UDAAN

2025

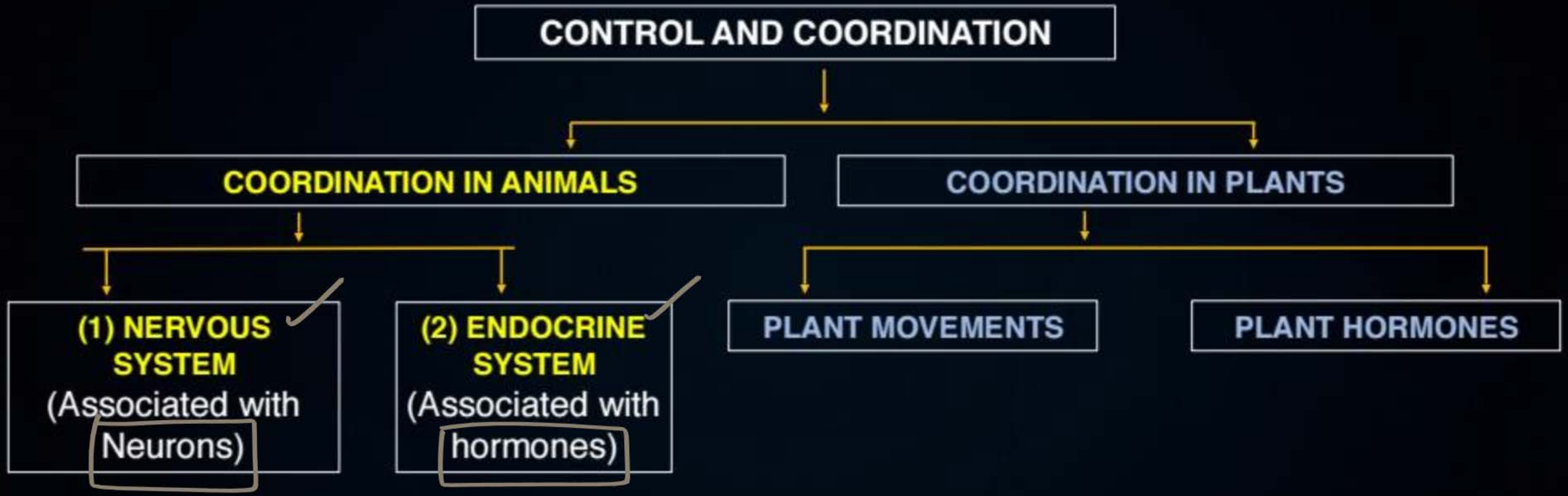
Control and Coordination

Biology | Lecture - 02

By - SAMRIDHI SHARMA Ma'am

Topics to be covered

1. Neuron and its parts
2. Types of neuron
3. Conduction of Nerve Impulse
3. MCQ practice and Homework


CONTROL AND COORDINATION
COORDINATION IN ANIMALS
COORDINATION IN PLANTS
(1) NERVOUS SYSTEM
(Associated with Neurons)
(2) ENDOCRINE SYSTEM
(Associated with hormones)
PLANT MOVEMENTS
PLANT HORMONES

Q. Think and answer

Which receptors give us the sense of sight ?

A Photoreceptors → Eye

To able to see things

B Thermoreceptors

C Gustatory receptors

D None of these

Q. Think and answer

Which of the following statement is not true ?

False

A Spinal cord is part of CNS ✓

B Nervous system helps in control and coordination ✓

C There are 23 pairs of spinal nerves

31

D There are 12 pairs of cranial nerves ✓

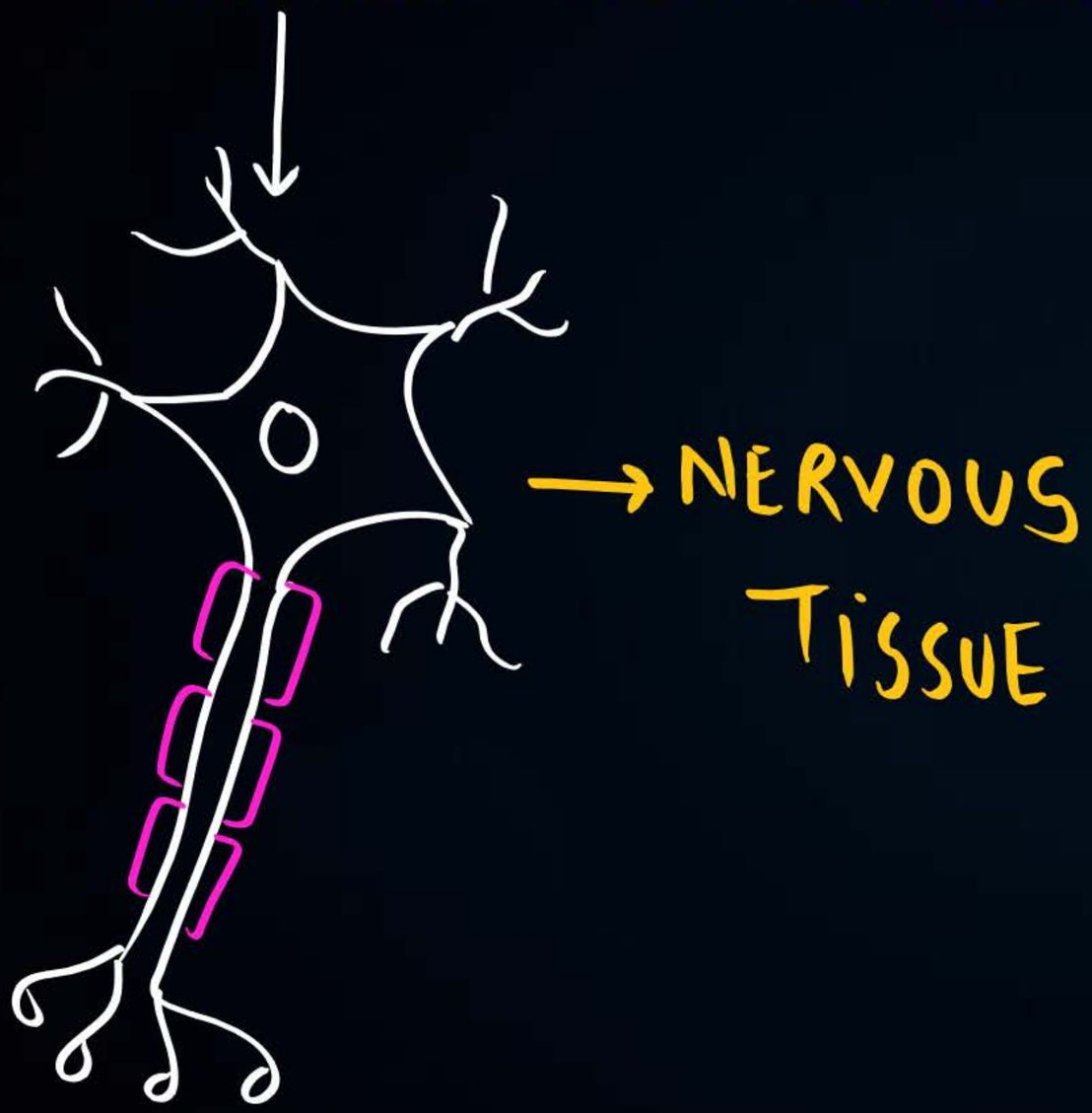
Brain
Spinal Cord
→ CNS

Nerves
→ PNS

Stimulus → Pain

Receptor → NOCiceptors (Skin)

Neuron - Nervous tissue - Nervous system



Nervous Tissue.

→ Single cell of nervous Tissue is called "Neuron / Nerve cell"

Cell → Tissue → organ → organ System → organism

[Neuron or Nerve Cell] → [Nervous Tissue] → [Brain × Spinal Cord] → [Nervous System]

Neuron / Nerve cell

- Neuron is a highly specialized cell which is responsible for the transmission of signals to and from the different parts of the body

Structural & functional

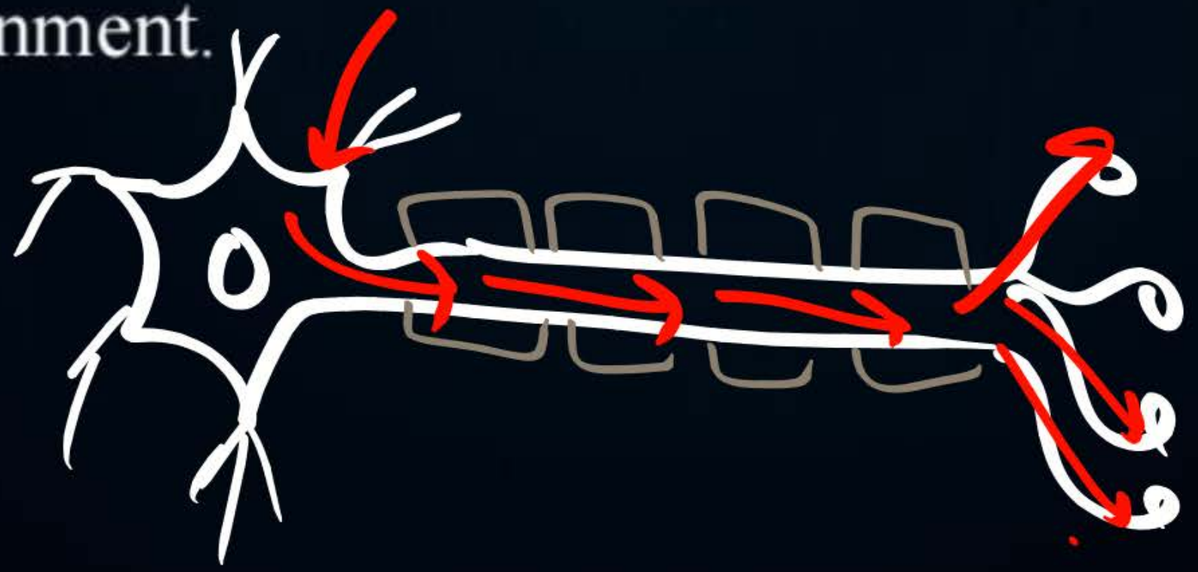
- ~~Functional~~ unit of nervous system

- Longest cell in human body ~ upto 1m long

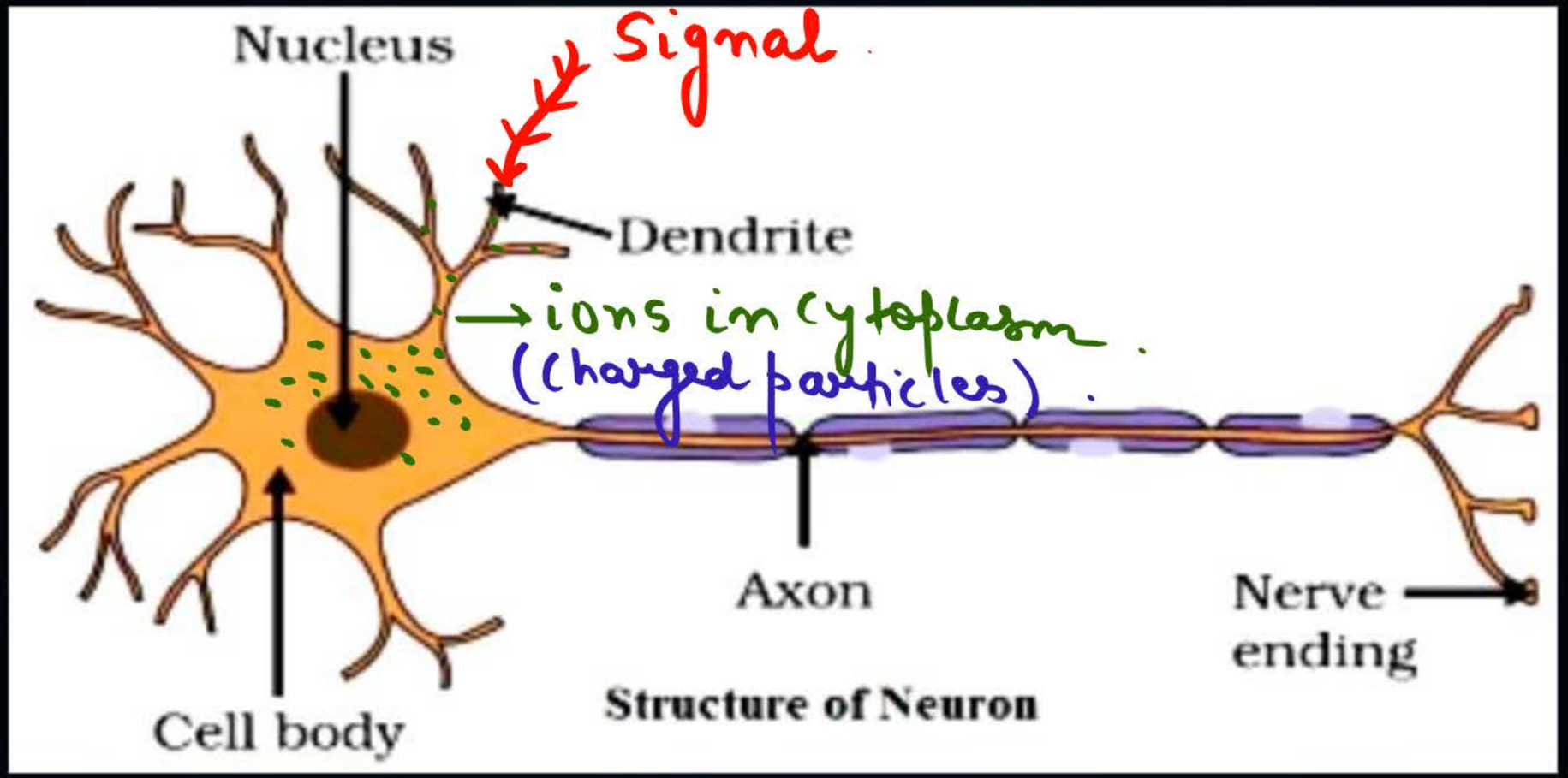
Nerve impulse

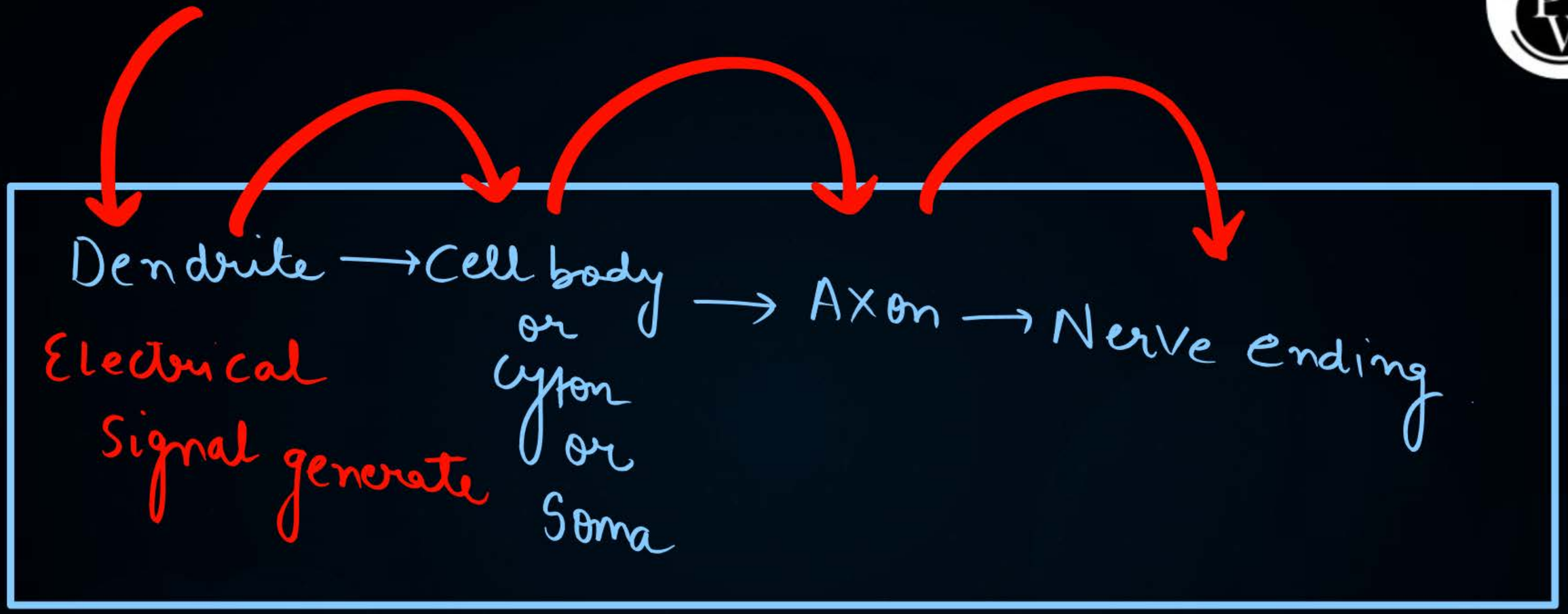
- Nerve impulses are wave of electrical and chemical signals carried along nerves or neurons.

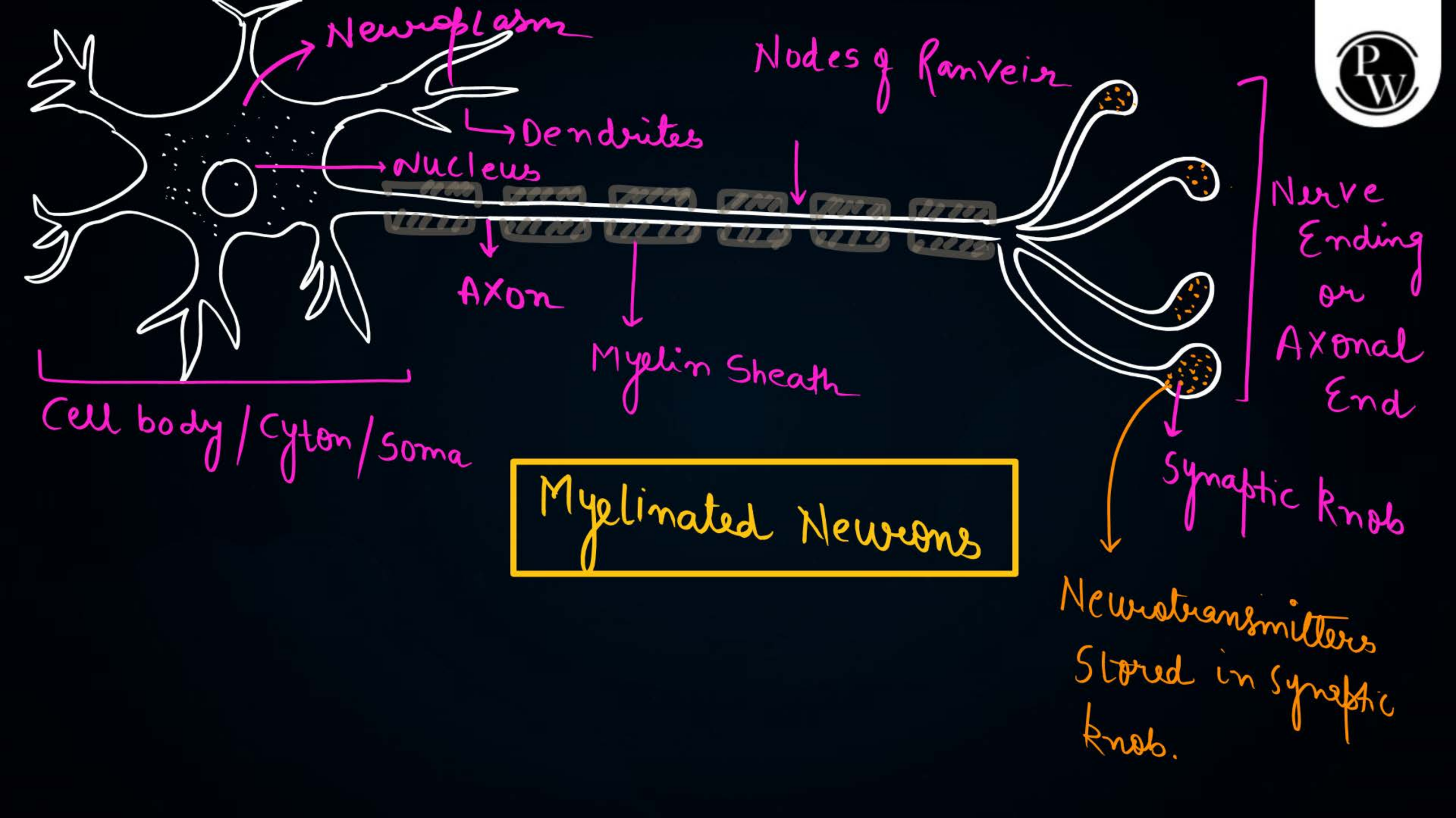
- **Nerve impulses** are initiated at receptor cells as a result of stimuli from the environment.



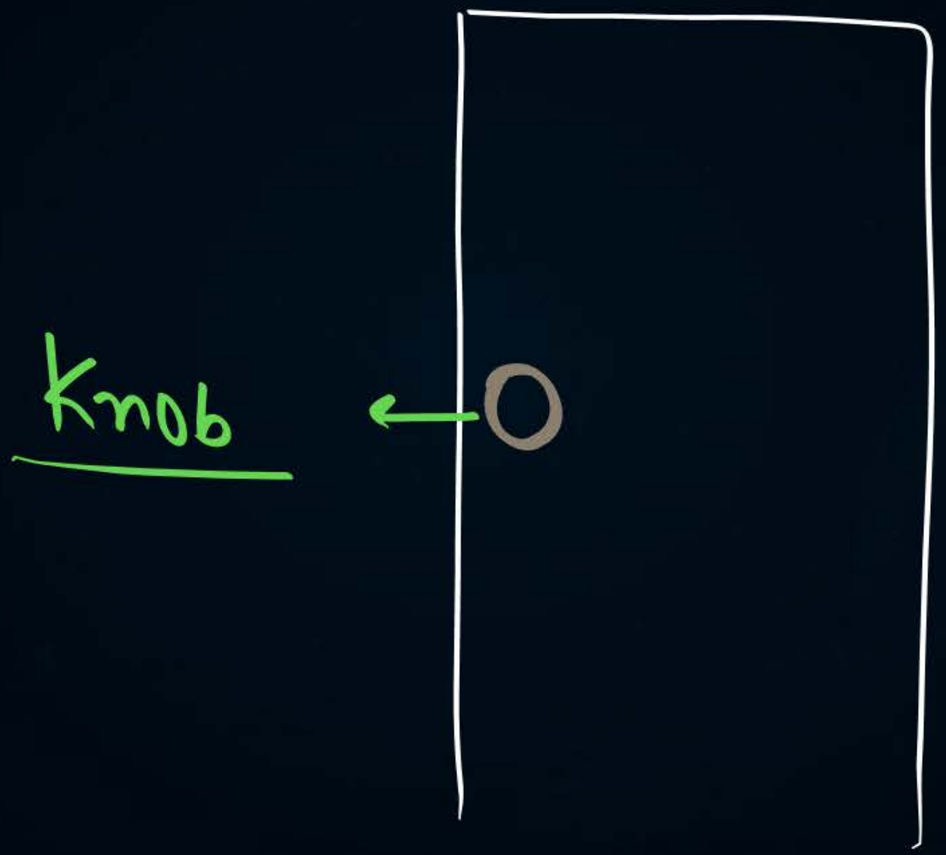
Parts of Neuron

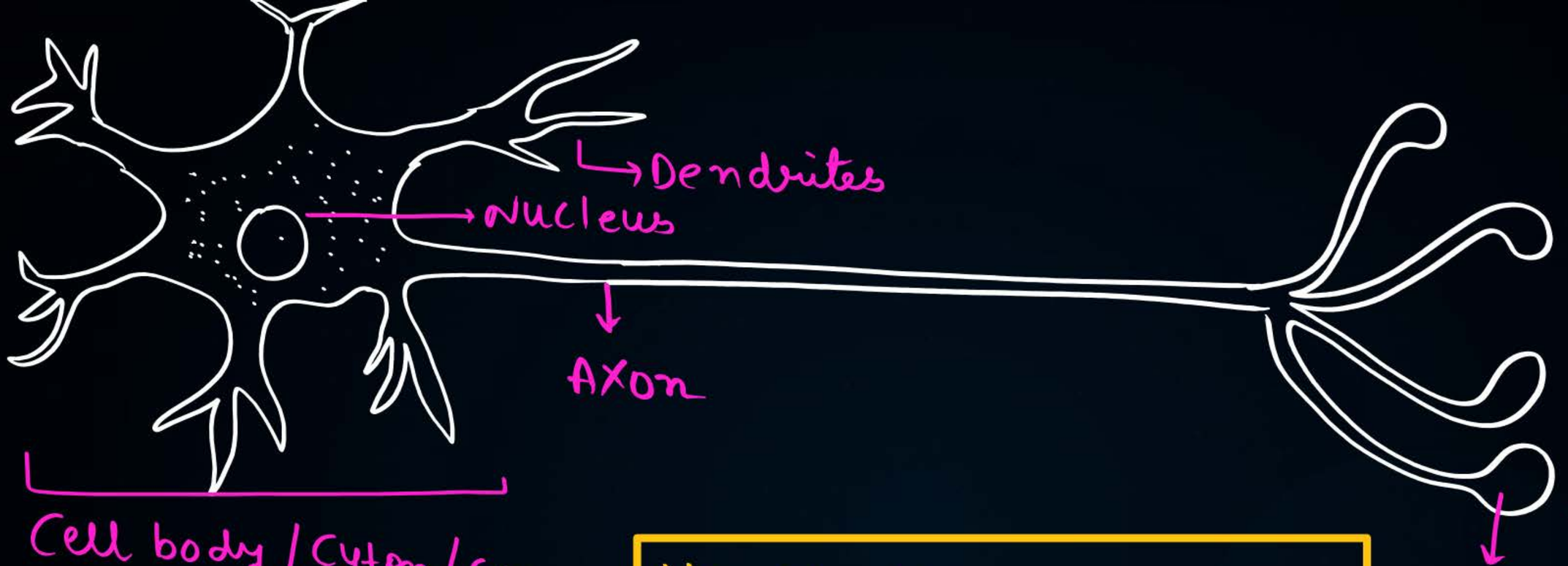



Dendrite → Cell body or Cyton or Soma → Axon → Nerve ending
Electrical Signal generate



Myelinated Neurons

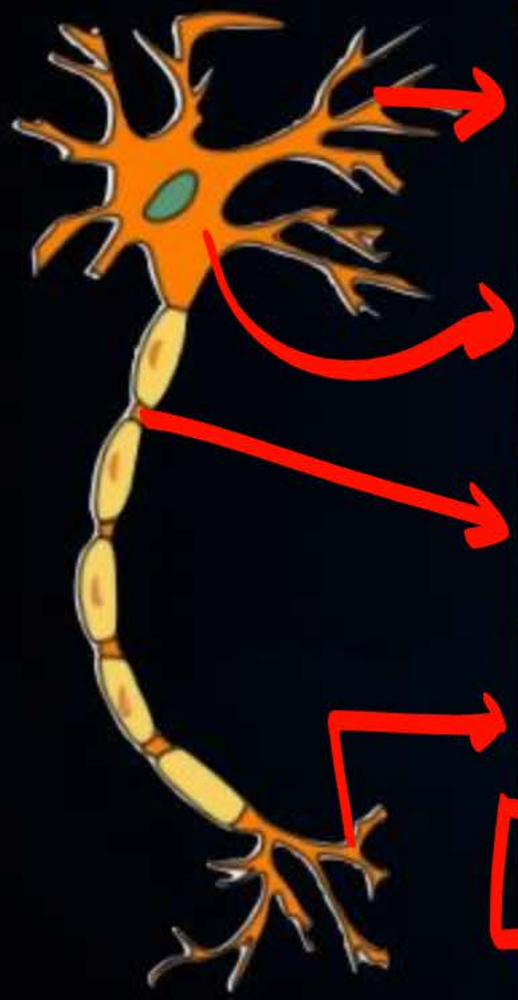

Knob



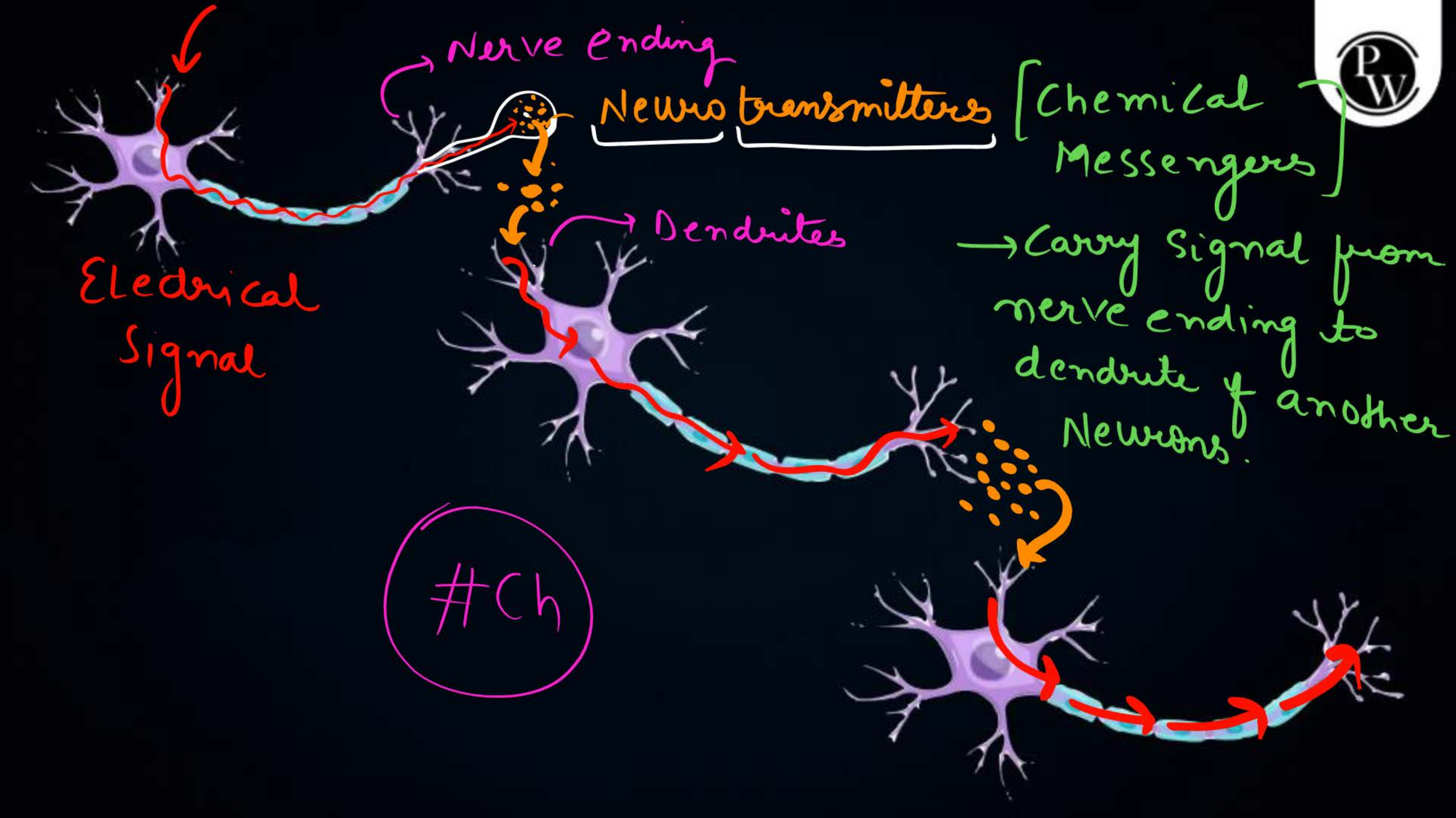
Non-Myelinated Neurons

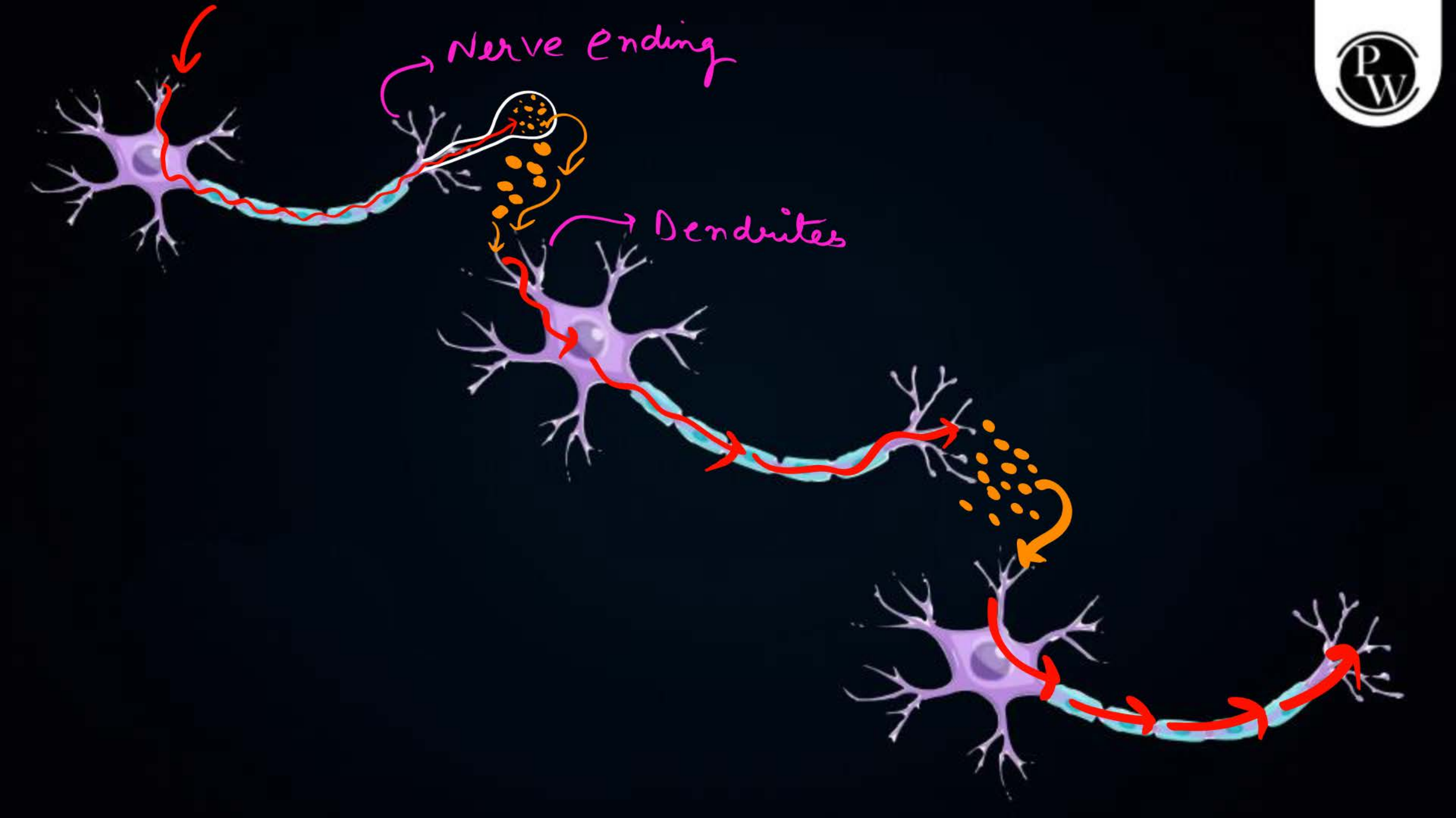
NEURON

#notes



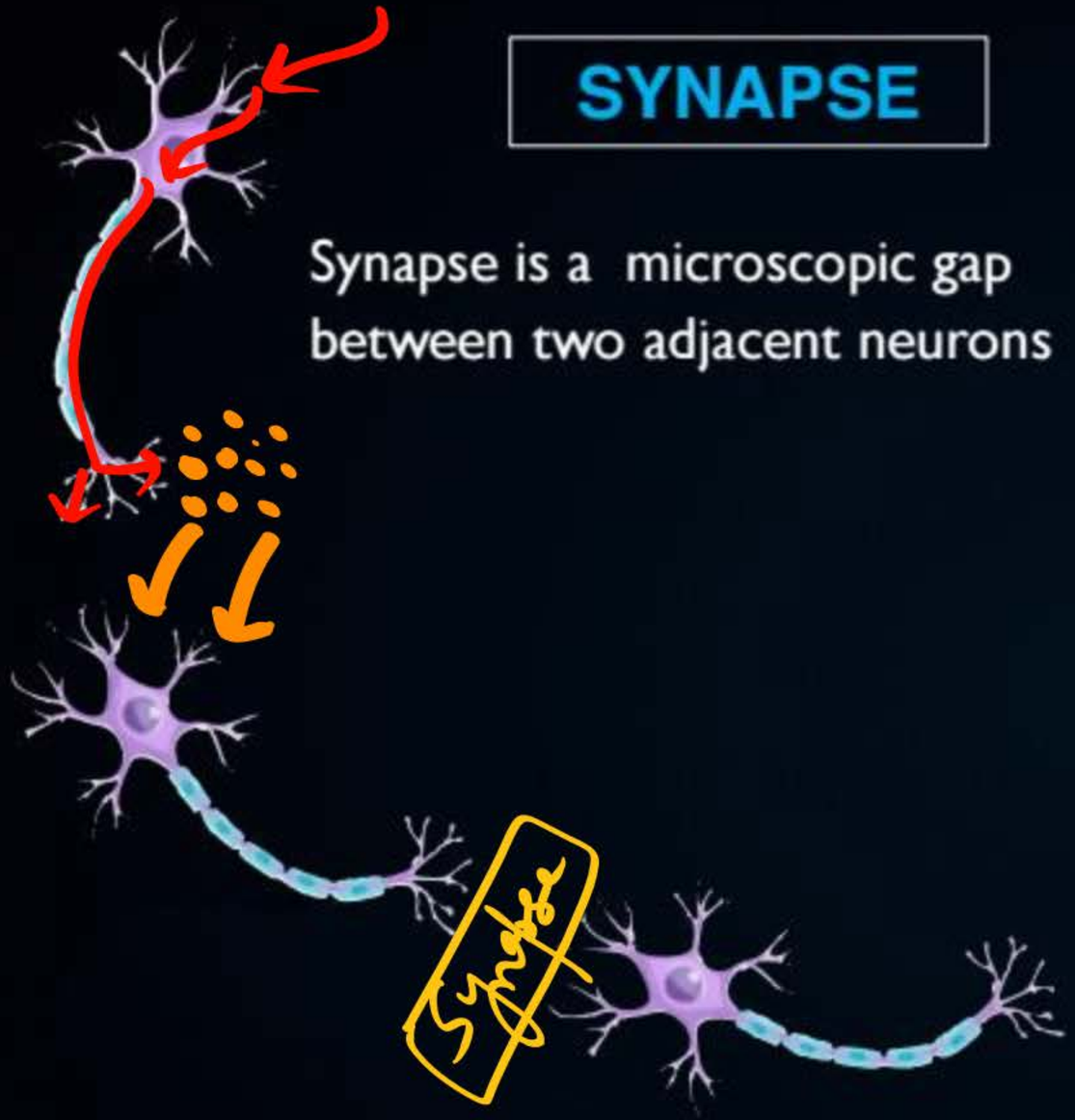
Part	Details
Dendrites	Branched structure that collects information from previous neuron and passes on to the cell body.
Cell body	It is the broad, rounded part of the neuron that contains the nucleus, abundant cytoplasm (neuroplasm) and other organelles like mitochondria, endoplasmic reticulum, Golgi body etc.
Axon	It is a long tube-like structure that carries information from the cell body to the nerve endings .
Nerve ending	Terminal branched part of axon
Synapse	There is a gap between the nerve endings of one neuron and dendrite of the following neuron where signals are transmitted as chemical signals called neurotransmitters.


Nerve ending
Neuro transmitters
[Chemical Messengers]
Dendrites
Electrical Signal
→ Carry signal from nerve ending to dendrite of another Neurons.
#Ch


Nerve ending
Dendrites

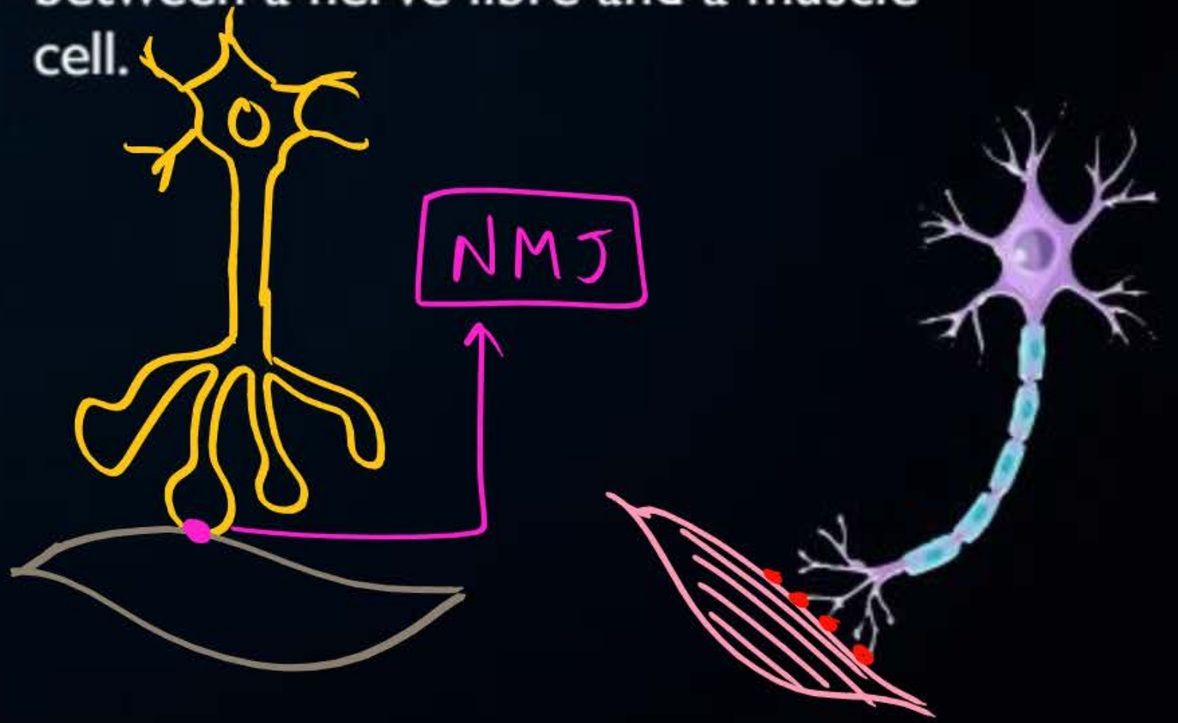
SYNAPSE

Synapse is a microscopic gap between two adjacent neurons

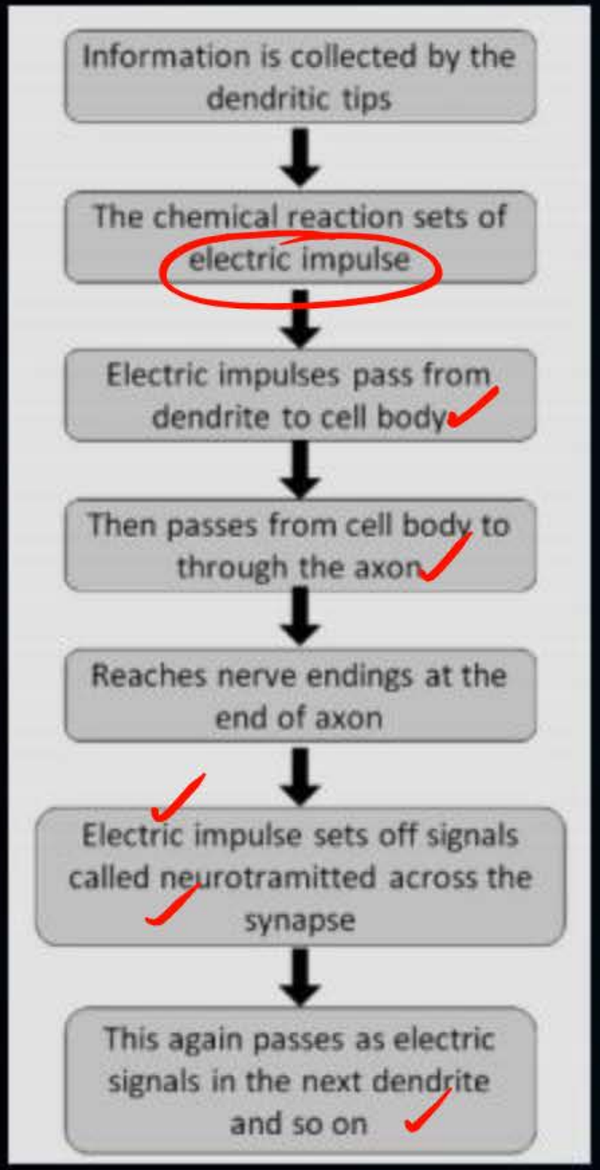


NEUROMUSCULAR JUNCTION [NMJ]

- A point of connection between the nerve ending of a neuron and a muscle.
- It site of chemical communication between a nerve fibre and a muscle cell.



How exactly do these signals pass through and between neu rons ?



#notes

Question

_____ is a microscopic gap between a pair of adjacent neurons.

A Neurotransmitter

B Dendrites

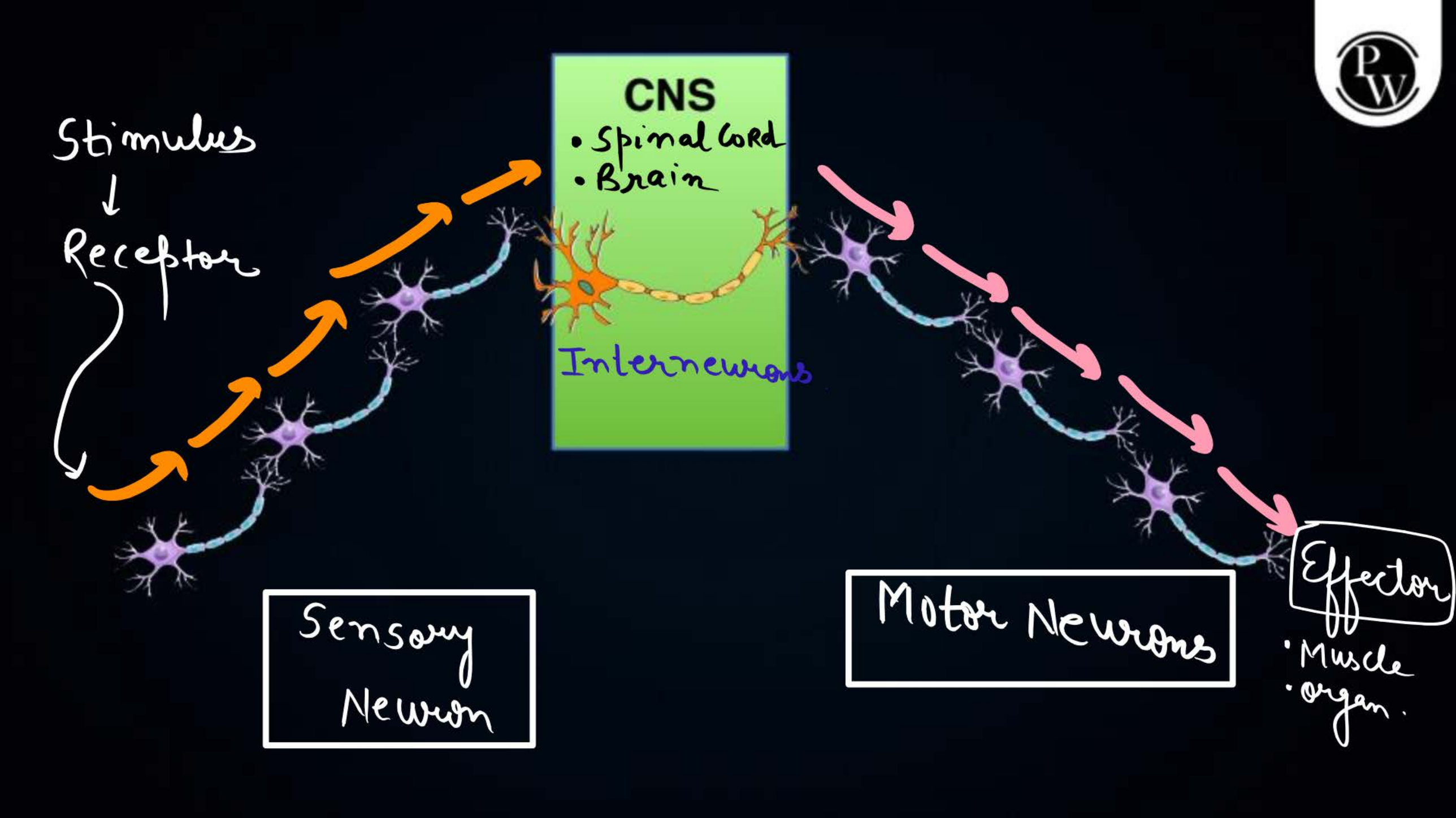
C Axon

D Synapse

Types of neurons

Sensory neurons	Motor neurons	Interneurons
They help in transmitting nerve impulse from receptor to central nervous system	They help in transmitting nerve impulse from central nervous system to a muscle or gland	They connect sensory and motor neuron

Relay neurons


Stimulus
Receptor
CNS
• Spinal Cord
• Brain
Interneurons
Sensory Neuron
Motor Neurons
Effector
• Muscle
• organ.

Question

Which of the following is the functional unit of nervous system ?

A Nephron

B Neuron

C Nephridia

D None of these

Question

Which of the following part of neuron receives the signal ?

A Axon

B Cyton

C Dendrites

D Neurotransmitters

Question

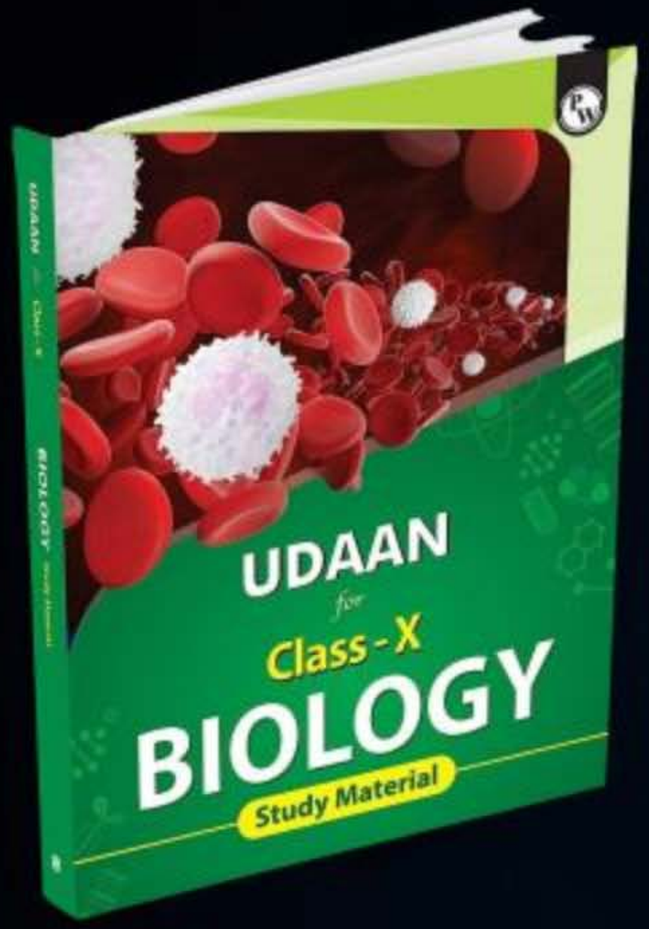
Which neuron links sensory and motor neurons ?

A NMJ

B Neurotransmitters

C Relay neuron

D None of these



Homework

FROM PW MODULE

(Udaan - CLASS 10)

PAGE : 100 Q-10 , Q-11

Question of the Day

EXamples of Neurotransmitters

THANK YOU