

## GENERAL CHARACTERISTIC FEATURES and CLASSIFICATION OF ANNELIDA

### Q.How annulation is related to annelida? Q.What is prostomium? Q.What is peristomium

From anterior to posterior, the annelid body is composed of three regions: prostomium, trunk, and pygidium. The elongate trunk consists of a longitudinal series of similar body units, the segments, which are separated from each other externally by a shallow constriction. The annelids are named for the body annulations that result from the ring like segments. At the anterior end of the trunk is the prostomium, which contains the brain and bears the sense organs.

The Pygidium forms the posterior end of the body and includes the anus. The first segment, called the **peristomium**, lies immediately behind the prostomium and ventrally surrounds the mouth. At any given time, the youngest body segment lies immediately in front of the pygidium, the oldest (peristomium) immediately behind the prostomium.

### Q.What are the chief integrating structures of annelid?

The chief integrating structures are the nervous system, hemal system, musculature, and digestive system. The remaining organs-appendages (when present), coelomic cavities, nephridia, and gonads are segmental and thus repeated in each segment.

### Q.State important features of body wall in annelid.

- i)It consists of a fibrous collagenous cuticle, a glandular monolayered epidermis, a connective-tissue dermis (cutis) of varying thickness, and a musculature derived from the coelomic lining.
- ii)The cuticular fibers, which usually are arranged in a crossed-helical pattern, toughen the body wall, resist bulges, and often impart an iridescent sheen to the body.
- iii)A few of the tube-dwelling marine annelids (**polychaetes**) lack a cuticle, but their secreted tubes resemble the cuticle in structure and composition.
- iv)(Mucus- secreting gland cells are common in the epidermis.
- v)The secreted mucus consolidates the burrow lining and protects the surface of the body.

### Q.What are chaetae?

- i)Chaetae are chitinous bristles that project outward from the epidermis to provide traction and perform other tasks.
- ii)The simplest chaetae are *unjointed, tapered bristles* (capillary chaetae) in bilaterally paired bundles, one dorsolateral and one ventrolateral pair per segment, but many other types and arrangements occur in annelids.
- iii)A chaeta arises from a pitlike epidermal follicle composed of follicle cells, which form the follicle wall, and a single chaetoblast cell at the base of the follicle.
- iv)Secretion—The chaeta is secreted around long microvilli on the surface of the **chaetoblast**. The microvilli later withdraw, leaving a bundle of parallel, hollow canals in the completed chaeta. The base of each chaeta remains in the follicle, but the shaft extends beyond it above the surface of the epidermis.
- v)The chaetal base is anchored by hemidesmosomes follicle cells, which are linked to subepidermal muscles thus move the chaeta.

### Q. How chaetae are different from arthropodan setae?

- i)Arthropod setae do not have a precise definition, but the term typically is applied to hair or bristlelike sensory projections that pivot on a flexible joint with the exoskeleton.
- ii)Deflection of the seta stimulates a sensory neuron attached to the setal base.

### Q.What are the trichogen cells?

- iii)The seta develops from an epidermal follicle composed of one or more **trichogen cells**, which secrete the seta, and one or more tormogen cells, which produce the pivot joint. The follicle also includes a sensory cell and its surrounding **thecogen**.
- iv)Setae may be hollow or solid, but they lack the internal bundle of parallel canals associated with chaetae.
- v)They are composed of  $\alpha$ -chitin-a form in which adjacent parallel molecules have opposite polarity. In contrast to the tough flexibility of  $\beta$ -chitin,  $\alpha$ -chitin is noted for being hard and stiff, properties that can be further enhanced by **sclerotized protein** (as in insects) or calcium carbonate (in many crustaceans).