





What effect would each of these drugs have on the firing rate of the postsynaptic neuron?
Explain your answer. Annotate the diagrams if it helps you to work it out.

 <p>The diagram shows a presynaptic terminal (orange) containing green neurotransmitter vesicles. A blue reuptake transporter is located on the presynaptic membrane. Small blue dots representing Drug A are bound to this transporter, preventing it from taking up neurotransmitters. White dots representing neurotransmitters are shown in the synaptic cleft, where they are bound to blue postsynaptic receptors on the postsynaptic neuron (yellow). This configuration represents an inhibitory synapse where the drug increases the duration of neurotransmitter action in the cleft.</p>	<p>This is an inhibitory synapse. Drug A blocks the reuptake mechanism for the neurotransmitter released by the presynaptic neuron.</p>
 <p>The diagram shows a presynaptic terminal (orange) containing green neurotransmitter vesicles. White dots representing neurotransmitters are in the synaptic cleft, bound to blue postsynaptic receptors on the postsynaptic neuron (yellow). Small blue dots representing Drug B are bound to these receptors, preventing the neurotransmitters from binding and stimulating them. This configuration represents an excitatory synapse where the drug blocks the postsynaptic response.</p>	<p>This is an excitatory synapse. Drug B binds to the postsynaptic receptors for the neurotransmitter released by the presynaptic neuron but does not stimulate them.</p>
 <p>The diagram shows a presynaptic terminal (orange) containing green neurotransmitter vesicles. White dots representing neurotransmitters are in the synaptic cleft, bound to blue postsynaptic receptors on the postsynaptic neuron (yellow). Small blue dots representing Drug C are bound to these receptors, stimulating them. This configuration represents an inhibitory synapse where the drug mimics the neurotransmitter's effect, leading to an inhibitory postsynaptic potential.</p>	<p>This is an inhibitory synapse. Drug C binds to the postsynaptic receptors for the neurotransmitter released by the presynaptic neuron and stimulates them.</p>
 <p>The diagram shows a presynaptic terminal (orange) containing green neurotransmitter vesicles. A blue reuptake transporter is located on the presynaptic membrane. Small blue dots representing Drug D are bound to this transporter, preventing it from taking up neurotransmitters. White dots representing neurotransmitters are shown in the synaptic cleft, where they are bound to blue postsynaptic receptors on the postsynaptic neuron (yellow). This configuration represents an excitatory synapse where the drug increases the duration of neurotransmitter action in the cleft.</p>	<p>This is an excitatory synapse. Drug D blocks the reuptake mechanism for the neurotransmitter released by the presynaptic neuron.</p>