

Kappa opioid receptor influences naltrexone's effects on drinking alcohol

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Researchers at Yale University have identified how naltrexone, a medication used to treat alcohol use disorder, reduces craving and consumption in heavy drinkers. The findings appear in *Biological Psychiatry* published by Elsevier. Although naltrexone is an approved treatment for alcohol use disorder, it only works in some people, which has led doctors to stop prescribing the drug. The new findings provide a better understanding of how naltrexone works in the brain, which could help identify people who would benefit from the treatment.

Although naltrexone binds to multiple molecules in the brain, first author Bart de Laat, Ph.D., and his senior colleagues Evan D. Morris, Ph.D., and Suchitra Krishnan-Sarin, Ph.D., in the Department of Radiology and Biomedical Imaging, and the Department of Psychiatry, focused on one of its targets, the kappa opioid receptor, to see if the molecule influences alcohol drinking and how much people want to drink alcohol.

Heavy drinkers with more [kappa opioid receptors](#) in the brain experienced a greater urge to drink

alcohol. They also responded less to naltrexone treatment, meaning they continued to drink the same amount after receiving naltrexone.

"Kappa opioid receptor activation has been implicated in the 'dark side of addiction', in this case the motivation to drink even when alcohol is no longer rewarding. This innovative study makes the case that some therapeutic effects of naltrexone may be mediated by its effects on this target," said John Krystal, MD, Editor of *Biological Psychiatry*.

The researchers performed the study in non-treatment-seeking [heavy drinkers](#) who were allowed to self-administer [alcoholic drinks](#) before and after a week of naltrexone treatment. The findings are the first to reveal the role of the kappa opioid receptor in naltrexone's effect on craving and drinking in people with alcohol dependence.

"These results are an important step forward in our understanding of alcohol-related behaviors and how naltrexone functions. They highlight the importance of the kappa opioid receptor in [alcohol](#) use disorders and its treatment," said Dr. De Laat.

Other biological variables likely affect how well naltrexone works in different people, and more research is needed to discover who will or will not benefit from [naltrexone](#) treatment, Dr. De Laat added. But the new findings help advance understanding of the neurobiology of drinking problems and how to better treat them.

More information: Bart de Laat et al, The Kappa Opioid Receptor Is Associated With Naltrexone-Induced Reduction of Drinking and Craving, *Biological Psychiatry* (2019). [DOI: 10.1016/j.biopsych.2019.05.021](#)

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