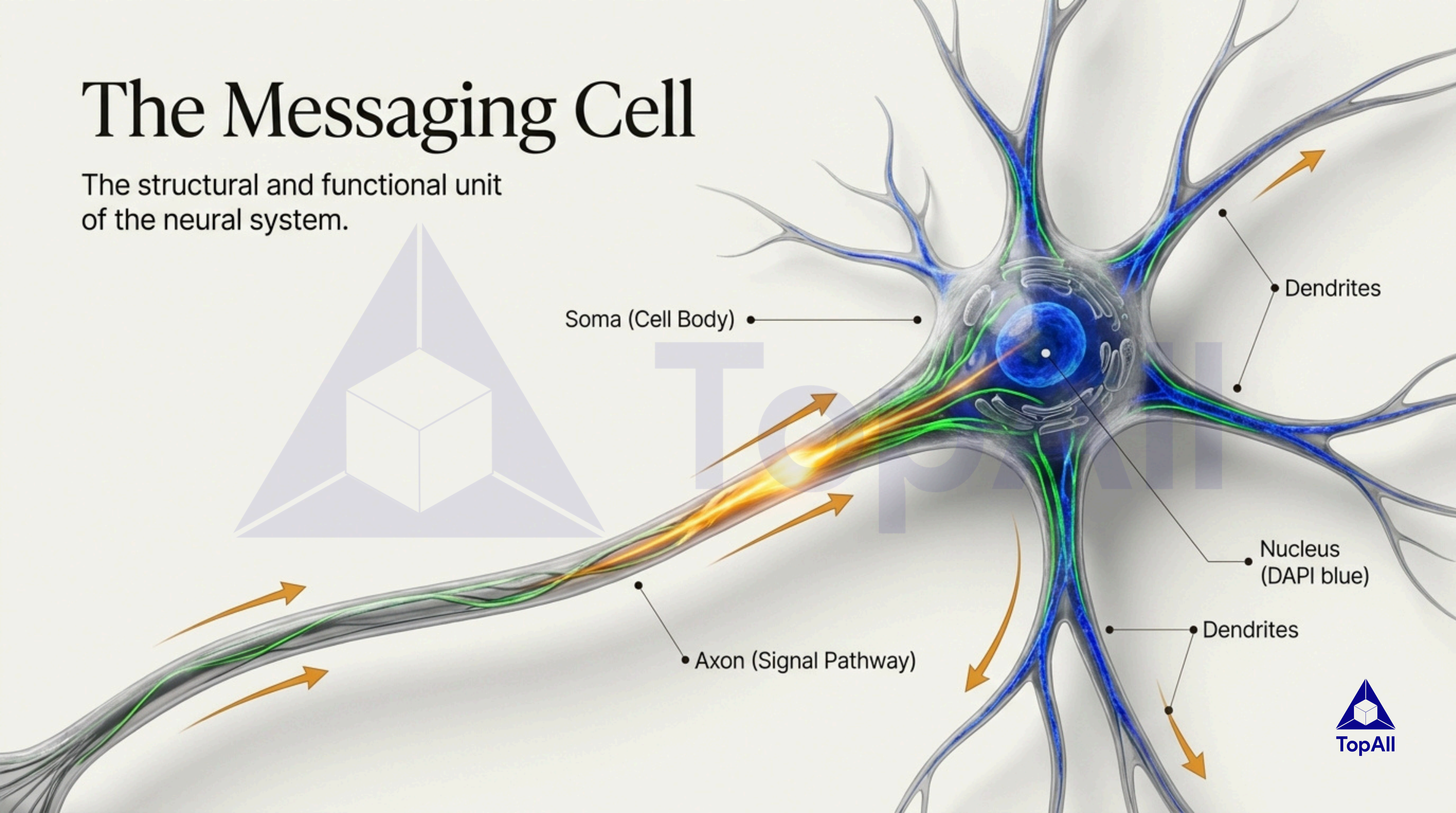
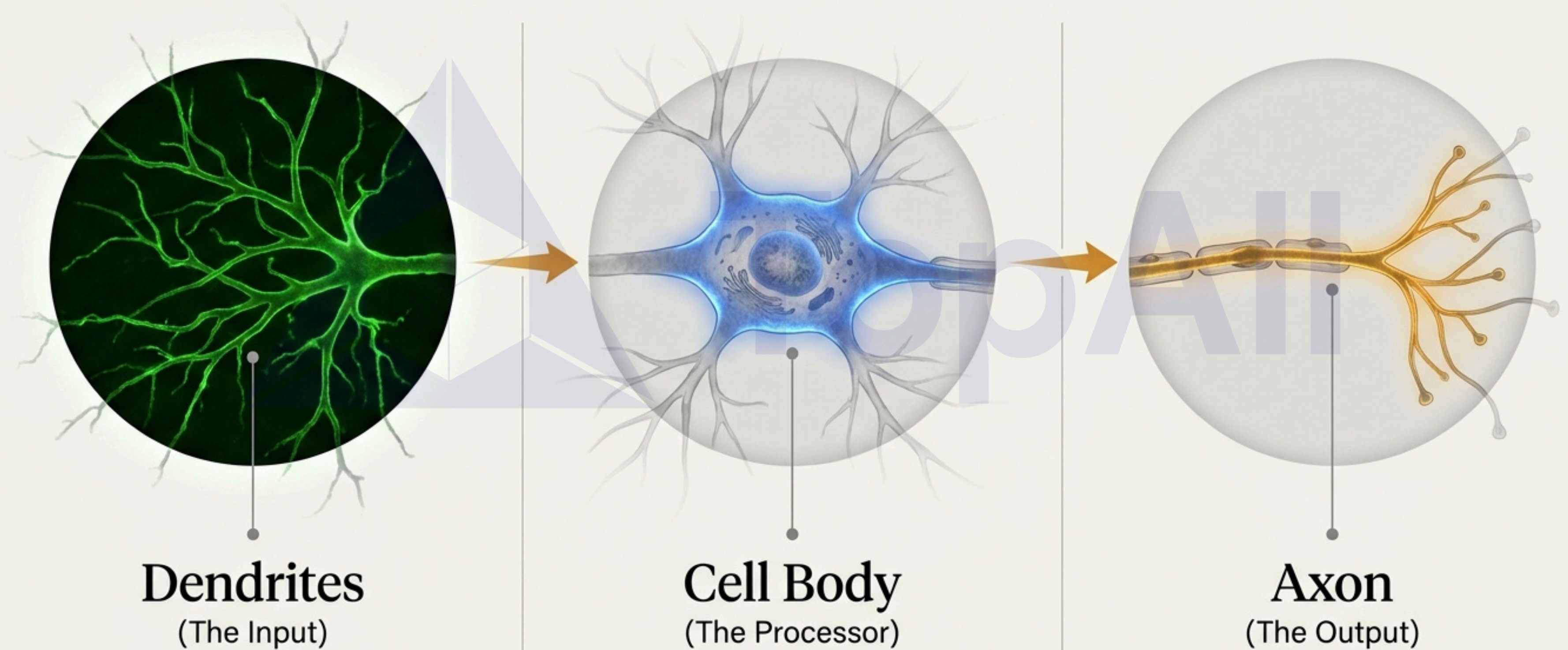


The Messaging Cell

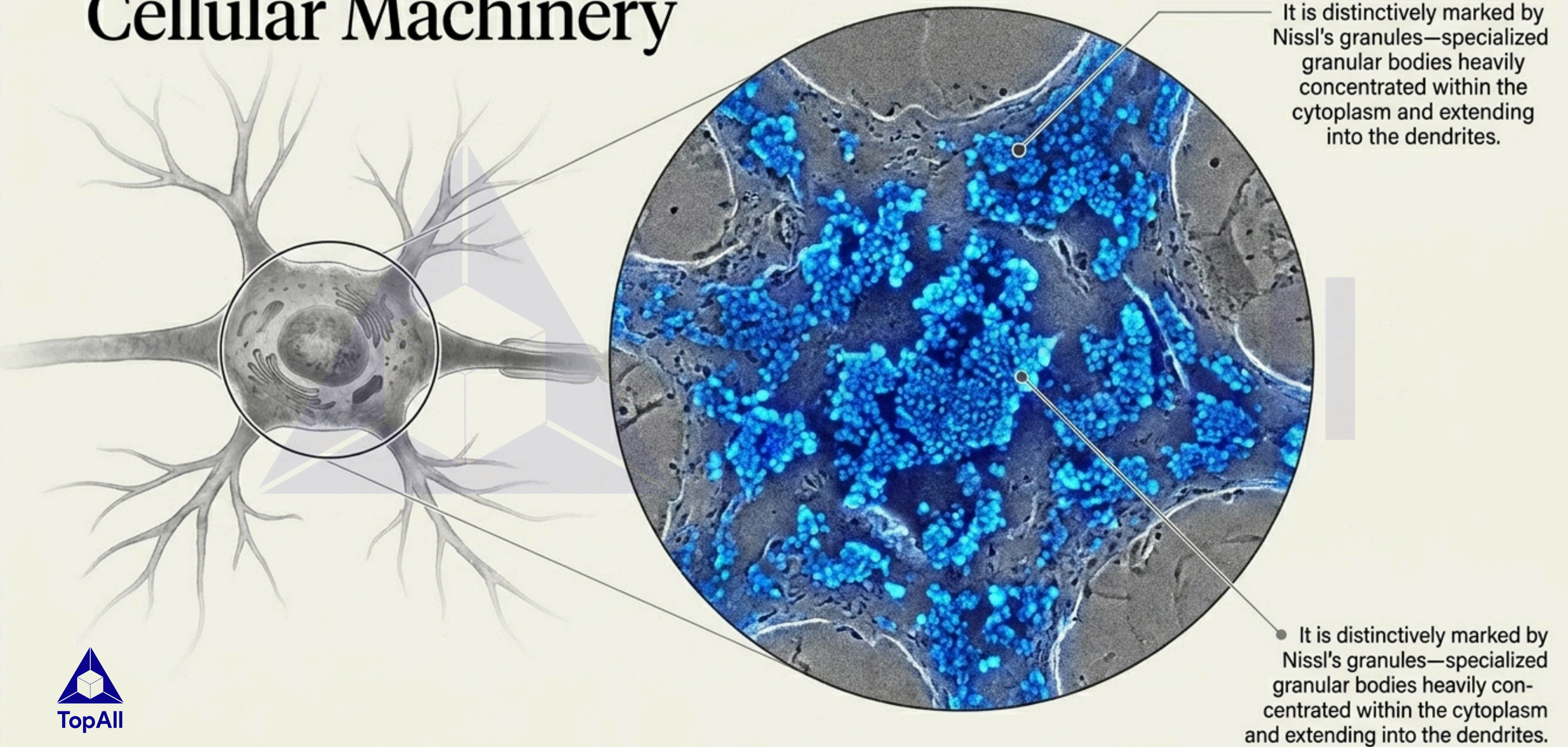
The structural and functional unit of the neural system.



Anatomy of a Message



Cellular Machinery





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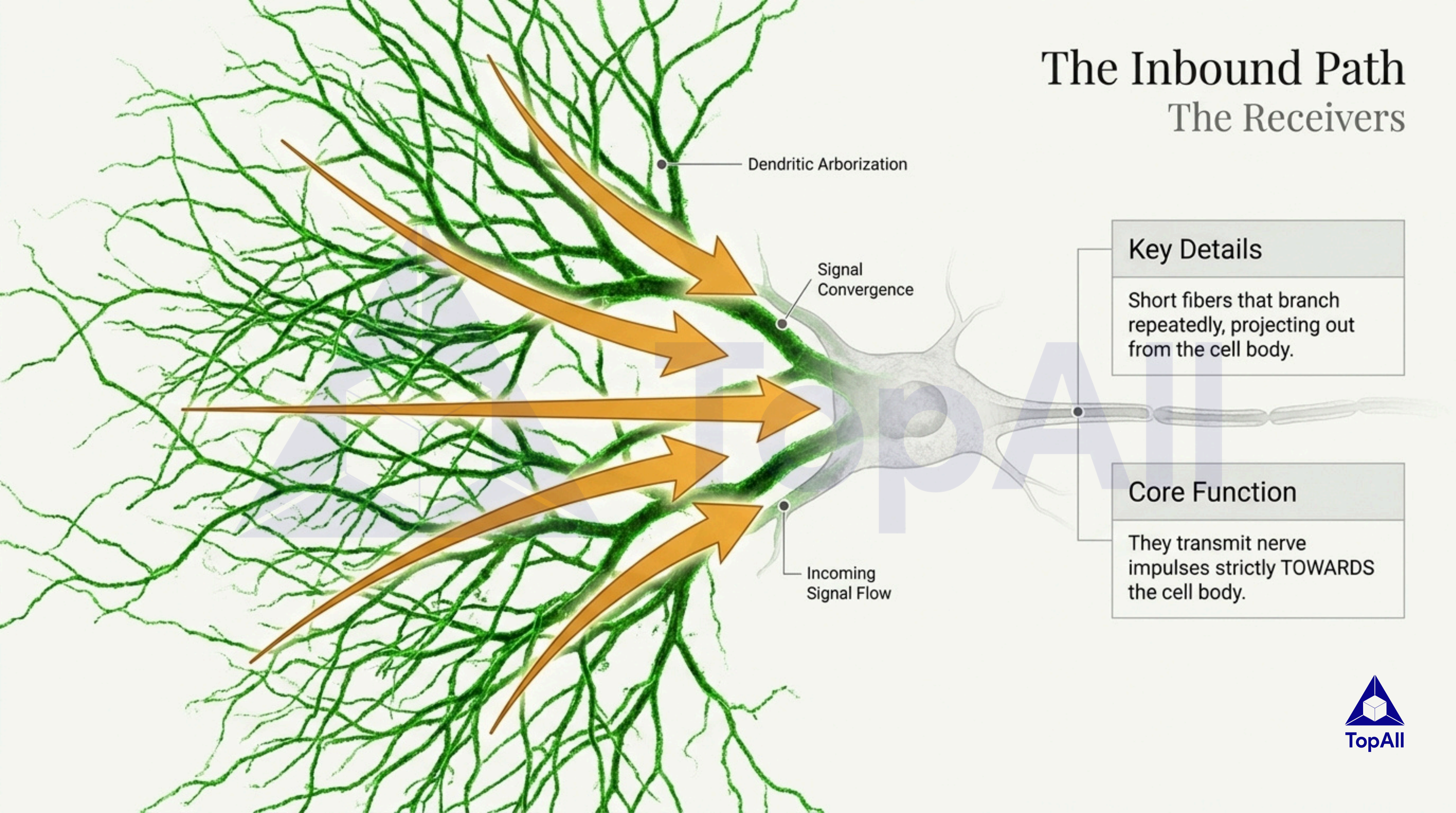
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The Inbound Path

The Receivers



Key Details

Short fibers that branch repeatedly, projecting out from the cell body.

Core Function

They transmit nerve impulses strictly **TOWARDS** the cell body.

The Outbound Path

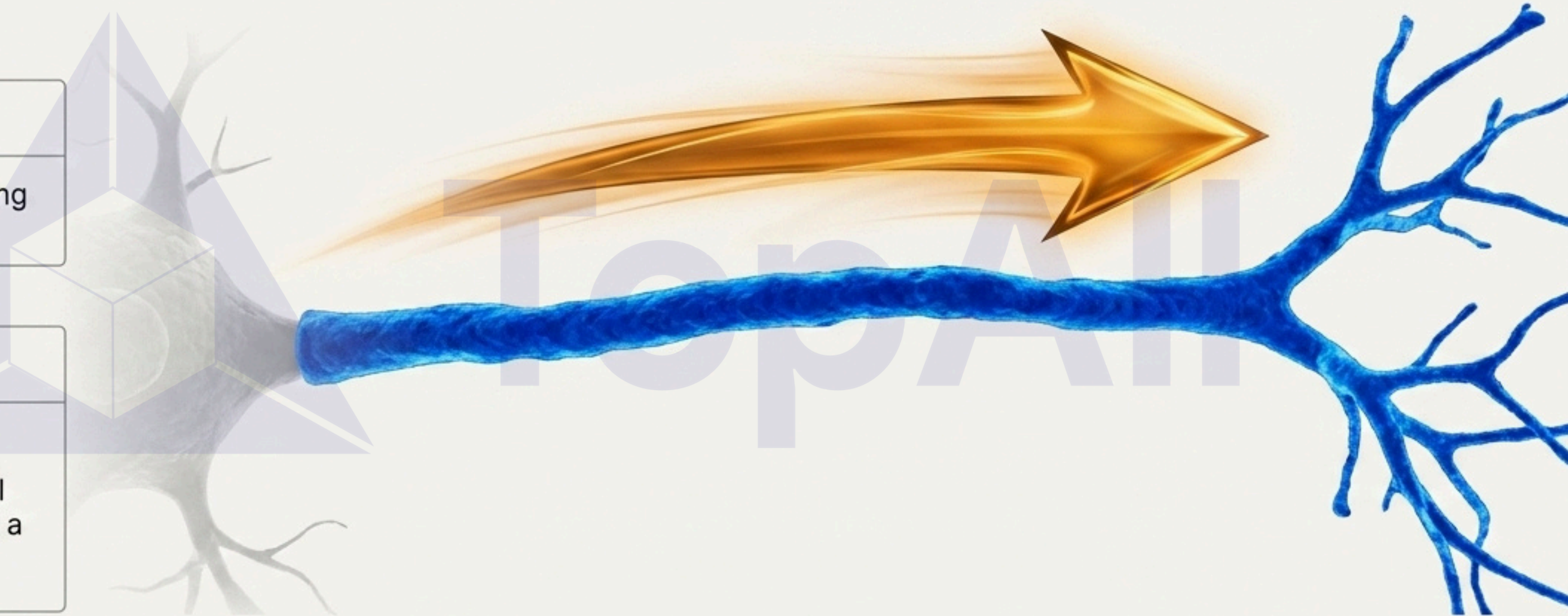
The Transmitter

Key Details

A single, long fiber featuring a branched distal end.

Core Function

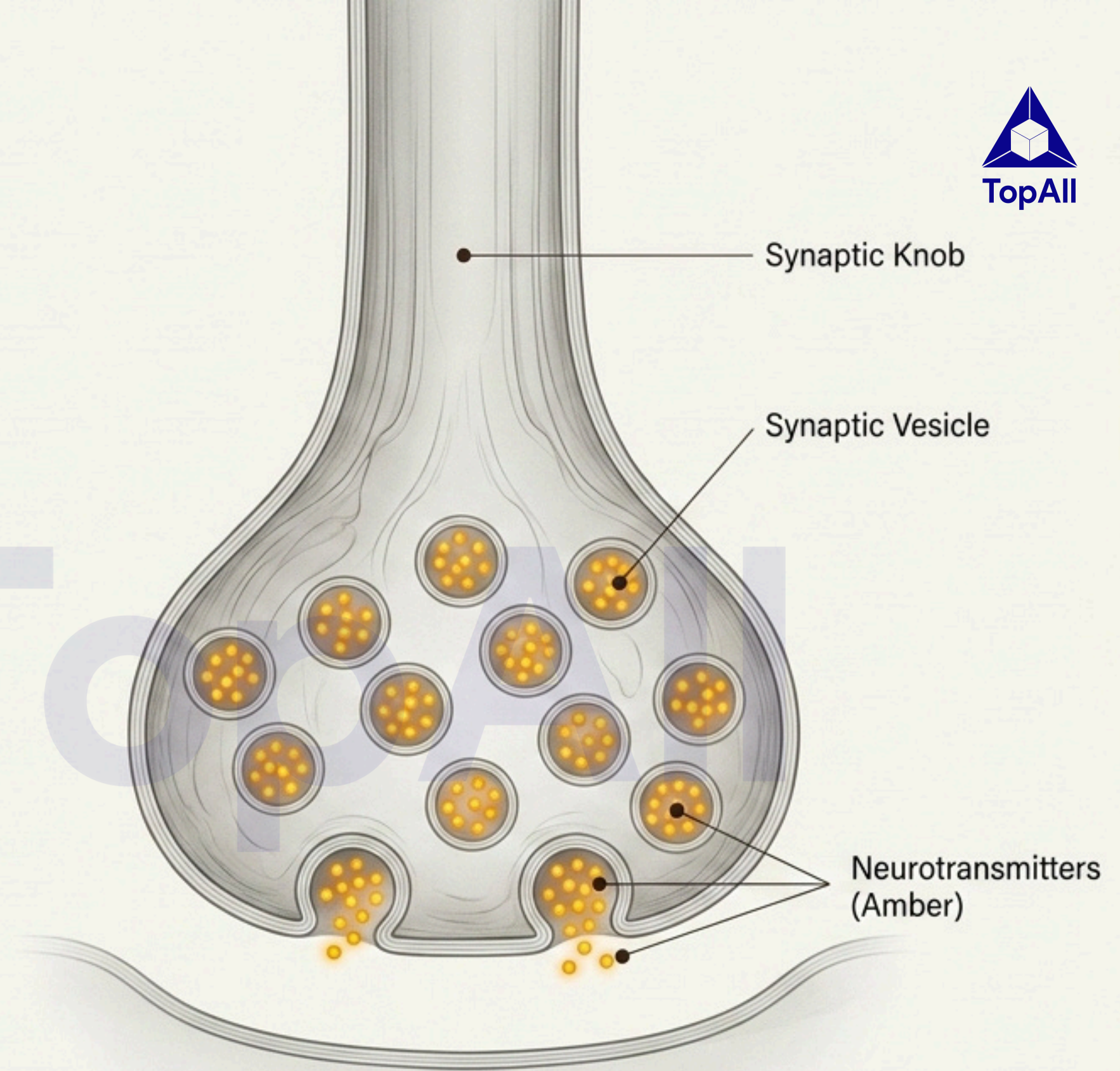
Transmits nerve impulses strictly **AWAY** from the cell body toward a synapse or a neuro-muscular junction.



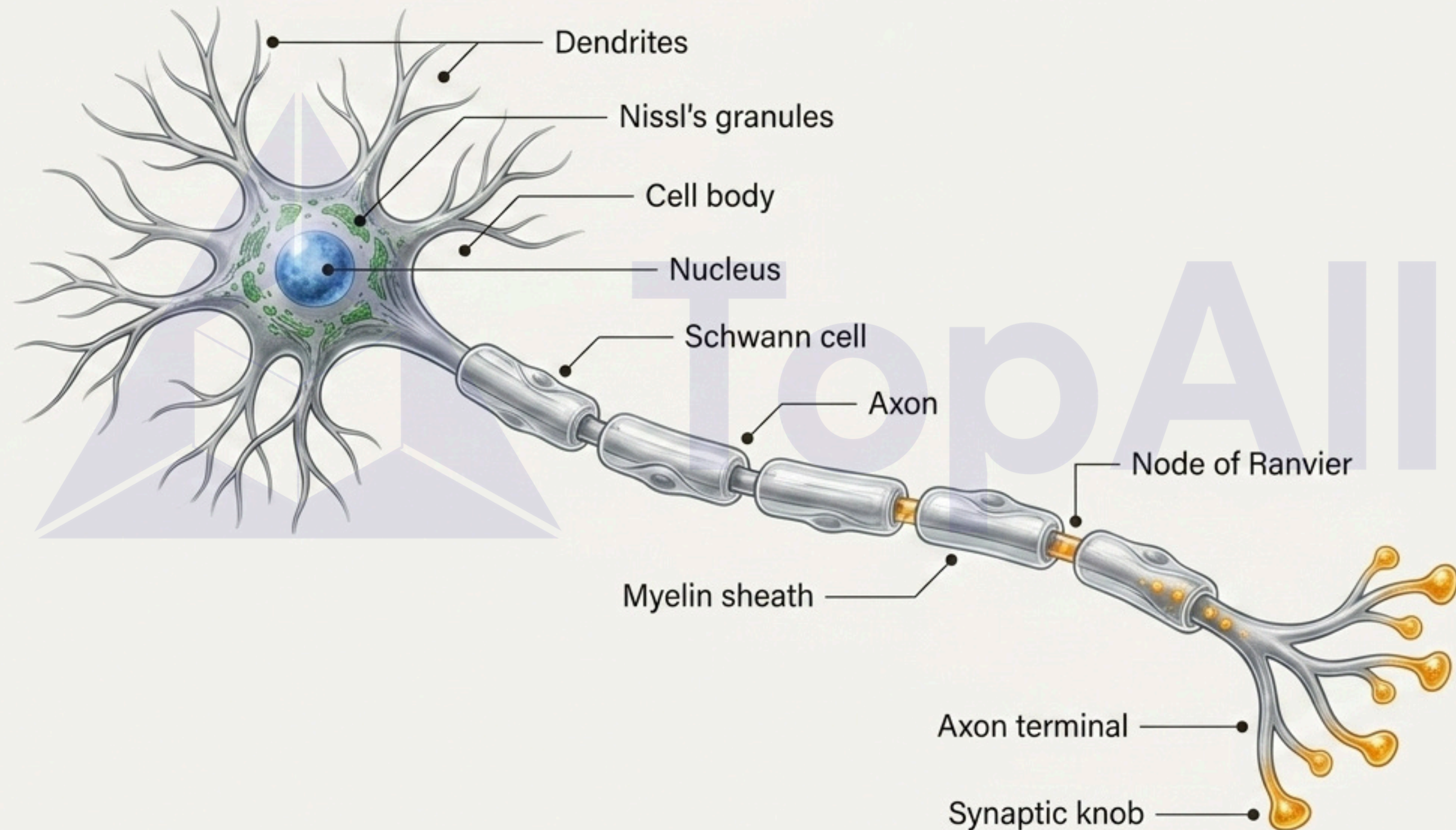
The Chemical Hand-off

1. The axon terminates in bulb-like structures known as synaptic knobs.

2. These knobs possess synaptic vesicles filled with chemicals called neurotransmitters, ready to bridge the gap.



The Multipolar Neuron Schematic



The Biological Circuit

	Input (Dendrites)	Output (Axons)
Form	Short, repeatedly branched	Long, single fiber with branched end
Machinery	Contain Nissl's granules	Contain Synaptic vesicles
Signal Direction	Toward the cell body	Away from the cell body



The neuron functions as a strict one-way biological circuit, receiving chemical signals, processing them mechanically, and transmitting them electrically to the next junction.



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