

Module 10 LO3

Nervous System Cells

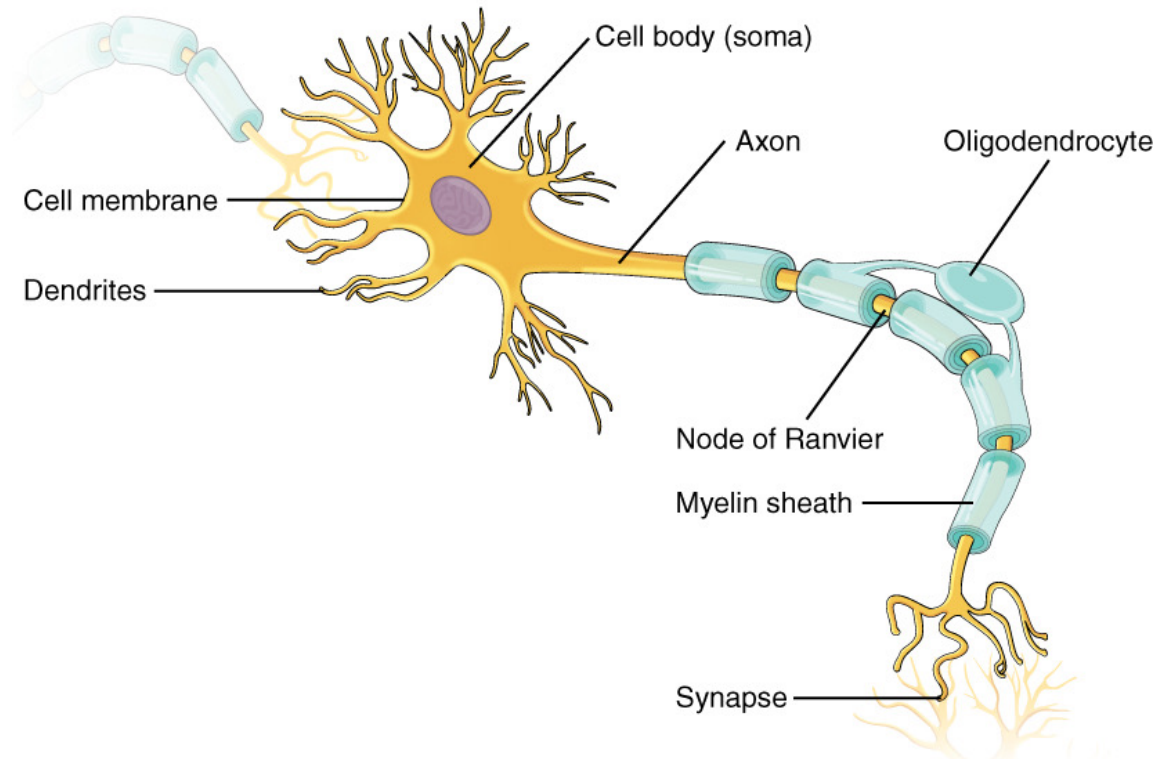
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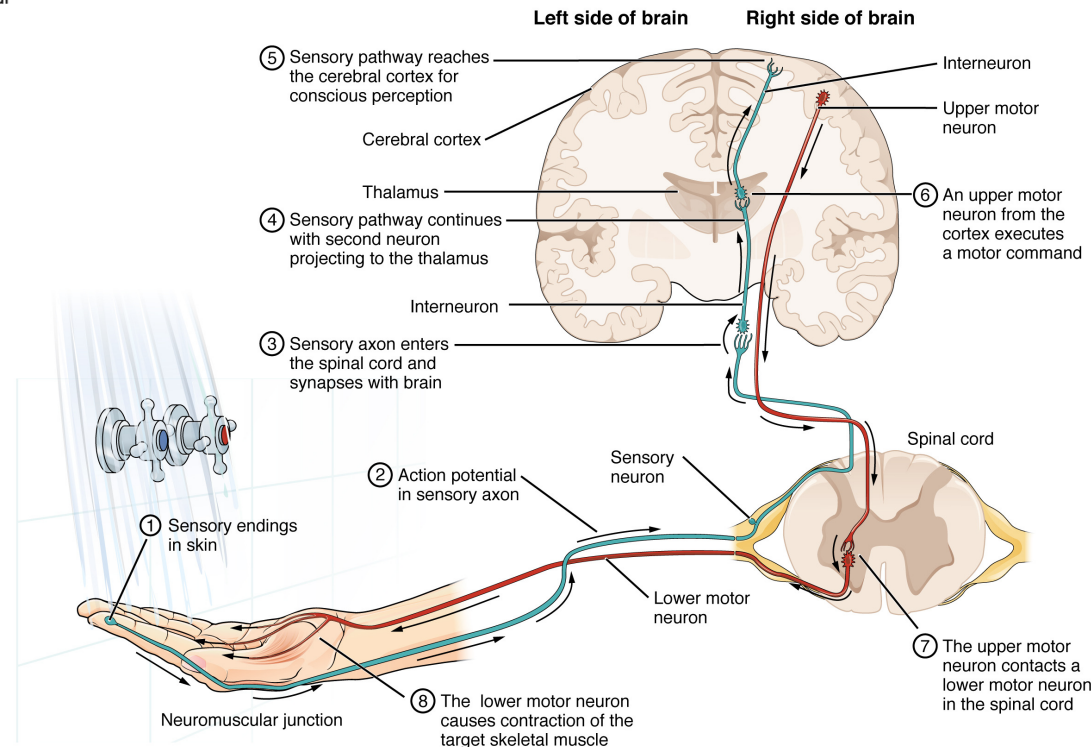
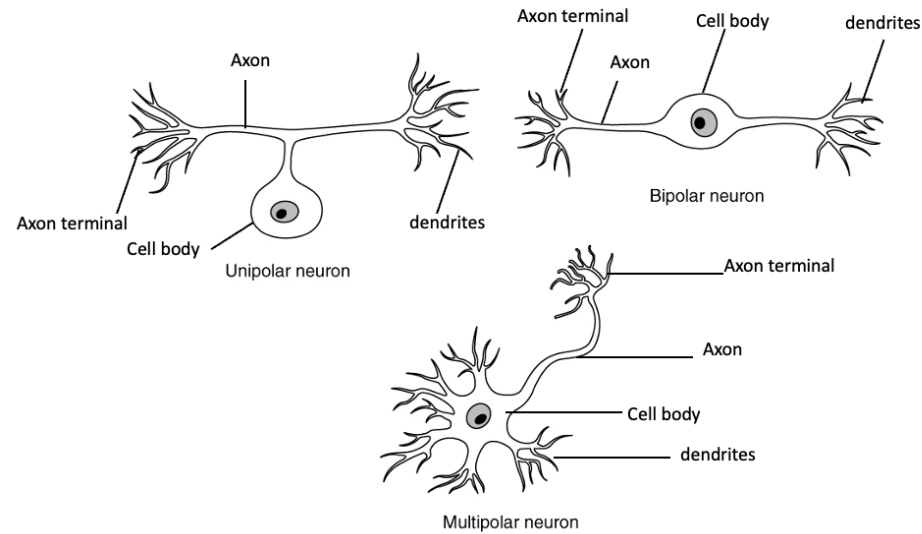
3. Nervous System Cells

- A. Neurons
- B. Neuroglia

A. Structure of Typical Neuron



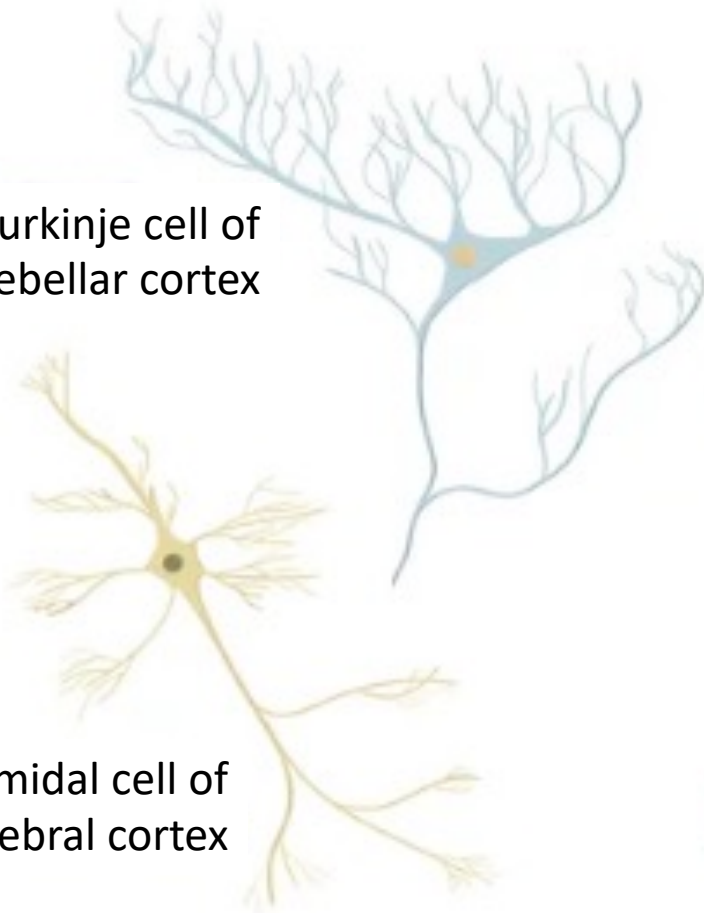
Structural Classification of Neurons



Two Examples of CNS Neurons

Purkinje cell of
cerebellar cortex

Pyramidal cell of
cerebral cortex



B. Neuroglias

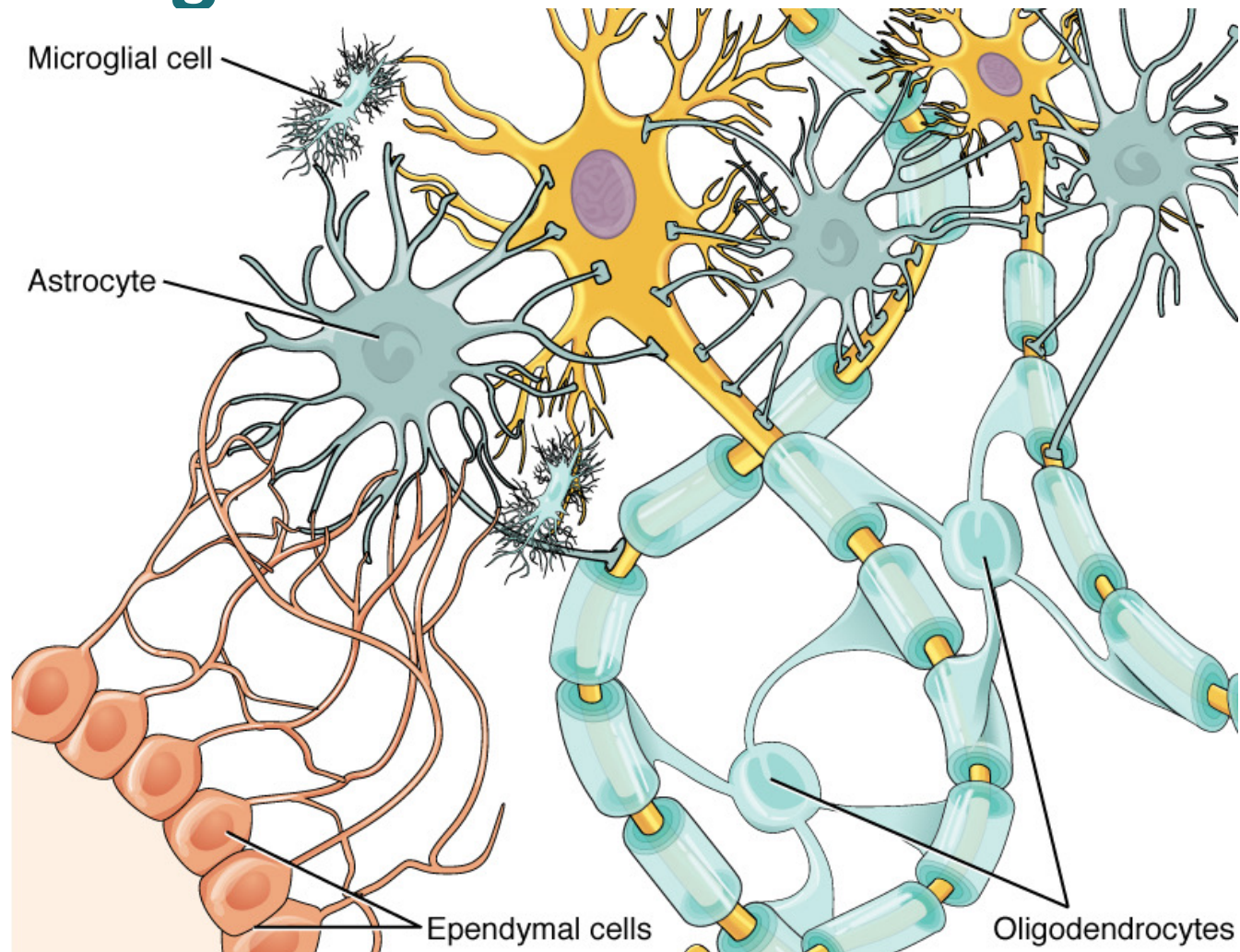
a) Central Nervous System

- Astrocytes
- Oligodendrocytes
- Ependymal cells
- Microglia

b) Peripheral Nervous System

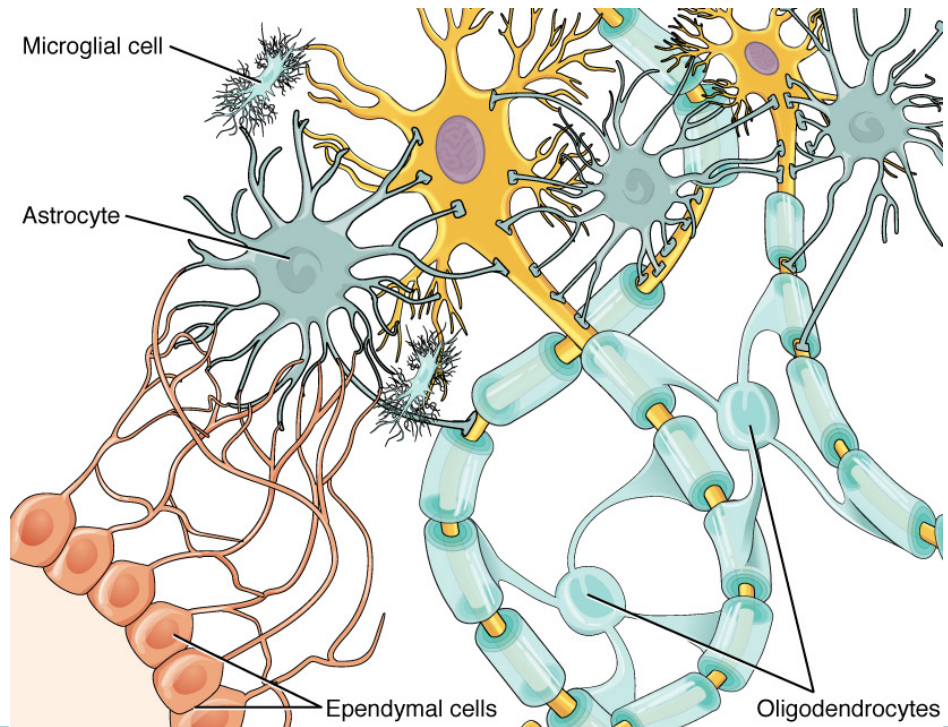
- Schwann cells
- Satellite cells

a) Neuroglia of CNS



Astrocytes

- Largest and most numerous
- Star-shaped cells
- Astrocyte processes make contact with:
 - Blood capillaries
 - Neurons
 - Pia mater

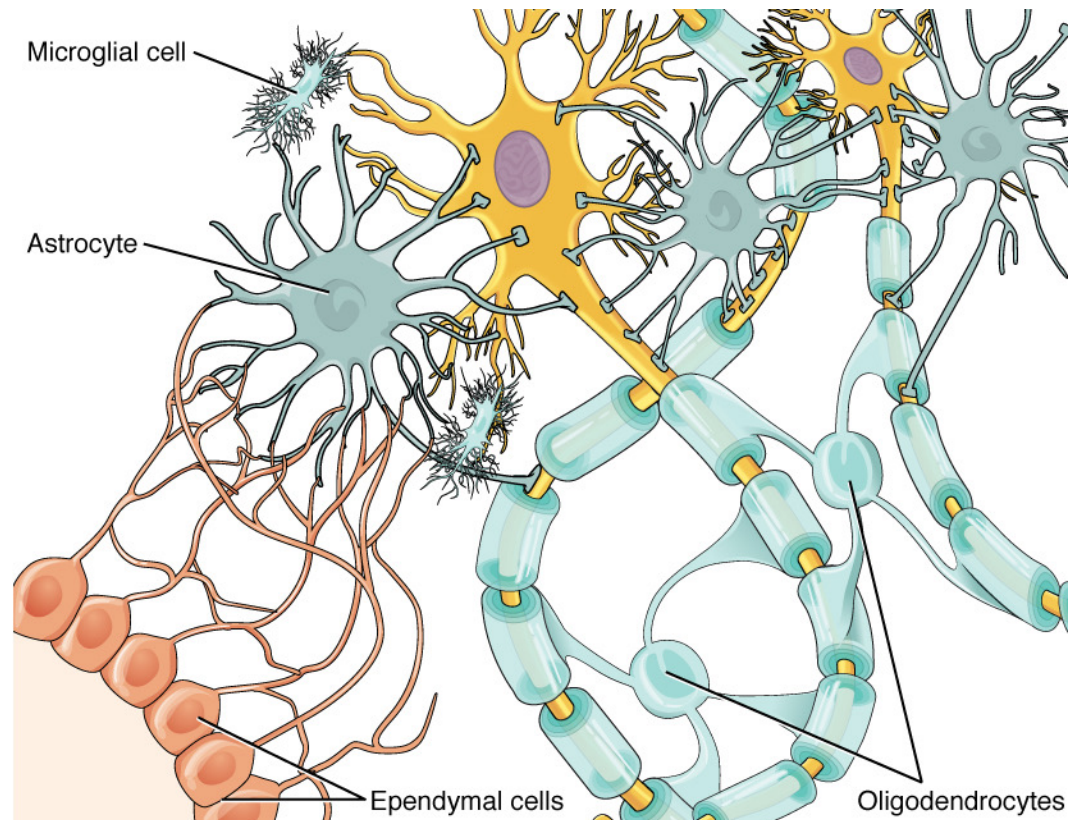


Functions of Astrocytes

- Provide strength
- Maintains unique permeability characteristics of endothelial cells
- In embryo: secrete chemicals that appear to regulate:
 - growth, migration, and interconnections
- Maintains appropriate chemical environment for generation of nerve impulses
- Play a role in learning and memory by influencing formation of neural synapses

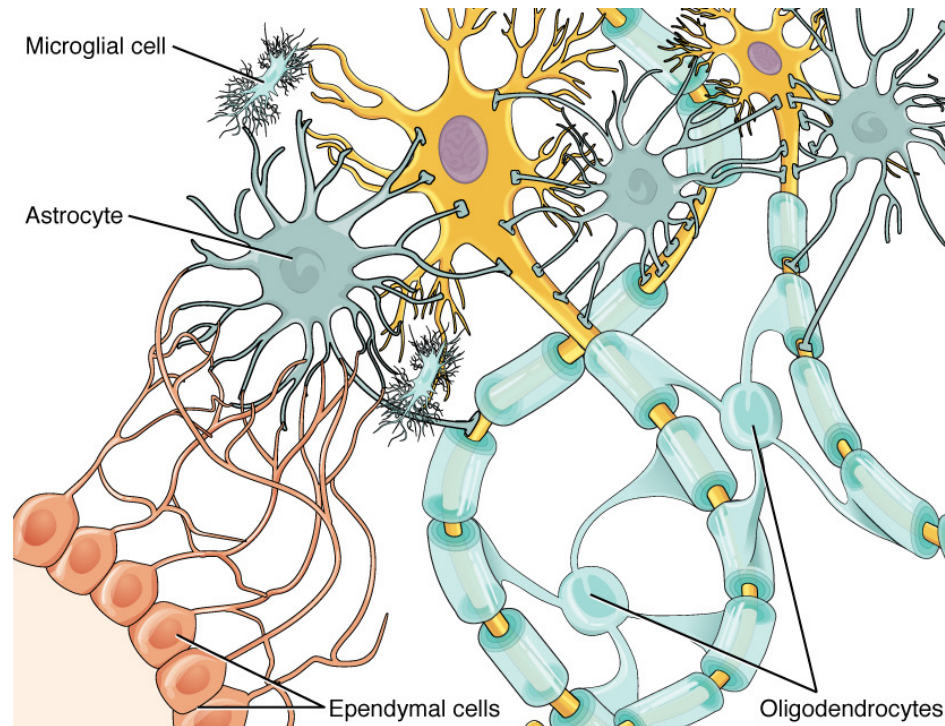
Oligodendrocytes

- Processes - responsible for forming myelin sheath
 - insulates axon and increases speed of nerve impulse conduction



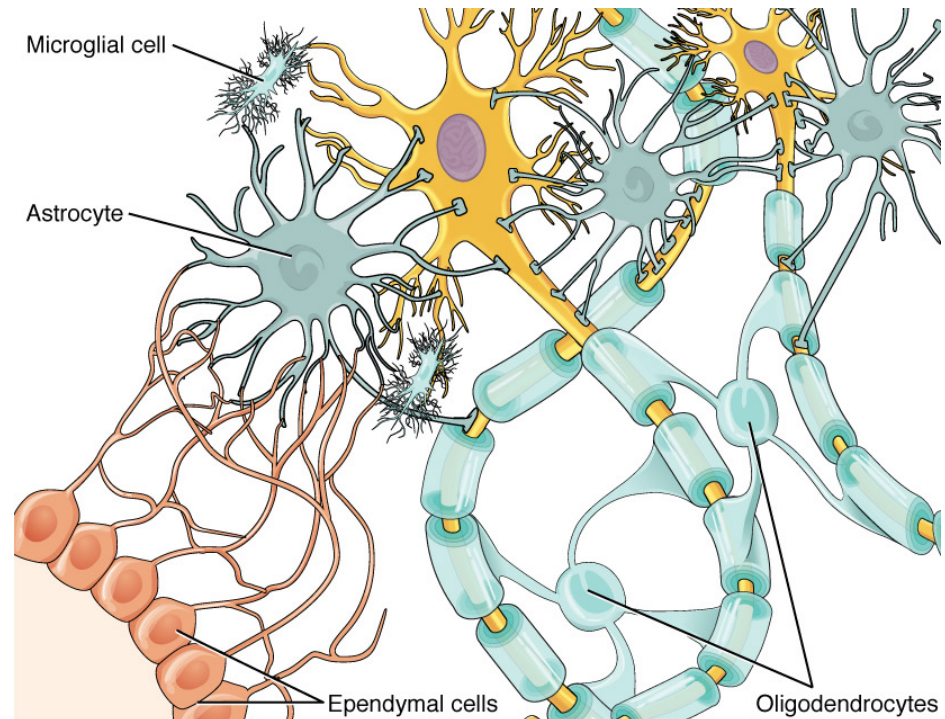
Microglial Cells or Microglia

- Small cells with slender processes
- Originate from red bone marrow
 - function as phagocytes



Ependymal Cells

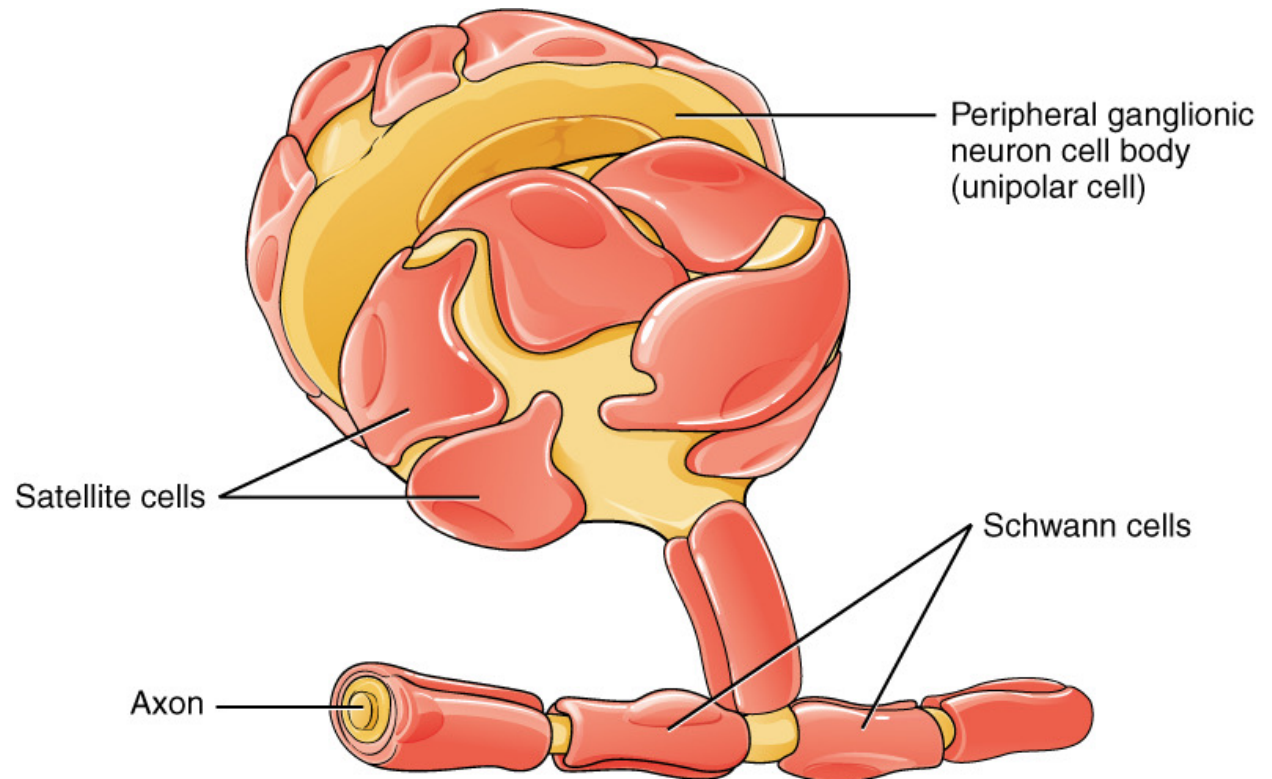
- Cuboidal to columnar cells
- Line ventricles of brain and central canal of spinal cord
- Functionally:
 - produce, possibly monitor, and assist in circulation of cerebrospinal fluid
 - Form blood–cerebrospinal fluid barrier



b) Neuroglia of PNS

a) Schwann cells

b) Satellite cells



Myelinated and Unmyelinated Axons

