

ANIMAL BIOLOGY LABORATORY
Lab 4: Phyla Porifera and Cnidaria (Kingdom Animalia)

Read pages 54-55, 62-63 in your lab manual before coming to lab.

Objectives:

- Recognize the basic structure and organization of sponges.
- Understand the pattern of water flow through sponges.
- Recognize the three basic body types of sponges.
- Recognize and distinguish between the three cnidarian classes.
- Understand the differences between the polyp and medusa forms.

Phylum Porifera (sponges)

- Sedentary aquatic (mostly marine) animals
- Lack true tissue, organs, and body symmetry
- Body perforated by numerous pores for water flow

Lab Manual: pp. 54-55

Exercise 5: Sponge Anatomy

Scypha: longitudinal and cross-section slides (Figs. 5.1, 5.2)

Lab Manual: pp. 55-58

Identify the following structures:

- | | | |
|---------------------|--------------|-----------------|
| • Apopyles | • Canals | • Choanocytes |
| • Incurrent canals, | • Osculum | • Dermal Ostium |
| • Radial canals | • Spongocoel | |

Know the order in which water flows through the above structures

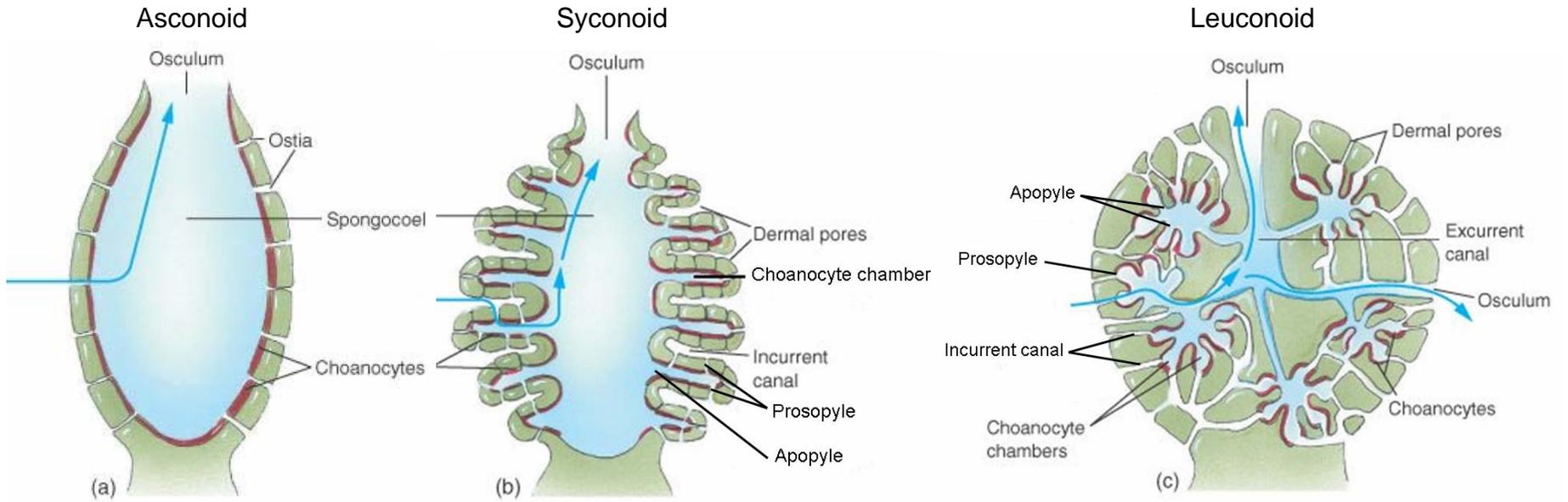
Know the three basic sponge body types

- | | | |
|------------|------------|-------------|
| • Asconoid | • Syconoid | • Leuconoid |
|------------|------------|-------------|

Lab Manual: pp. 58-59

**see following page*

Sponge Body Types



Which body type does not have a spongocoel?

Which body type has more than one osculum?

Where do choanocytes occur in each body type?

Obtain slides of *Leucosolenia*, *Sycon*, and a commercial bath sponge.

- Which body type does each sponge have?
- What characteristics did you use to identify each body type?

**Record your answers in the chart below and have your TA check your identifications.*

Leucosolenia:

Sycon:

Commercial bath sponge:

Review Questions

All questions p. 61

Phylum Cnidaria (hydras, true jellyfish, sea anemones, colonial corals)

- Two distinct morphological forms: **polyp** & **medusa**
- Sessile, free floating, or free swimming
- Gastrovascular cavity (*coelenteron*)

Lab Manual: pp. 62-63

Class Hydrozoa (hydra, *Obelia*, Portuguese man-o-war)

- Mainly marine
- Both **polyp** and **medusa** stages
- Polyp colonies in most

Lab Manual: pp. 63-70

Exercise 6A: Class Hydrozoa: Hydra External Structure

Hydra: whole mount slide (Fig. 6.1)

Lab Manual: pp. 64-66.

Identify the following structures:

- Hypostome
- Tentacles
- Gastrovascular Cavity

Hydra: longitudinal-section slide (Fig. 6.1)

Lab Manual: pp. 64-66.

Identify the following structures:

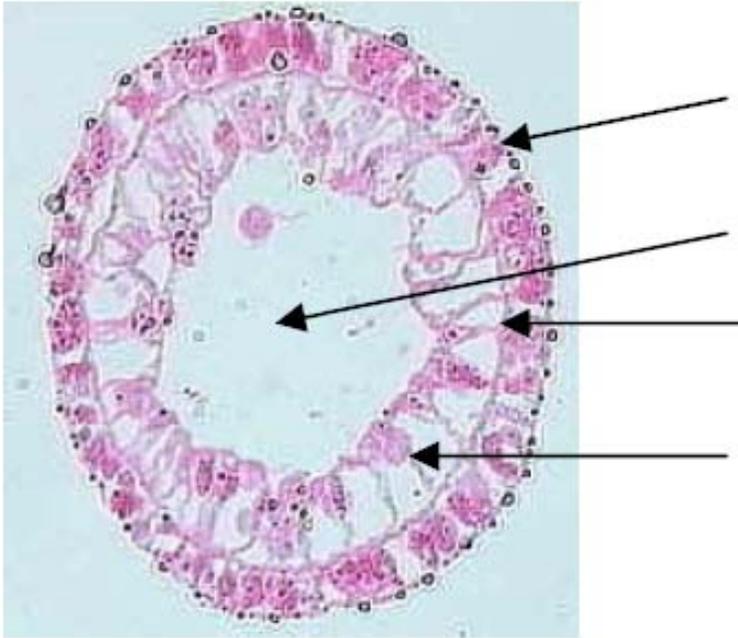
- Gastrovascular cavity/coelenterons
- Mouth
- Epidermis
- Gastrodermis
- Mesoglea

Hydra: cross-section slide

Lab Manual: pp. 64-66.

Identify the following structures and label the image below:

- Gastrovascular cavity/coelenterons
- Epidermis
- Gastrodermis
- Mesoglea



Review Questions

Questions 1, 2a, 3, 4, and 5a on page 70 of your lab manual.

Obelia hydroid colony: whole mount slide (Fig. 6.3)

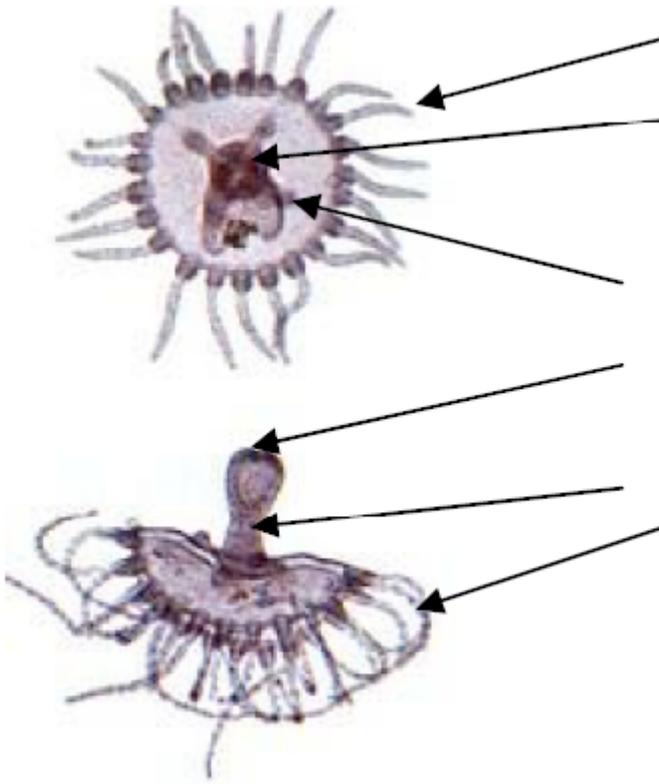
Lab Manual: p. 67.

Identify the following structures:

- Hydranth
- Gonangium
- Tentacles
- Medusa buds
- Hypostome

Identify the following structures and label the images below

- Tentacles
- Gonads
- Manubrium
- Mouth



Review Questions

Question on pages 67 of your lab manual.

Pennaria hydroid colony: whole mount slide

Label the relevant features on the image below

- Hydranth
- Gonangium
- Coenosarc
- Perisarc



How does the *Pennaria* hydroid colony differ structurally from the *Obelia* hydroid colony?

Class Scyphozoa

- Marine coastal waters
- **Polyp** stage restricted to small larval form

Exercise 6B: Scyphozoan Anatomy

Aurelia (jellyfish): plastic mount and preserved specimen (Figs. 6.5 and 6.6)

Lab Manual: pp. 71-73.

Identify the following structures:

- Mouth
- Gastric pouches
- Oral arms
- Radial canals
- Marginal tentacles
- Gonads
- Circular canal

Class Anthozoa

- Marine coastal waters
- Solitary or colonial **polyps**
- No **medusa** stage

Exercise 6C: Anthozoan Anatomy

Metridium (sea anemone): preserved specimen (Fig. 6.7)

Lab Manual: pp. 73-75.

Identify the following structures:

- Tentacles
- Pedal disc
- Oral disc
- Mouth

Observe displayed Coral specimens: dry specimens (Fig. 6.8)

Lab Manual: pp. 75-76.

Read pages 77-78, 93-94 in your lab manual before coming to lab next week.