



Neuronal Classification Systems

Psychology 372

Physiological Psychology

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Neuron Classification Systems

1. Number of Processes
2. Function
3. Speed
4. Nucleus to Cytoplasmic Ratio

Minor Systems

- Type of NT secreted by Neuron
- Effects of NT (excitatory vs. inhibitory)

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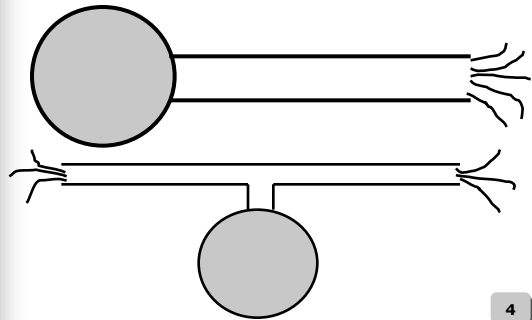
Number of Processes

- Unipolar: one stalk that splits into two branches
- Bipolar: one axon, one dendritic tree
- Multipolar: one axon, many dendritic branches

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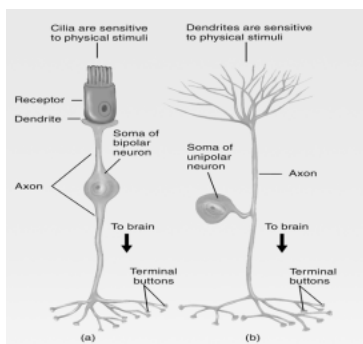
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Unipolar



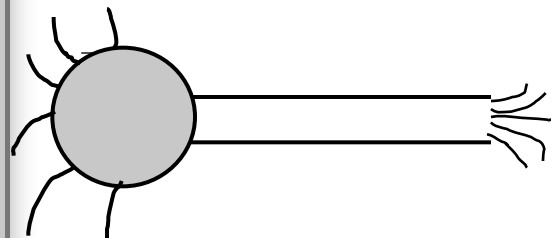
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Bipolar - Unipolar Neurons



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Multipolar



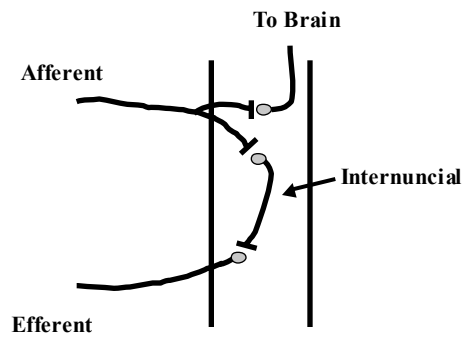
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Function

- **Afferent (Sensory)**
 - Gets information from receptors and sends to CNS
- **Internuncial (Interneurons)**
 - Connects Afferent neurons to Efferent Neurons
 - Located in Spinal Cord
- **Efferent (Motor)**
 - Gets information from CNS and sends to muscle cells

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Function



Conduction Speed - Glasser

- **Type A Fastest 120 m/sec = 270mph**
 - Size - 1-20 microns across Axon Hillock
 - Heavily Myelinated
 - Fairly large in humans
 - Concerned with Pain
- **Type B Mod. Fast 3-15 m/sec**
 - Size - < 3 Microns across Axon Hillock
 - Myelinated
- **Type C Slow .6 – 2 m/sec**
 - Size - .3-1.3 microns across Axon Hillock
 - Non Myelinated
 - Concerned with dull or throbbing pain
 - Pain that lasts a long time

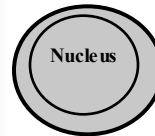
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Nucleus to Cytoplasmic Ratio

Ratio of nucleus size to surrounding cytoplasm

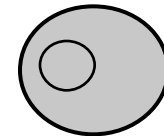
Stellate Cells

Lg. Nucleus
Little cytoplasm



Pyramidal Cells

Little nucleus
Lg. cytoplasm



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Minor Schemes

- **Type of NT secreted by Neuron**
 - Dopamine
 - GABA
- **Effects of Neurotransmitters**
 - Excitatory (EPSP)
 - Inhibitory (IPSP)

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