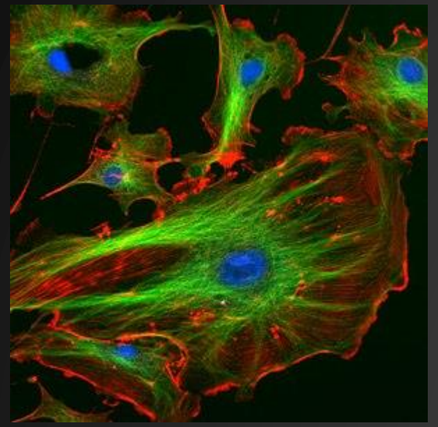
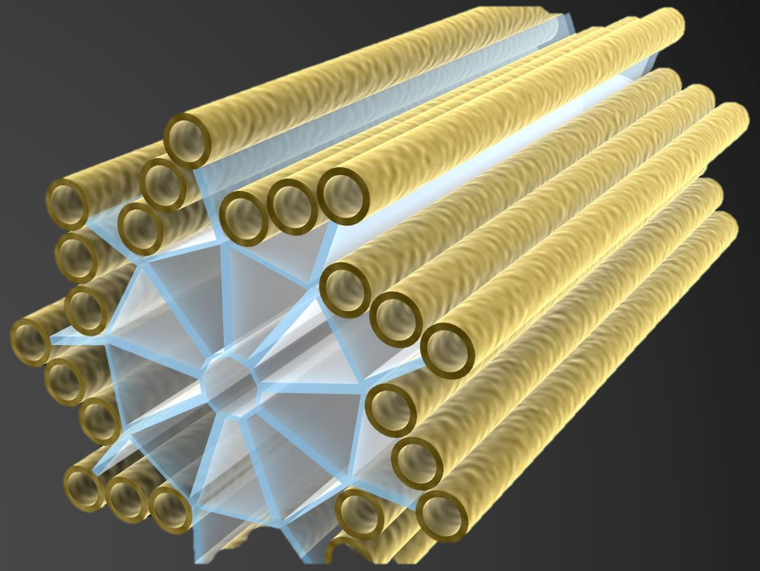






NON MEMBRANEOUS ORGANELLES

DR ZAID O IBRAHEEM, BAGHDAD, IRAQ

NON MEMBRANEOUS ORGAELLES

Centrosoes and centroiles

- Microvilli

Cytoskeleton

- Myofibrills

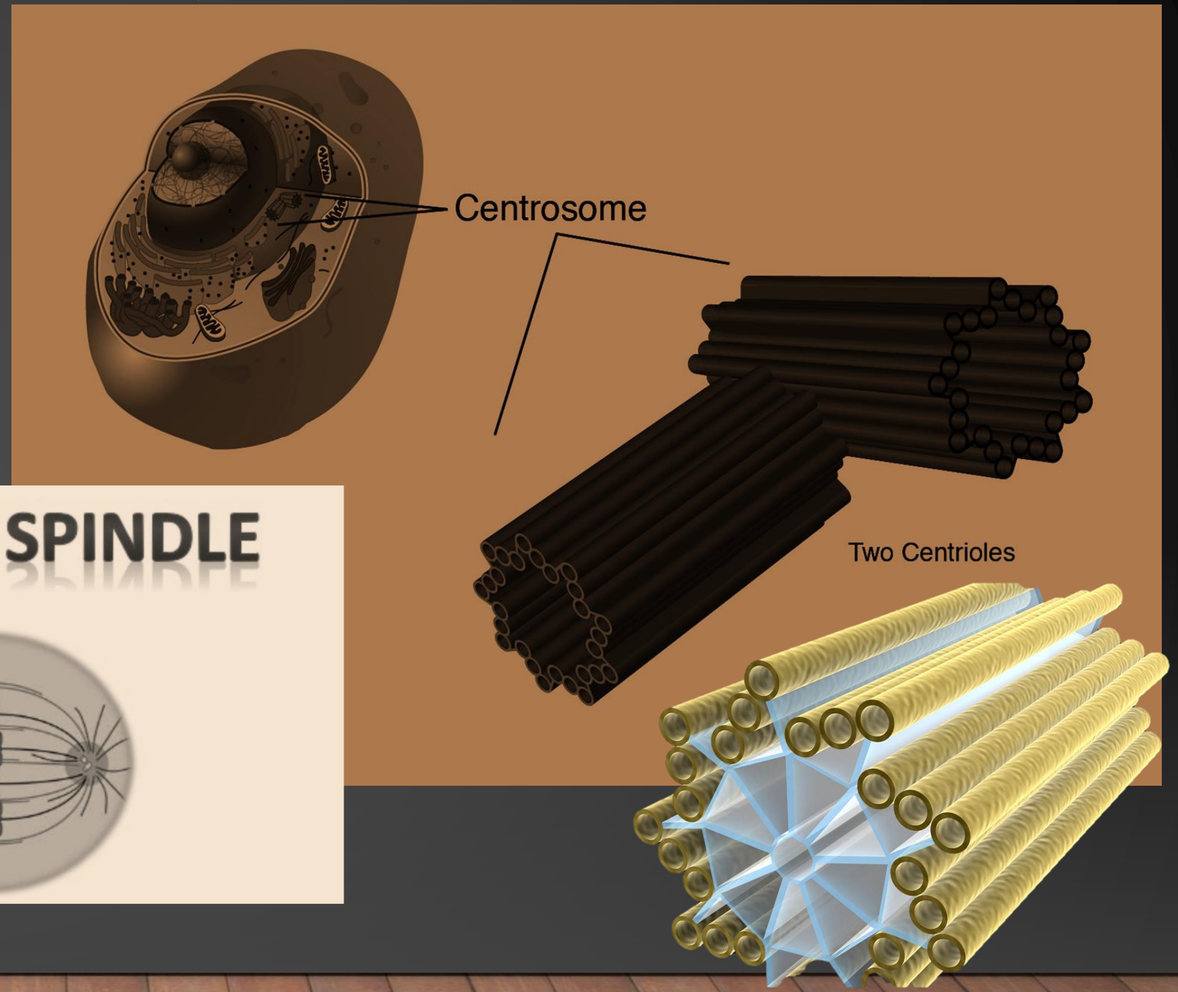
-Movement structures
(cilia and flagella)

CENTRIOLES AND CENTROSOMES

Centrioles= a bunch of 9 sets of micro-tubular protein triplets arranged in cylinders.

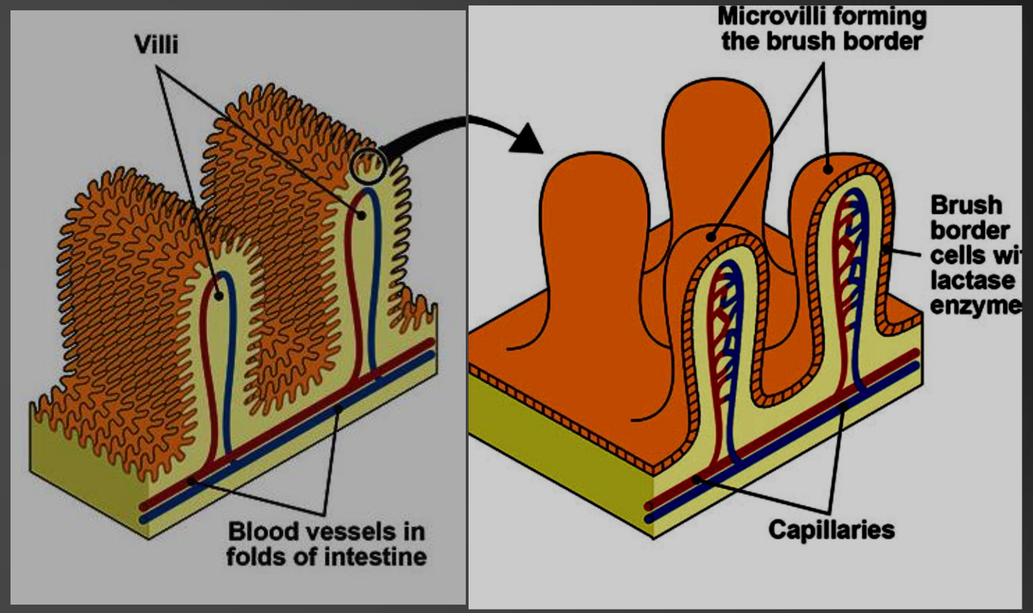
Centrosomes = pair of two perpendicular centrioles

Centrosomes form the mitotic spindle which plays a role during mitosis process.



Microvilli

Microvilli= small projections evolve from cell membrane and made up of actin filaments.

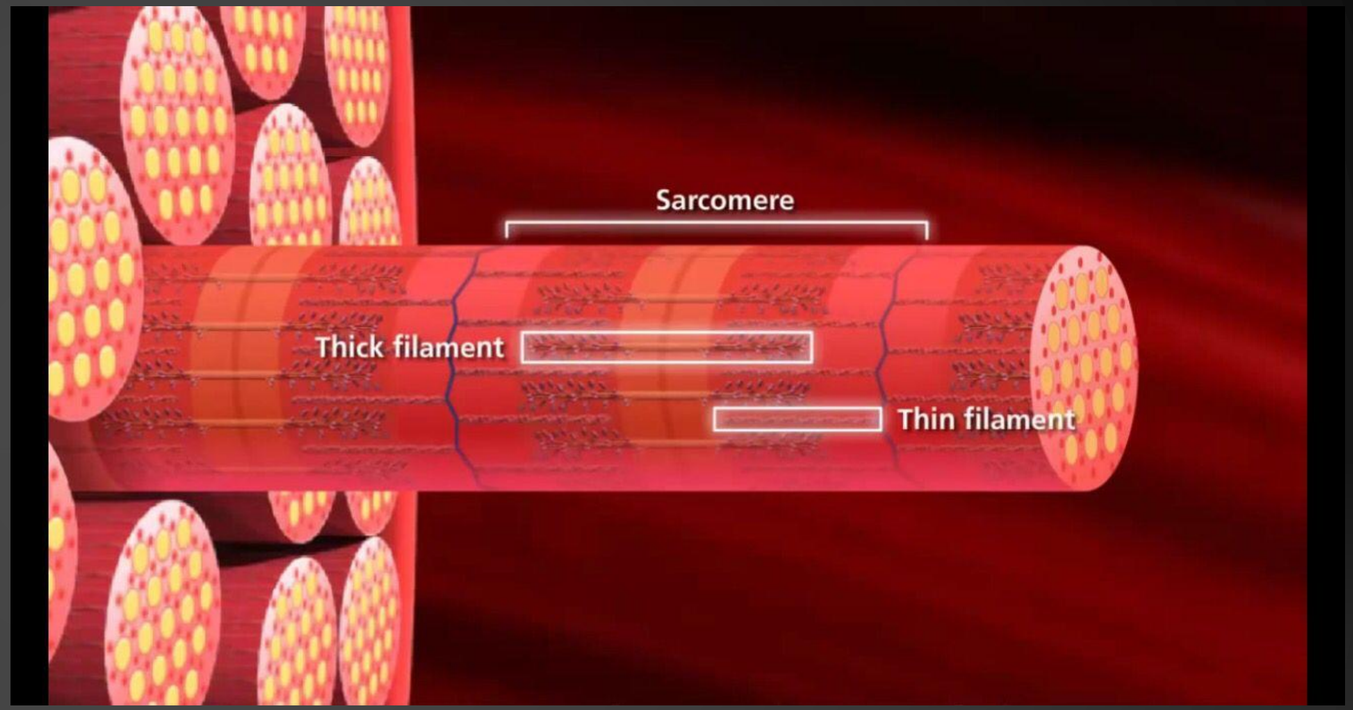


Microvilli function

They increase the surface area of cell membrane and found in places wherein absorption takes place like lining cells of the intestine.

MYOFIBRILS

Myofibrils = A group of actin and myosin microfilaments stacked over each other.



Myofibrils function

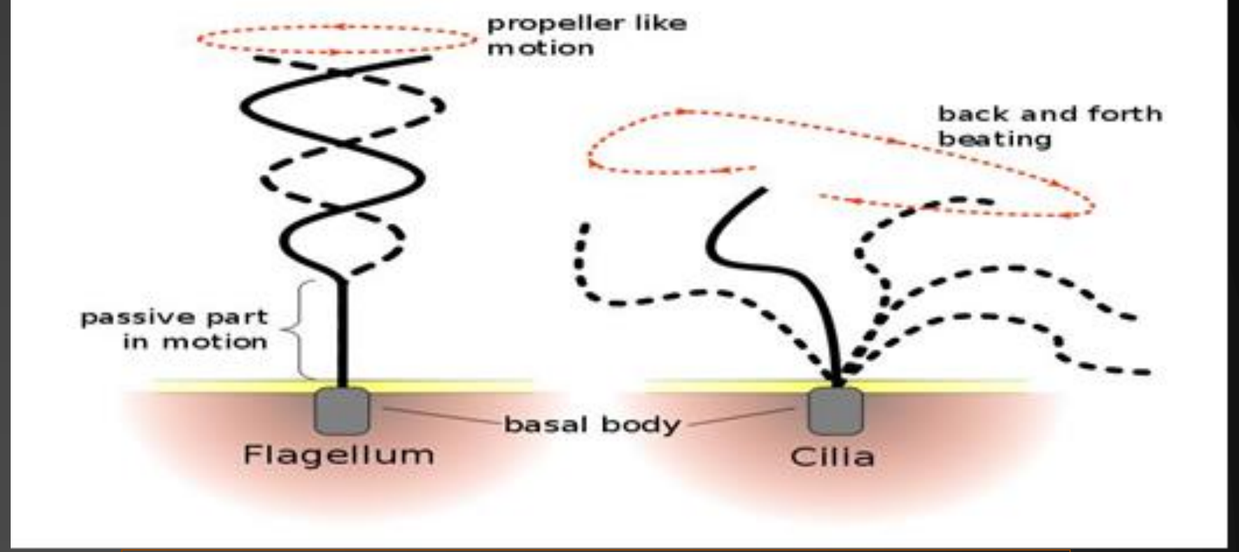
They slide and glide over each other in the presence of calcium and ATP to produce muscles contraction.

Movement structures

The movement structures (cilia and flagella) are tubular structures made up of tubulin and actin..

The proteins slide over each other using ATP during the movement

They are attached to a special motor structures that organize their movement called the basal body



FLAGELLA

- - 20 times longer than cilia

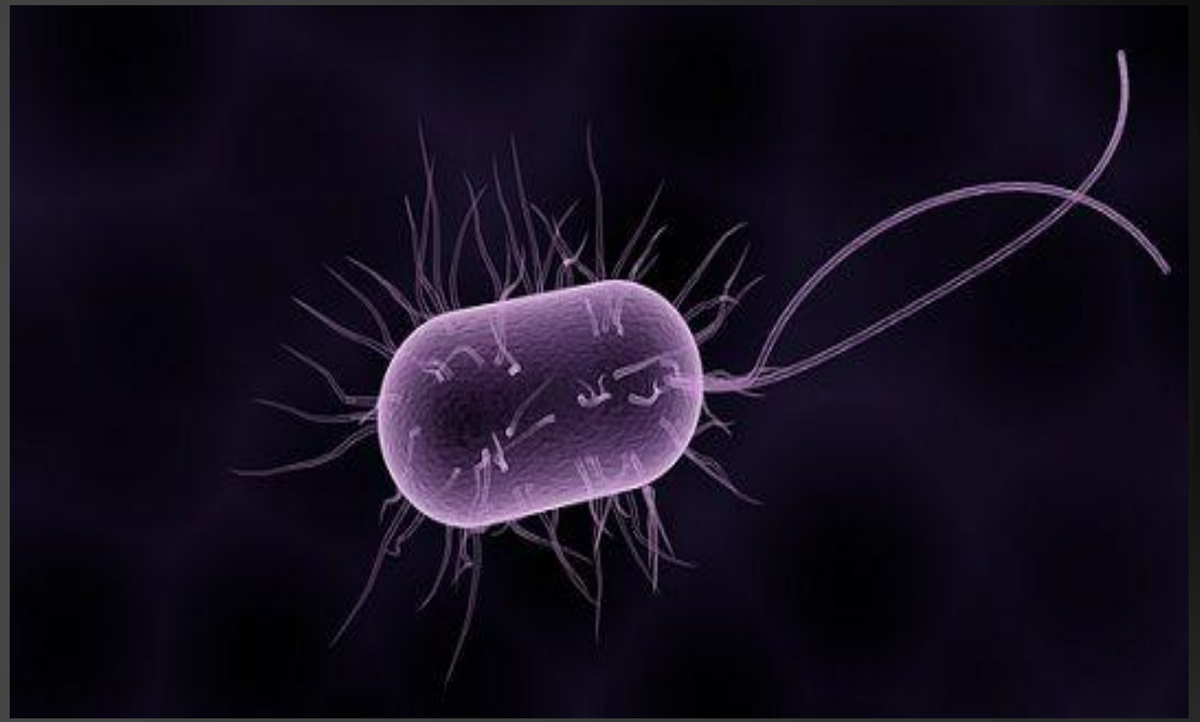
- Flagella are found as a tail in flagellated cells like sperms

- Its movement is called propelled like motion

CILIA

- - They are 20 times shorter than flagella.
- - They are found on surface of ciliated epithelium like Fallopian duct (help in ovum propulsion) or reparatory tract to help expel phlegm and dust out.
- - Its movement called beating movement






THANK
YOU