

Lecture #17 – Origins of Vertebrates

I. Deuterostome Relationships

- A. Echinoderms (Sea Urchins, Sea Stars, etc.) see p. 281-295
- B. Hemichordata (Acorn Worms) see p. 295-297
- C. Chordata
 - 1. Urochordata (Tunicates or Sea Squirts)
 - 2. Euchordata
 - a. Cephalochordata (Lancelets or Amphioxus)
 - b. Craniata (Lampreys to Humans... the Vertebrates)

II. Hemichordata (Acorn Worms)

- A. Synapomorphies linking Acorn Worms with the Chordates
 - 1. **Dorsal Hollow Nerve Cord**
 - 2. **Pharyngeal gill slits** and bars (= pouches)
- B. Acorn Worm Characteristics

III. Urochordata (Tunicates or Sea Squirts)

- A. Synapomorphies linking Tunicates with the Euchordates
 - 1. **Post-anal Tail**
 - 2. **Notochord**
 - 3. **Endostyle**
- B. Tunicate Development and Characteristics
 - 1. Larval retention of ancestral characters
 - 2. Adult characters
 - a. **tunic**
 - b. **incurrent** and **excurrent siphons**
 - c. **atrium**

IV. Euchordata

- A. Synapomorphies supporting Euchordata
 - 1. **Myomere** muscle segments
 - 2. **Digestive cecum** (liver precursor)
- B. Cephalochordata (Lancelets or Amphioxus)
 - 1. Morphology
- C. Craniata (= Vertebrata)
 - 1. Overview of representative groups

Reading: Chapter 14 - pages 295-297.

Questions: Page 298 – 11 and 12.

Reading: Chapter 15 - pages 300-316.

Questions: Page 315 – 1, 2, 3, 4, 5, 6, 7, 8, and 9.

