

Endogenous Opioids: Nature's Pain Relievers

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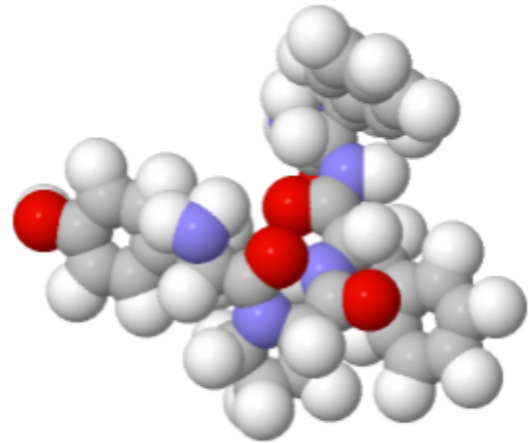
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Endogenous opioids can be categorized into four different types: endorphins, enkephalins, endomorphins, and dynorphins, all of which are released naturally within the body during exercise, eating, social interaction, and other stimulating activities. The four different types all serve similar functions of reducing stress, decreasing respiration, slowing down the gastrointestinal tract, enhancing mood, and producing analgesic effects within the body. These effects are triggered when the opioids bind to one of the three different types of g-protein coupled receptors: mu (μ), kappa (κ), and delta (δ).

Endogenous opioids are the basis for many psychological processes and actively form a set of preferences for activities. These preferences are reinforced by repetition of such activities that strengthens the neurological pathway in the brain and encourages further repetition, a behavior that is more actively identified as addiction.

Endomorphins assist in basic psychological effects like the perception of pain and stress and more complex functions such as feelings of euphoria and vigilance. Endomorphins also function to maintain autonomic, cognitive, neuroendocrine, and limbic homeostasis which is the healthy balance of chemicals needed in order to maintain a normal pattern of emotional, mental, and physical actions. All endogenous opioids are naturally regulated and are not as powerful in their effect as synthetic opioids can be which stops the body from overdosing on natural opioids. In addition when endogenous opioids releases messaging chemicals, called ligands, the brain and central nervous system the body absorbs ligands activating receptors in the nervous system, stopping the continual activation of receptors. For example when dopamine is naturally released by endogenous opioids receptors are activated for a period of time until the dopamine is taken out of the system. Exogenous opioids would prohibit the removal of dopamine until the opioid itself was removed.

Enkephalin which are closely to beta-endorphins are responsible largely for the anesthetic effect on the body when suffering trauma. The dulling of this pain is caused when these endogenous opioids are quickly and successfully released throughout the central nervous system, causing the sensation that would normally be felt to be numbed by activating the opioid receptors. This is closely linked to the fight or flight response when sensing the presence of danger as it roots back to a natural inclination towards self preservation.



Endomorphin-2



Leu-enkephalin

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