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Mutated Opioid Receptors Block Chronic Pain Signals

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Agriculture & Veterinary/Veterinary Medicine

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Chronic Pain Relief Using a Mutant Opioid Receptor

Narcotic analgesics such as morphine for chronic pain treatment have been used widely. However, the prolonged used of morphine for such purposes could lead to many unwarranted side effects, two of which are tolerance and addiction to the drug. Instead of developing stronger narcotic analgesic agents, a complex mutant opioid receptor, the target of morphine action, has been characterized and utilized to accomplish chronic pain relief.

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Naltrexone and Naloxone to Activate Mutated Opioid Receptor

Experimental data in-vivo shows that the mutation can render classical antagonists to full agonist, such as naloxone and naltrexone which are traditionally used to manage opioid dependence. Using compounds like this to elicit a response rather than block receptors allows receptor mutations to be effective in the treatment of chronic pain. When the mutated receptor is expressed in certain segments of the spinal cord, pain transmission will be blocked with systemic administration of naloxone or naltrexone. This method localizes the pain treatment and reduces the possibility of dependence. This is because activation will take place only on the mutated receptors that are locally distributed. Endogenous receptors will not be affected by this treatment, and therefore, traditional paths to opioid dependence are avoided.

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