Glial Cells :-

- **Neuroglia** :- It refers to the supporting cells of the nervous system.

It performs various functions :-
- Supporting Neurons
- Maintaining Blood-Brain Barrier
- Immune Defence

(i) Supports Neurons :-

- It helps maintain structural integrity of the nervous system (by providing a framework for neurons to be positioned correctly)
- It helps supply nutrients (like glucose & oxygen) to neurons and help remove metabolic wastes

(ii) Maintain Blood-Brain Barrier :-

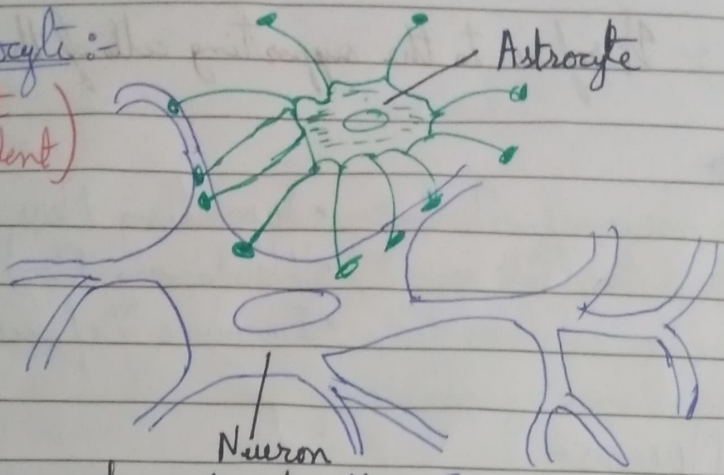
- Astrocytes (type of glial cell) controls the passage of substances between the blood and the brain
- Protects brain from harmful chemicals, pathogens & toxins

(iii) Immune Defence :-

- Microglia :- They are immune cells of CNS and act as the first line of defence against injury, infection and disease
- It also helps ~~its~~ initiate inflammatory responses in the brain when there is damage/injury to brain

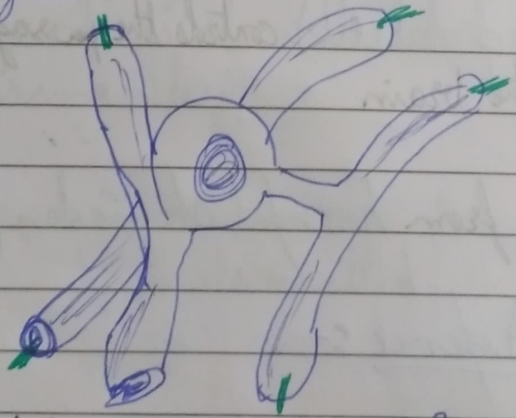
Types of Glial Cells:-

1) **Astrocyte:-** (Most Abundant)



- They are star-shaped cells [Type of Neuroglia]
- Controls environment around neurons → Nutrient-Ion Homeostasis
- Involved in Synapse Formation → in developing neural tissue
- Maintains Blood-Brain Barrier → Protecting Brain from pathogens, chemicals etc and allow only useful nutrients such as oxygen & glucose to pass through

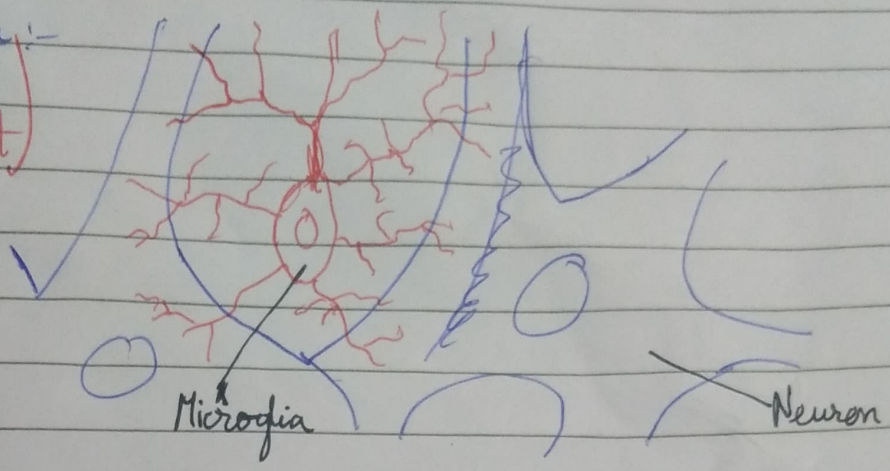
2) **Oligodendrocytes:-**



- They are insulators [Type of Neuroglia]
- Involved in Myelin Sheath Formation → for rapid conduction of nerve impulses
- Maintains Myelin Plasticity → Can adjust myelin sheath thickness based on neural activity

Schwann cells surround axons in the PNS and form myelin sheath around axons of the PNS

3) Microglia :-
(Least Abundant)



- They serve as resident immune cells of CNS [Type of Neuroglia]
- Involved in Immune Defence → they engulf and digest the unwanted materials via phagocytosis
- Involved in Pathogen Defence → detect and remove bacteria, viruses etc that might harm the brain

They are derived from blood cells called monocytes