General characters of Chordata

The name of phylum chordata is derived from two Greek words, the *chorde* (=cord) and *ata* (=bearing). The Phylum Chordata was created by **Balfour** in 1880. The animals containing a notochord, a dorsal tubular nerve cord and gill slits are called **chordates**. Chordates have the following characteristics:

- 1. **Notochord**: The notochord is a rod-like, elongated, elastic structure situated just above the alimentary canal and immediately beneath the dorsal tubular nerve cord. It is composed of large **vacuolated notochordal cells**. In higher chordates, it is replaced partially or completely by a backbone or **vertebral column**.
- 2. Nerve cord: In chordates, there is a dorsal, hollow or tubular, fluid-filled nerve cord lying just above the antero-posterior axis of the body. The nerve cord lies above the notochord and alimentary canal. This tubular nerve cord persists throughout the life of chordates.
- 3. **Pharyngeal gill-slits**: Paired pharyngeal gill-slits are present on either side of the pharynx at some stage of life, and may or may not be functional. The gill slits serve primarily for the passage of water from the pharynx to the outside, bathing the gills for respiration. Secondarily the gill slits help in filter feeding.



- 4. **Post-anal tail**: A postanal tail usually projects beyond the anus at some stage of life and may or may not persist in the adult.
- 5. **Closed Vascular System**: The blood vascular system is closed. The blood never comes out of the blood vessels and it contains capillaries.
- 6. Haemoglobin: Haemoglobin is present in RBC.
- 7. **Ventral Heart**: The chordate heart is located on the ventral side of the body. The blood flows in the dorsal aorta backwards and the ventral vessels forwards.

- 8. **Hepatic Portal System**: The food-laden blood from the alimentary canal is carried to the liver through a hepatic portal vein.
- 9. **Bilateral symmetry**: All chordates are bilaterally symmetrical at least in the embryonic stage.
- 10. **Cephalization**: In bilaterally symmetrical animals, there is a concentration of nervous tissue and sense organs in or toward the head. This is known as cephalization.
- 11. **Metamerism**: Certain structures that are repeated one after another are said to be metameric. E.g. Some nerves, blood vessels, vertebrae, ribs, etc.
- 12. **True Coelom**: coelomate animals i.e., a well-developed true coelom is always present which is enterocoelic or schizocoelic in origin
- 13. **Body wall**: The body wall is triploblastic i.e., presence of three germ layers: ectoderm, mesoderm and endoderm.
- 14. Exoskeleton often present; well developed in most vertebrates.
- 15. The **digestive system** is complete with digestive glands.
- 16. Sexes separate with rare exceptions.
- 17. Chordates are aquatic, aerial or terrestrial. All are free-living with no fully parasitic forms.