

Some opiates help mitigate fear, anxiety, manage pain

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Pharmacologists are working to help mitigate the detrimental side effects of opiates, including addiction, respiratory depression, constipation and alcohol use. Many pharmacologists are doing this by

developing drugs that target the G-protein pathway, rather than the β -arrestin pathway, which historically has been associated only with adverse effects of opioids.

However, new research by Purdue pharmacists, including Richard van Rijn, associate professor of medicinal chemistry and molecular pharmacology, has determined that the β -arrestin pathway may help mitigate fear and anxiety in patients with chronic pain, leading to better pain management and patient outcomes. The scientists' results indicate that the current strategy pharmaceutical companies are taking to make opioids safer may make them less effective for chronic pain.

"By ignoring the β -arrestin pathway, you may be missing out on some important therapeutic benefits, especially with anxiety," van Rijn said. "We are the first people to show that the new direction the field is heading—away from the β -arrestin pathway—is shortsighted. We need to further fine-tune the opioid molecules to maintain all the therapeutic benefits while weeding out the detrimental side effects."

This study points out the pitfalls of focusing solely on the G-protein pathway and emphasizes the importance of the β -arrestin pathway for effective treatment of chronic pain.

More information: Mee Jung Ko et al, β -Arrestin–dependent ERK signaling reduces anxiety-like and conditioned fear–related behaviors in mice, *Science Signaling* (2021). [DOI: 10.1126/scisignal.aba0245](https://doi.org/10.1126/scisignal.aba0245)

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