Opioid pain killer without risk of addiction? It may be possible

The ultimate goal of pain medicine—a powerful painkiller with few to no side effects, such as dependence or overdose—is still elusive. But a team of researchers from the Wake Forest School of Medicine in North Carolina believe they've come closer to reaching it. Their latest study, published [August 29] in Science Translational Medicine, details an experimental opioid that seems capable of stopping pain in non-human primates, but without any signs of addiction.

The experimental drug, labeled AT121, affects the body differently than traditional opioids such as morphine.

These opioids relieve pain largely by activating a specific type of opioid receptor, known as the mu receptor. But we actually have three other types of opioid receptors, respectively called delta, kappa, and the more recently discovered nociception opioid peptide receptor (NOP).

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NOP, in fact, has been shown to short-circuit our dependence on drugs such as heroin and alcohol.

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In mild pain tests with rhesus monkeys, AT-121 was found to be 100 times as potent as morphine. And when the researchers let monkeys self-dose themselves with various opioids, including AT-121, they didn't take the experimental drug any more than a placebo saline solution, suggesting that it wasn't creating a high. Another test found that, even in high doses, AT-121 couldn't cause classic overdose symptoms.

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