

# 10) PHYLUM CHORDATA

## INTRODUCTION

The name 'Chordata' have been derived from the word Notochord which is found in all the animals of this group. (chord means thread or rope).

These are the most familiar, adaptable, successful and the most widely distributed animals, showing diversity of form, habitat and habits.

## CHARACTERISTICS OF CHORDATES

Animals of this phylum possess following basic characters:

### 1. NOTOCHORD

The notochord is a long flexible rod which serves as an axial skeleton and provide skeletal support to the body and provide space for muscle attachment. In lower chordates the notochord persists throughout life, but in higher chordates it is partially or wholly replaced in the adult stage by a jointed backbone or vertebral column.

### 2. DORSAL HOLLOW CENTRAL NERVOUS SYSTEM

All chordates have a central, dorsal, hollow nervous system which lies above the notochord. It consists of a single, tubular, fluid-filled, nongangliated nerve cord. The hollow nerve cord is basically a sheet of ectoderm rolled into a tube. A chordate's nerve cord develops into brain and spinal cord in adults.

### 3. GILL SLITS

The gill slits (pharyngeal pouches) are openings in the pharynx of an animal. In the most primitive state these slits allow water to enter the mouth and exit without passing through the digestive system. In more derived state the gill slits serve various functions, ranging from gas exchange to food collection.

All chordates develop gill slits (sometimes called perforated pharynx) at least in the embryonic stage. In some chordates these are nonfunctional and are afterwards closed while in others they are still functional as in fish and ~~amphibians~~ amphioxus.

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# CLASSIFICATION OF CHORDATES

Phylum chordata has been classified into two main divisions.

1. Protochordata or Acrania
2. Craniata

## DIVISION 1:

### PROTOCHORDATA OR ACRANIA

These chordates do not possess cranium (skull). They are also called as lower chordates. They are further divided into two sub phyla:

1. Sub Phylum Urochordata
2. Sub Phylum Cephalochordata.

### 1. SUB PHYLUM UROCHORDATA

The body is covered by a covering called tunic so they are called tunicates. They are marine animals which are typically sessile as adults. The tunic is chemically made of tunicin, a substance related to cellulose.

Notochord is present only in free swimming larva and is absent in adults. The notochord usually disappears during metamorphosis, so that adult has no skeleton.

Examples are *Ciona intestinalis*, *Molgula* etc  
Sea Squirts



## 2. SUBPHYLUM CEPHALOCHORDATA

Notochord is well developed in adults. Notochord extends the entire length of the body. Their body is in the form of a long, pointed rod, hence called as sea lancelet. Their body is fish like. It has no head but tail is present. They are free living and swim about in water. They are filter feeders. There is no organ for respiration.

Examples include Banchiostoma (Amphioxus)

## DIVISION 2: CRANIATA/VERTEBRATA

These chordates possess a cranium or skull in which brain is present. It is distinguished by a backbone (made either of bone or cartilage). These two features i.e. the skull and the backbone serve to protect the entire central nervous system, and in addition give support and structure to the body.

## SUBPHYLUM VERTEBRATA

Vertebrates are divided into following five groups or super classes:

1. Pisces
2. Amphibia
3. Reptilia
4. Aves or Birds
5. Mammalia

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