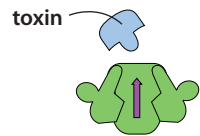
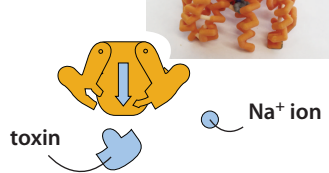


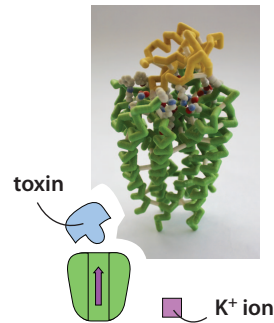
Sodium channel

- Transports sodium ions into the cell, depolarizing the membrane, initiating an action potential
- **Tetrodotoxin** (from pufferfish) blocks the transport of sodium ions, and thus inhibiting an action potential



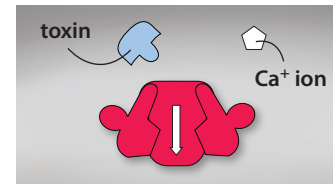
Potassium Channel

- Transports potassium ions out of the cell, repolarizing the membrane
- **Scorpion toxins** and **tarantula toxins** block the transport of potassium ions, thus inhibiting action potential
- Some potassium channels are not gated (leaky), but are open, allowing potassium ions to flow in the direction of the concentration gradient



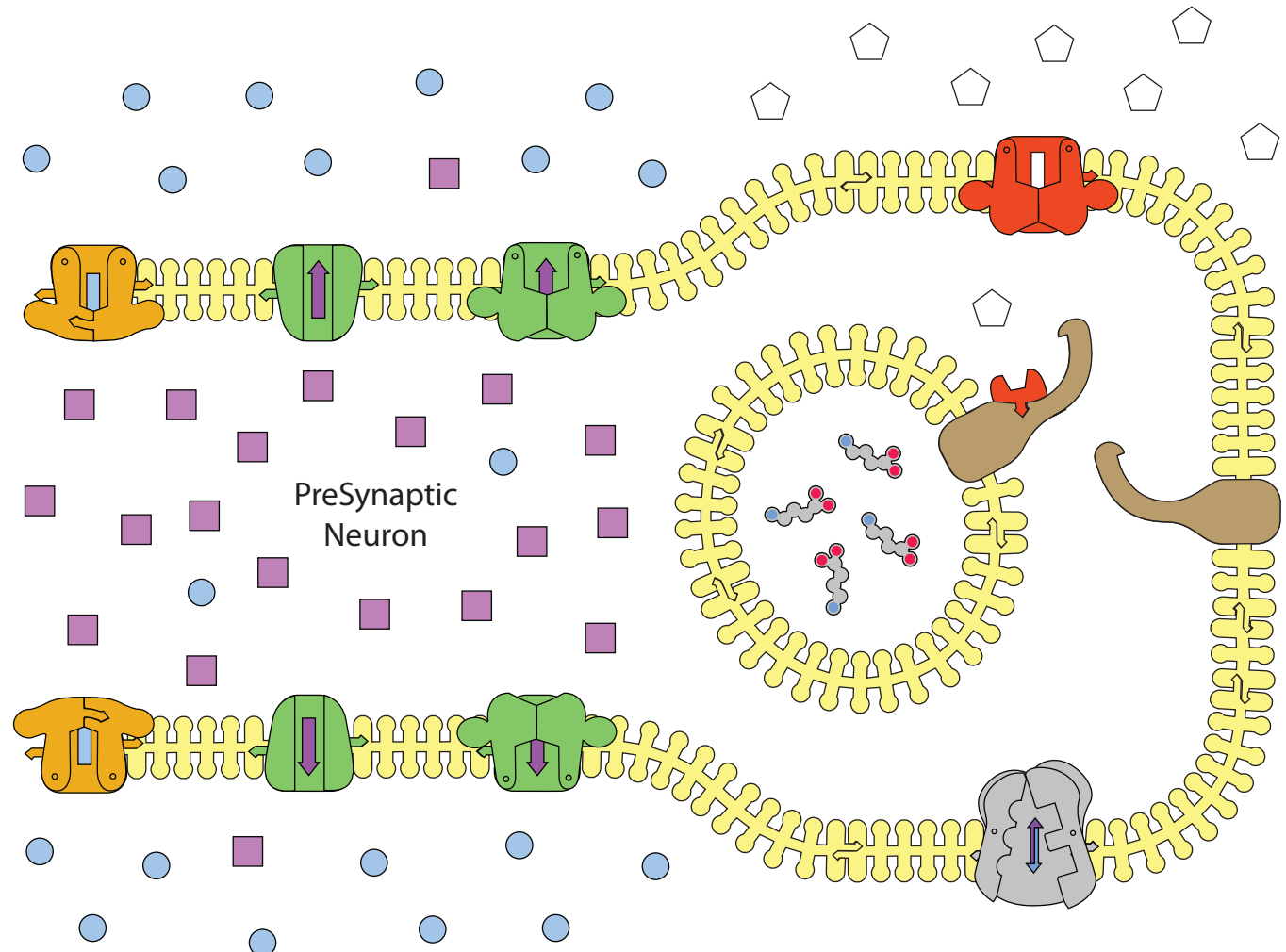
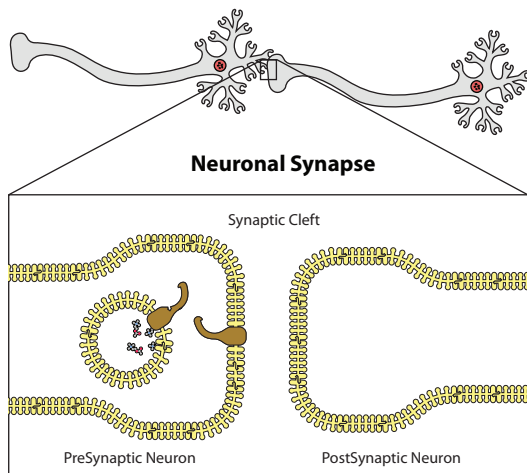
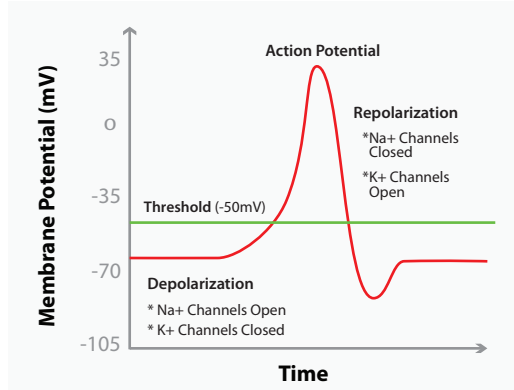
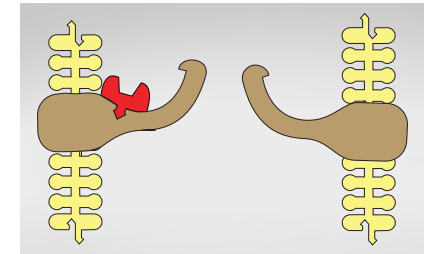
Calcium Channel

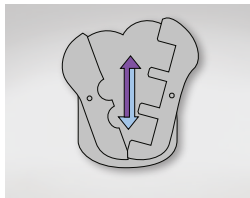
- Voltage-gated calcium channels are activated when an action potential, moves calcium ions into the cell
- Calcium is necessary for vesicular fusion required for neurotransmitter release
- Inhibited by the **cone snail toxin**



SNAP/SNARE proteins

- Present in the vesicle and neuronal membranes
- The influx of calcium ions triggers conformational changes enabling vesicle fusion with neuron membrane, releasing neurotransmitters into synapse



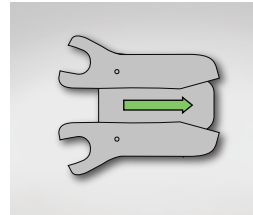


Sodium/Potassium ATP Pump

- Active transport of sodium and potassium to re-establish gradient
- 3 sodium ions are pumped out of the cell in exchange for 2 potassium ions

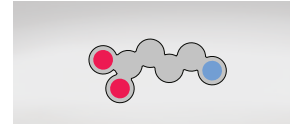
GABA Receptor

- A chloride ion channel located on the post synaptic neuron
- GABA binds to the receptor, causing a conformational change opening the chloride ion channel
- Chloride ions enter the cell, making the cell more negative, which inhibits the transmission of an action potential



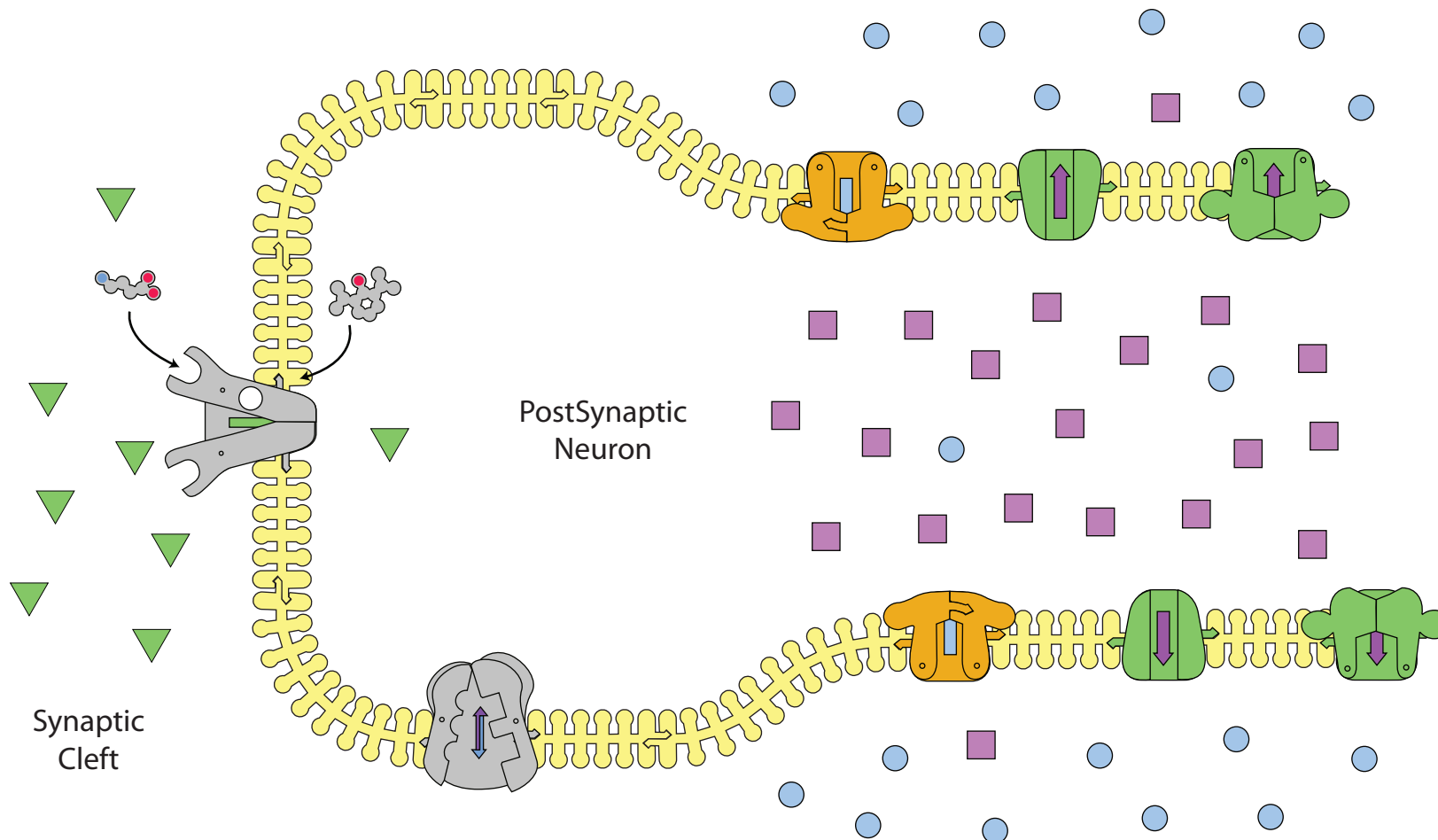
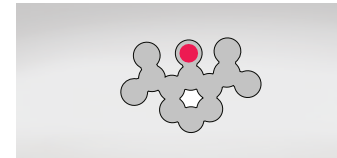
GABA

- Neurotransmitter, a chemical messenger
- Binds to the GABA receptor on the post-synaptic neuron
- Recycled through the GABA transporter



Propofol

- Drug that binds to the GABA receptor, opening the chloride ion channel, making the cell more negative



GABAergic Synapse

GABAergic Synapse

