked & injects toxin, triggered by prey

digestive cavity - single opening act as mouth & anus

digestion - extracellular by nematocysts

- then intracellular (digestive vacuole)
- also symbiotic green algae

#### **5. SKELETAL SYSTEM**

hydrostatic skeleton - water pressure in digestive cavity

gelatinous skeleton - thick in jellyfish

exoskeleton - calcium cup secreted by coral organism

- coral reef (surrounding island)
- coral atoll (ring after island subsides)

#### **6. LOCOMOTION**

sessile - polyps attached

swimming - medusa pumps water

sailing - fin in 'wind sailors'

- pneumatophore in Portuguese man-of-war

#### **7. REPRODUCTION**

asexual - budding (polyps branch off)

sexual - most dioecious, panmixia

- internal fertilization, larva free-swimming

#### **8. OTHER SYSTEMS**

nerve net - two-way transmission (inefficient)

- no brain, simple senses

diffusion - food, oxygen, waste