



Name _____ Class _____ Date _____

Pain Messages

Opioids act on both the spinal cord and brain. At the level of the **spinal cord**, opiates interfere with the *transmission* of the pain messages between neurons and prevent them from reaching the brain. This **blockade of pain messages** is known as **analgesia**.

Opioids act in regions of the brain by attaching to molecules called **receptors** that *receive pain signals* from the body. Two important effects produced by opiates are **pleasure** (or reward) and **pain relief**.



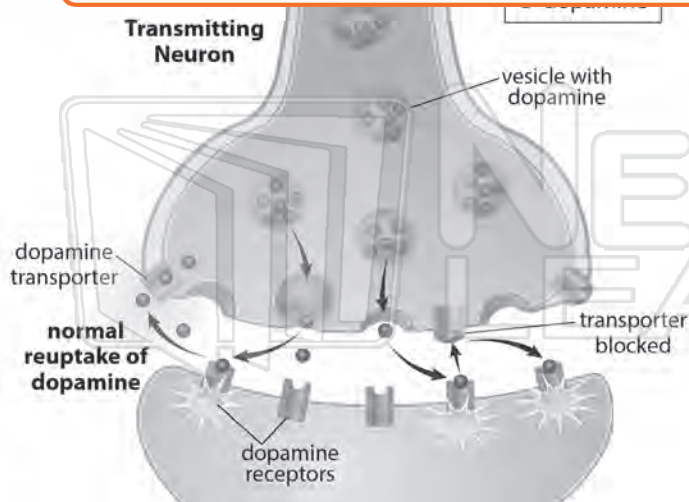
Opioid Receptors in the Brain

All drugs that are addicting can activate the brain's **pleasure circuit**. Within



PREVIEW

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Dopamine (a **neurotransmitter**) is the chemical responsible for making us feel good and motivates our actions. When opioids attach to receptors on neurons, they cause a large amount of dopamine to be released in the pleasure centers of the brain. They also hinder the normal **reuptake** of the dopamine.

Prolonged exposure to large amounts of dopamine can alter the way the pleasure center, as well as other parts of the brain, function.



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How do opioids interfere with pain messages? _____

Opioid Receptors

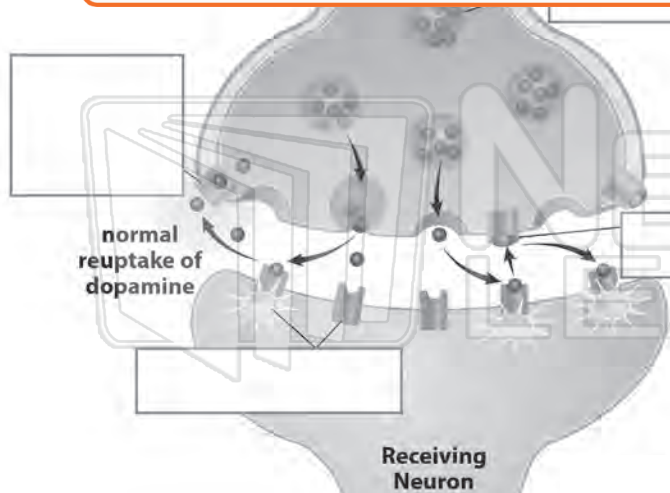
Describe opioid receptors in the brain.

cerebral cortex



PREVIEW

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normal reuptake of dopamine

Receiving Neuron