

Action Potentials Extended

Part 1: Neurons Communicate

Neurons rapidly transmit information over long distances in a series of electrical pulses called action potentials.

- Sensing Pain
- What is Pain?
- Neuron Anatomy
- Charge and Membrane Potential
- Membrane Potential Changes Over Time
- Stimulus Threshold
- Muscle Contraction
- Lidocaine
- Summary of Part 1

Part 2: Neurons and Electricity

Membrane voltage changes in response to ions that move through special pores in the cell membrane called ion channels.

- Neurons Work Because Ions Move
- Charge and Voltage
- The Equilibrium Potential
- Conductance
- Ion Pumps
- The Brain and Electronics
- Summary of Part 2

Part 3: Voltage-Gated Ion Channels

The action potential is generated by the movement of sodium and potassium ions across the cell membrane through special voltage-gated ion channels.

- How Do Neurons Generate Action Potentials?
- Transduction of Stimuli
- Voltage-Gated Channels
- Phases of the Action Potential Puzzle
- Threshold and Sensitivity
- Myelination
- Multiple Sclerosis
- The Neural Detective
- Summary of Part 3

Part 4: Action Potentials Challenge

An experimental section for further exploration of action potentials.

- Explore More
- Conductance, Concentration, and Current
- The Refractory Period
- The Hodgkin-Huxley Model

Part 5: Quiz Questions

Quiz Questions

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