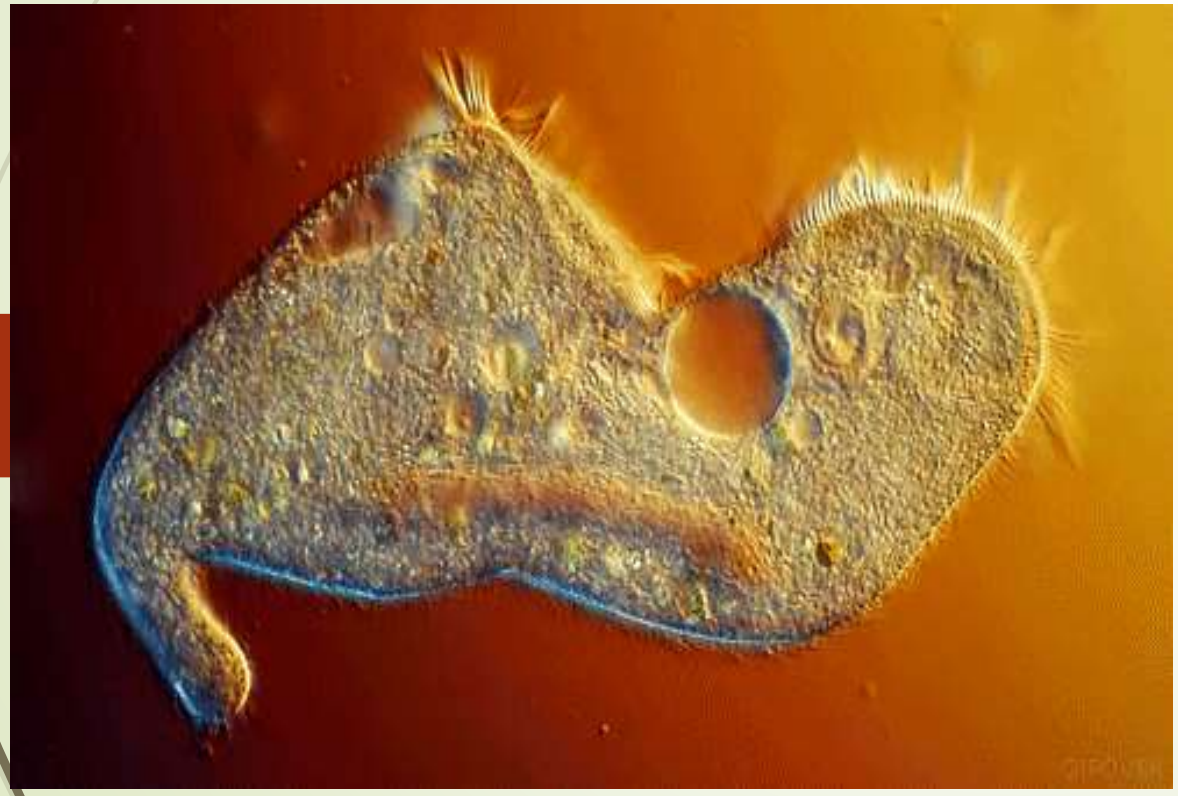
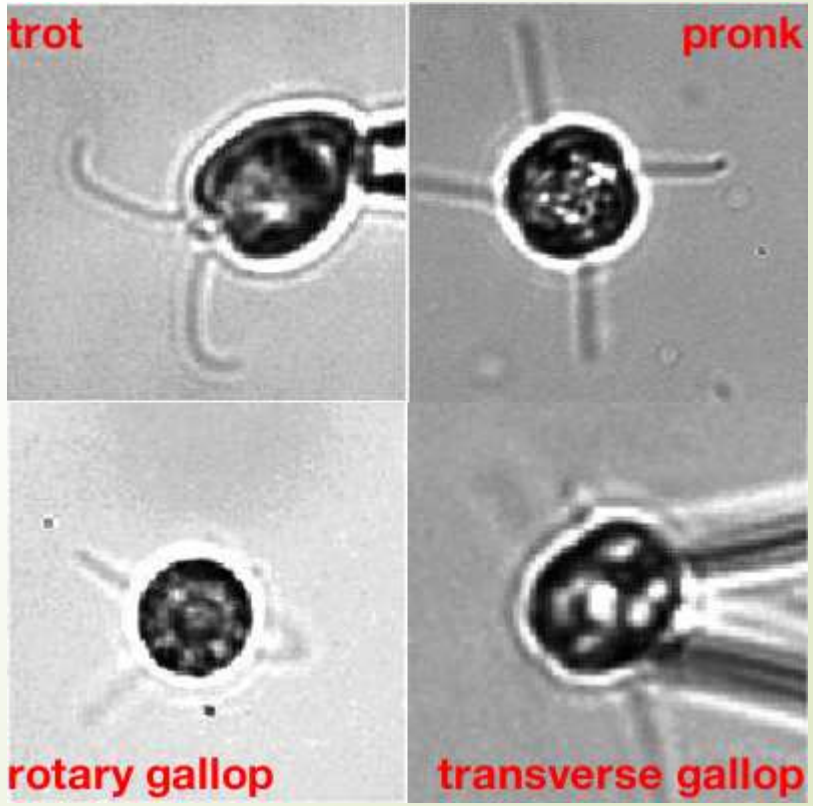
Cilia and flagella





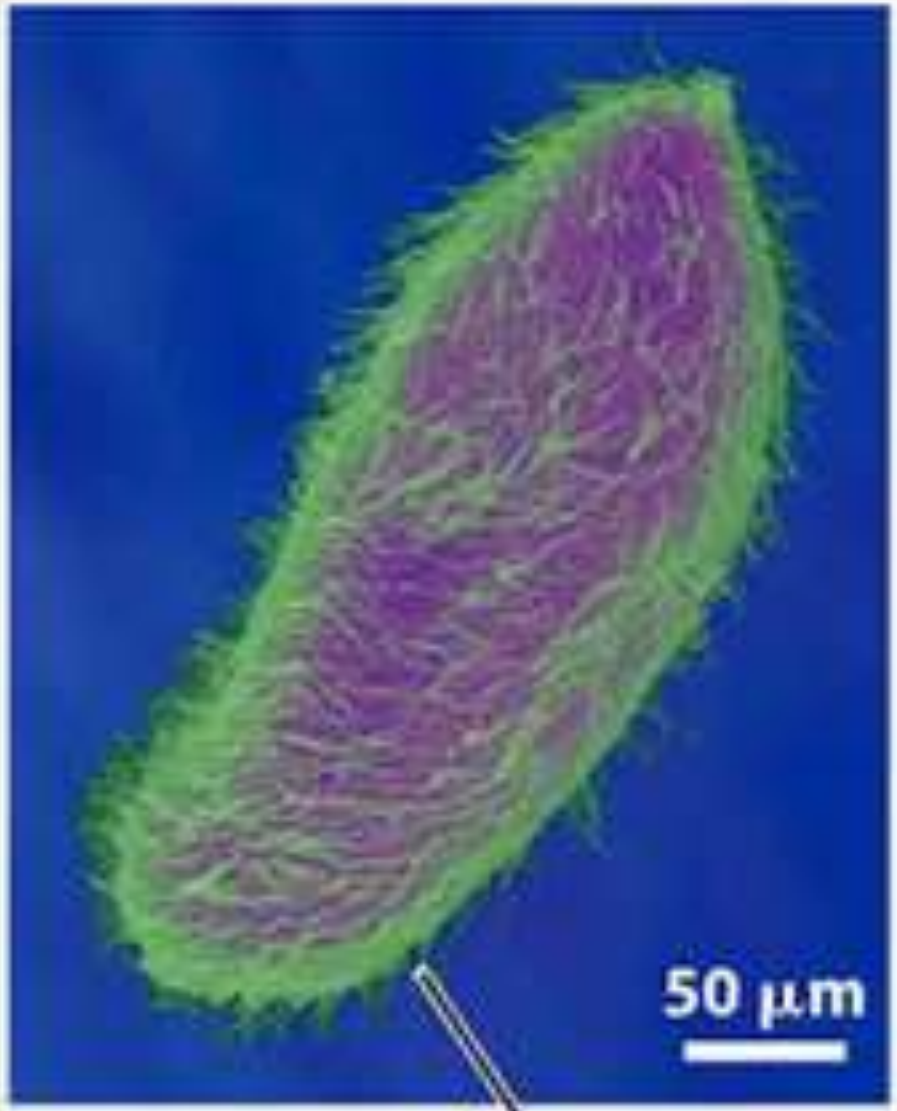
What is cilia & flagella?

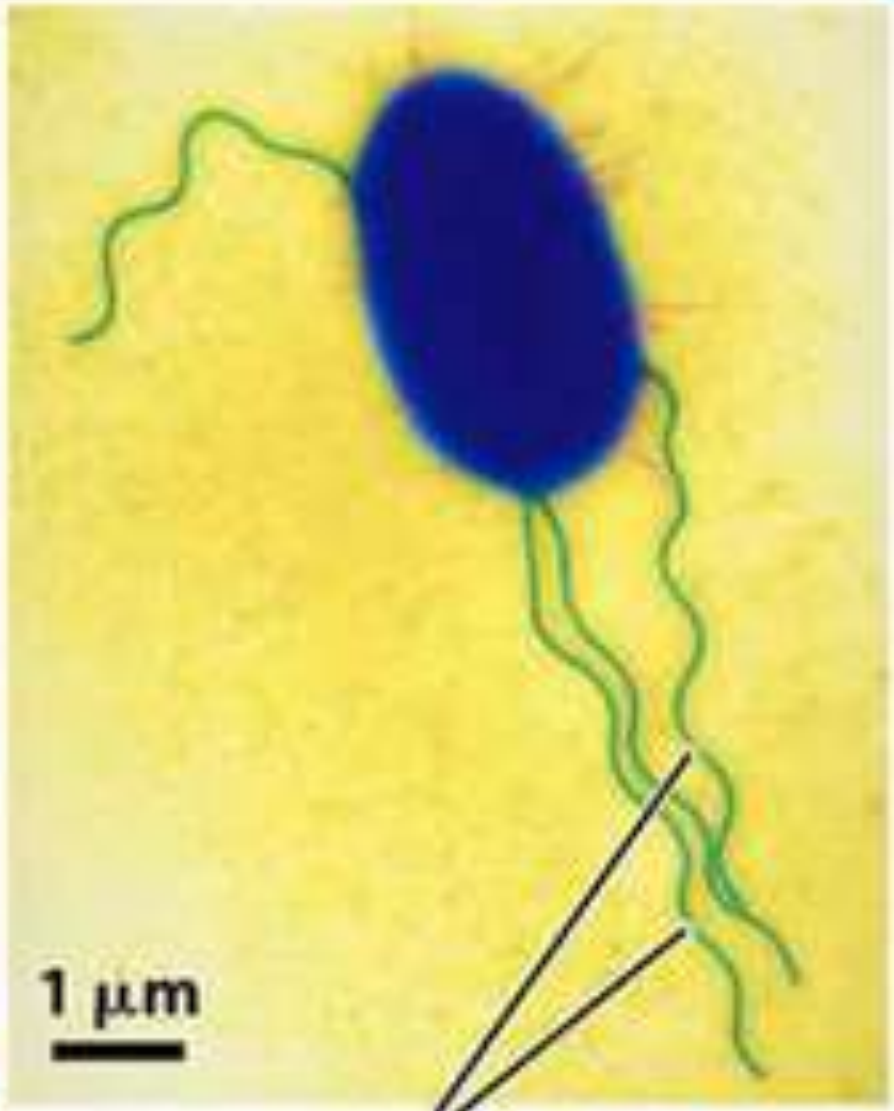
- **Cilia and flagella** move liquid past the surface of the cell. For single cells, such as sperm, this enables them to swim. For cells anchored in a tissue, like the epithelial cells lining our air passages, this moves liquid over the surface of the cell
- Fine,hair-like outgrowths of cell membrane
- Help in movement of cell surrounding fluid
- Ex:- paramesium,bacteria and sperm

DIFFERENCE BITWEEN CILIA AND FLAGELLA

	cilia	flagella
SIZE	Small 5-10 mi	Long 100-150 mi
NUMBER	Many	Less in number (2 to 4)
POSITION	All over body	At ends

MOVEMENT	Rowing movement 1) Power strock 2) Recouery strock	Undulating movement (wave) one long rope
TYPES	Two types 1)Kinocilia 2)Steriocilia	TWO TYPES 1)Whiplash 2)Tinscl
FUNCTIONS	❖Locomotion ❖Capturing food	❖Movement





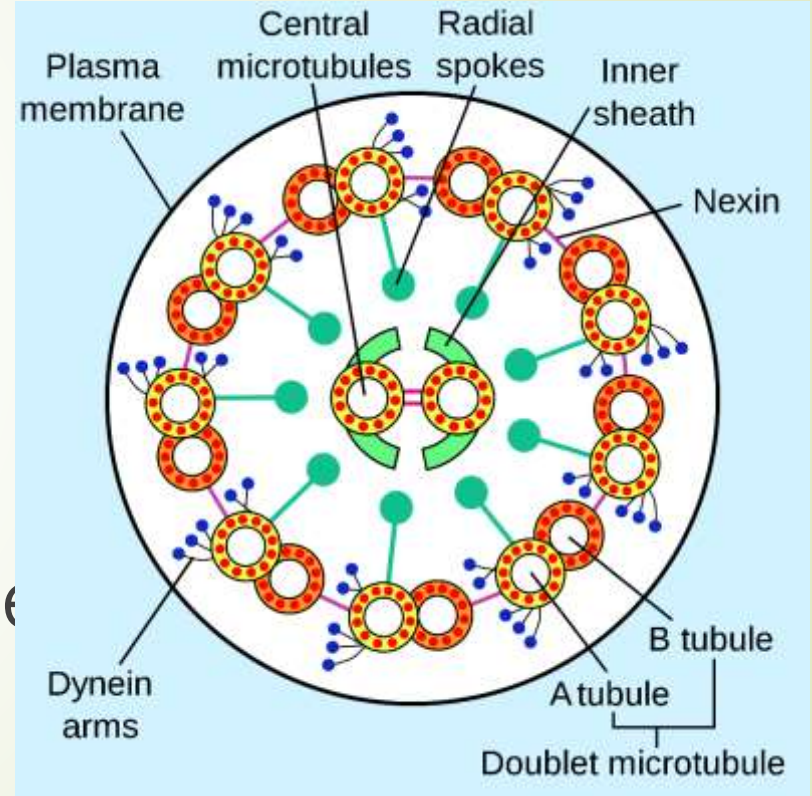
Structure of cilia and flagella

- Cilia & flagella are structurally same
- Axonema

  central core

  9 pairs of doublets of peripheral microtubules

  9+2 arry arrangement
- Central microtubules are connected by bridge
- Central sheath is connected to peripheral microtubules by radial spoke



Structure of cilia and flagella

- Eukaryotic :-arrangement of microtubules is 9+2

9+2

Peripheral central core

-peripheral doublets fashion

Each microtubules is made up

Two sub protiens

1.tubline A

2.tubline B

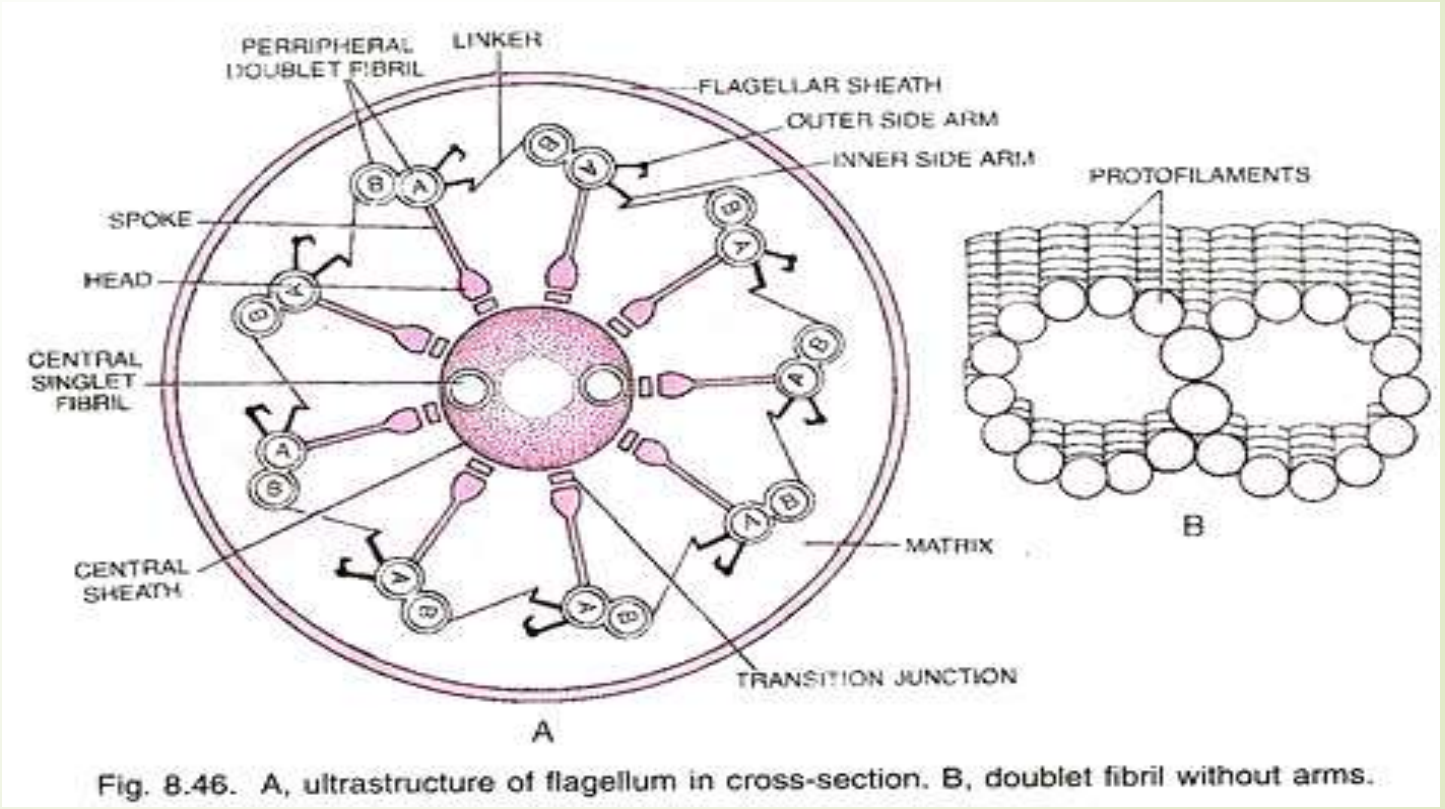
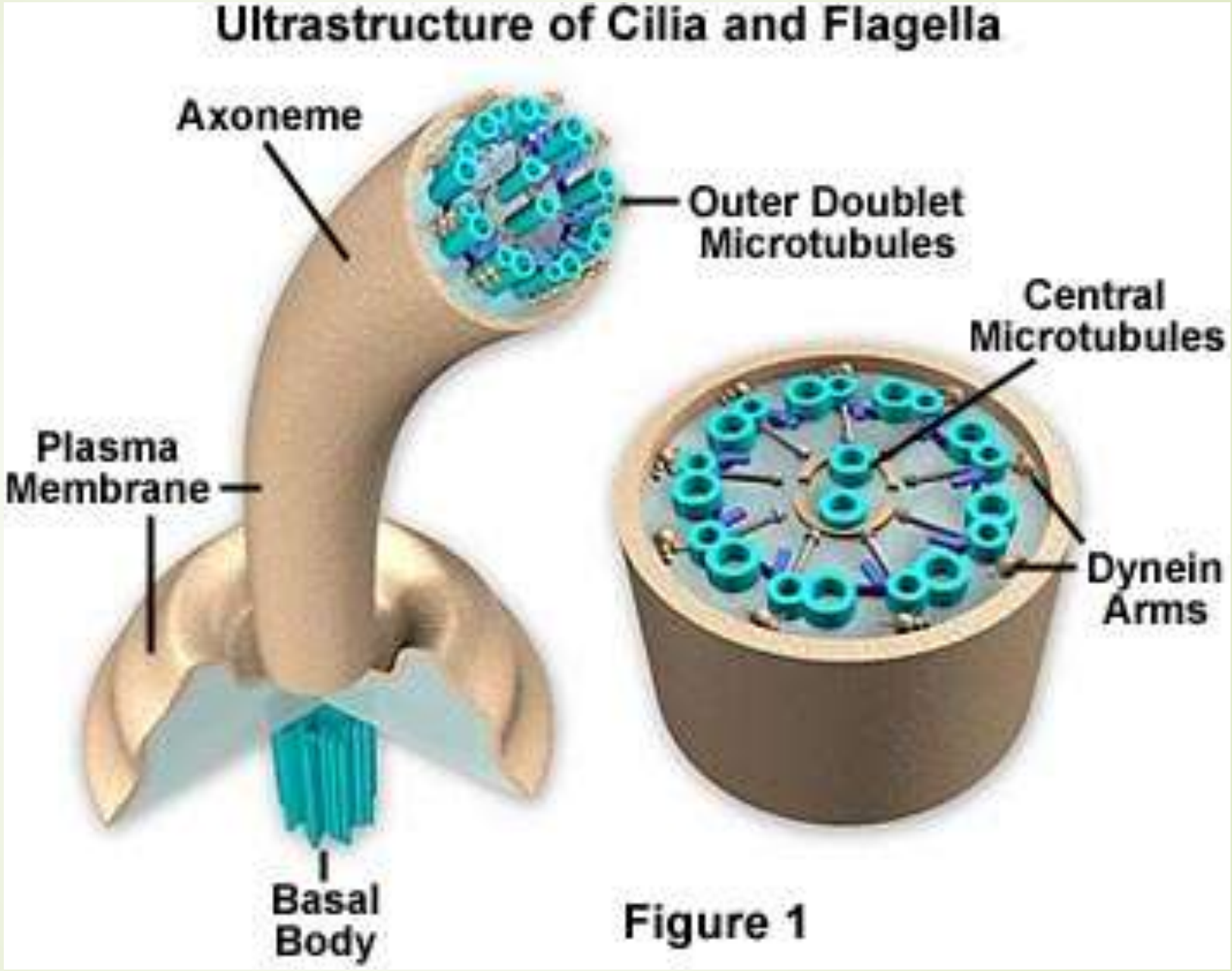


Fig. 8.46. A, ultrastructure of flagellum in cross-section. B, doublet fibril without arms.


Ultrastructure of Cilia and Flagella
Axoneme
Outer Doublet Microtubules
Central Microtubules
Plasma Membrane
Dynein Arms
Basal Body
Figure 1

Functions of cilia & flagella

- They help in locomotion in flagellate and ciliated organisms.
- They create current for obtaining food from aquatic medium.
- In some protists and animals, the organelles take part in capturing food.
- The canal system of porifers operates with the help of flagella present in their collar cells or choanocytes.
- In coelenterates, they circulate food in the gastro vascular cavity. In tunicates and lancelets, the cilia help in movement of food and its egestion.
- In aquatic organisms cilia create currents in water for renewal of oxygen supply and quick diffusion of carbon dioxide.

Functions of cilia & flagella

- In land animals the cilia of the respiratory tract help in eliminating dust particles in the incoming air.
- Internal transport of several organs is performed by cilia, e.g., passage of eggs in oviduct, passage of excretory substances in the kidneys, etc.
- Being protoplasmic structures they can function as sensory organs.
- Their tips secrete sticky substance to help in conjugation and fusion of gametes.
- In certain protistans, cilia fuse to form undulating membrane.
- Cilia and flagella show sensitivity to changes in light, temperature and contact.
- Ciliated larvae take part in dispersal of the species.

Flagella and Cilia

ధన్యవాదాలు

మీ క్రిష్ణ పవన్