

# Bio 112 Handout for Physiology 1

This handout contains:

- Today's iClicker Questions
- Handouts for today's lecture

## iClicker Question #21A - before lecture

Which of the following are true?

- (A) All animals have a nervous system.
- (B) All animals have a brain.
- (C) Nerve transmission works the same in all animals that have nerves.
- (D) More than one of the above.
- (E) None of the above.

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## iClicker Question #21B - after lecture

Which of the following correctly describes the direction of information flow in a neuron?

- (A) cell body  $\Rightarrow$  dendrite  $\Rightarrow$  axon  $\Rightarrow$  terminus
- (B) cell body  $\Rightarrow$  axon  $\Rightarrow$  dendrite  $\Rightarrow$  terminus
- (C) dendrite  $\Rightarrow$  cell body  $\Rightarrow$  axon  $\Rightarrow$  terminus
- (D) terminus  $\Rightarrow$  cell body  $\Rightarrow$  axon  $\Rightarrow$  dendrite
- (E) none of the above

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### **Beaming in your answers**

1. Figure out your answer and select the appropriate letter (A-E).
2. Turn on your iClicker by pressing the "ON/OFF" button; the blue "POWER" light should come on. If the red "LOW BATTERY" light comes on, you should replace your batteries soon.
3. Transmit your answer as follows:
  - a. Press the button corresponding to the answer you've selected (A thru E).
  - b. The "STATUS" light will flash green to indicate that your answer has been received. If the "STATUS" light flashed red, your answer was not received; you should re-send it until you get a green "STATUS" light.

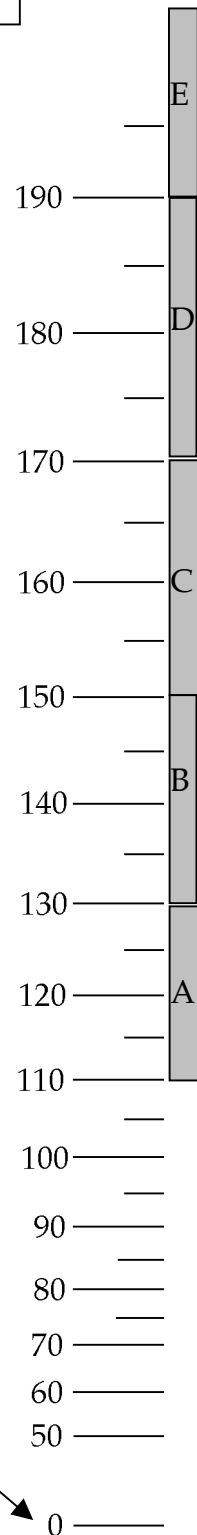
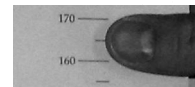
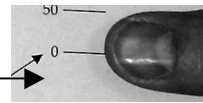
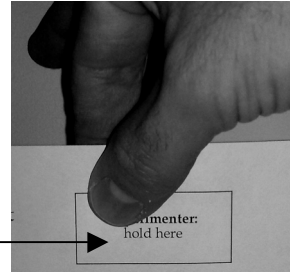
# Reaction Time Measurement

**Experimenter:**  
hold here

## How to measure the Subject's Reaction Time:

You will measure the time it takes the **Subject** to catch the paper after it has been dropped by the **Experimenter**.

- 1) **Experimenter** holds the paper by the spot indicated. Let the paper hang down freely.
- 2) **Subject** holds her finger and thumb right near the "0" as close to the paper as she can *without touching it*. Line up the middle of your thumb nail with the "0":
- 3) *Without telling the Subject*, the **Experimenter** drops the paper.
- 4) As soon as the **Subject** sees the paper start to drop, she closes her finger and thumb to catch the paper as it falls.
- 5) The longer it takes for the **Subject** to catch the paper, the farther it falls\*.
- 6) You can then read the **Subject's** reaction time by looking at the position of their thumb on the scale to the right. The example shown indicates a reaction time of about 165 ms (in between the 160 and 170 marks).

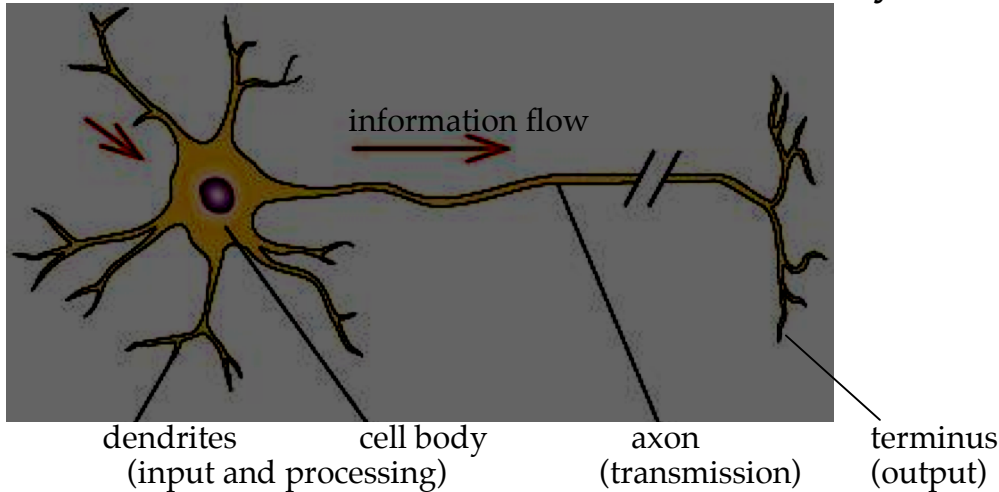


### Subject:

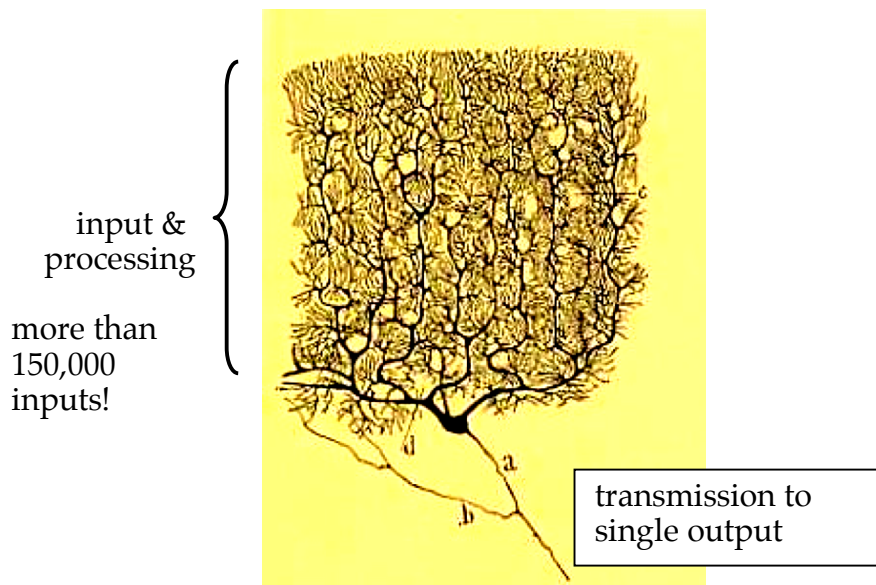
- Start here (finger and thumb close to, *but not touching*, the paper).
- Line up the middle of your thumb nail with the "0" line.
- Catch it when the experimenter drops it.

\* Acceleration due to gravity is 32 feet per second per second. Therefore, the distance fallen (in inches) =  $192 \times (\text{time in seconds})^2$ .

# Neurons: the active cells in the nervous system

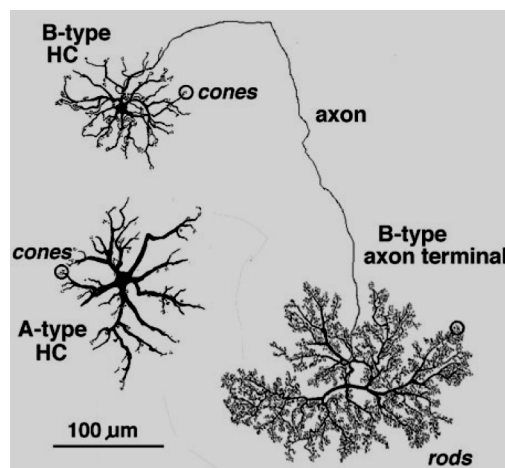


Purkinje cell (from cerebellum: feedback for motor tasks)



Horizontal Cells (from retina)

many inputs and outputs



# INVERTEBRATE NERVOUS SYSTEMS

