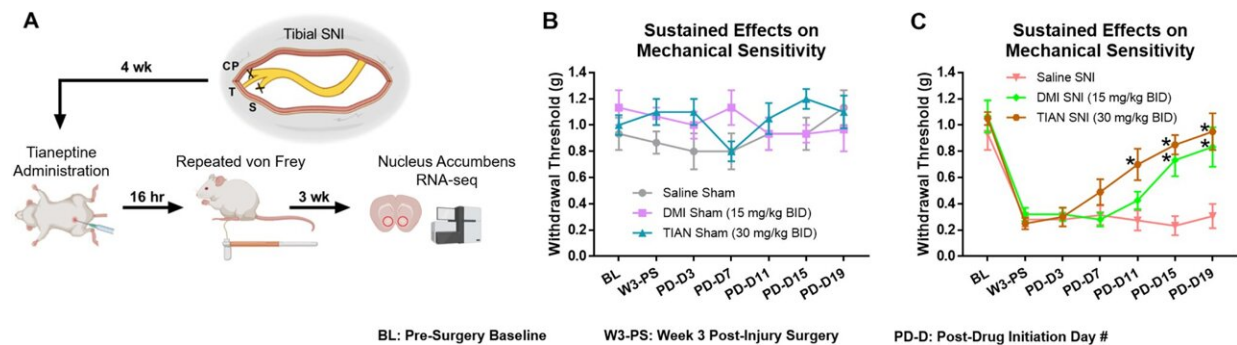


Researchers use the antidepressant tianeptine to manage chronic pain

July 24 2023



TIAN induces antiallodynic effects more rapidly than DMI. Credit: *Neuropsychopharmacology* (2023). DOI: 10.1038/s41386-023-01645-w

Neuropathic pain is a debilitating condition estimated to affect as much as 10% of the global population. It results from a damaged or malfunctioning nervous system, stemming from diseases like diabetes, alcoholism, strokes, Parkinson's and other causes like spinal nerve compression, radiation and chemotherapy treatments.

Management of neuropathic pain has been particularly challenging as currently prescribed drugs, such as anticonvulsants and antidepressants can have severe adverse effects, are not well-tolerated, take a longer time to work only help a subset of patients. Opioids come with the risk of physical dependence and addiction.

Researchers from Boston University Chobanian & Avedisian School of Medicine in collaboration with the Icahn School of Medicine, Columbia University and the New York State Psychiatric Institute used [experimental models](#) to explore the cellular actions of tianeptine and provide insight for the development of more effective and safer treatments of [neuropathic pain](#) conditions.

In a study published today in the journal *Neuropsychopharmacology* the investigators report that the atypical antidepressant tianeptine potentially provides rapid and lasting [pain relief](#) with a low risk of addiction.

"We hope this revives the potential of using tianeptine for the treatment of chronic pain and associated conditions, such as anxiety and depression," said Venetia Zachariou, Ph.D., corresponding author of the study and professor and Edward Avedisian Chair of Pharmacology, Physiology & Biophysics at Boston University Chobanian & Avedisian School of Medicine. "By further refining this molecule, we could arrive at a pain treatment that is more effective, fast acting, and has a mild side effect profile."

Researchers used experimental models to investigate the persistent mechanical allodynia that is associated with damaged sciatic nerve, comparing the therapeutic profiles of tianeptine to that of the antidepressant desipramine.

To better understand the mechanisms underlying the drug's effects, the investigators used RNA sequencing, to monitor [gene expression changes](#) in the [nucleus accumbens](#), a brain region involved in motivation, addiction, and pain perception to identify pain-related genes that tianeptine treatment counteracts.

The results showed that tianeptine had profound pain-relieving properties that lasted well after the drug was no longer present, which

suggested it was the drug affected the expression of genes that were critical for the maintenance of pain symptoms. The researchers also found that tianeptine started working more quickly than other antidepressants.

Tianeptine is prescribed in some European, Asian and Latin American countries in low doses to treat depression, and in [higher doses](#) for asthma, anxiety and other conditions. Since tianeptine actions require endogenous opioid receptors; U.S. regulators have not approved it for use here.

"Several studies have shown that the abuse potential of tianeptine is substantially lower than other currently abused opioids such as oxycodone. Furthermore, also based on prior studies, tianeptine does not appear to cause tolerance, so the dose does not need to be increased drastically over time as we see with opioids, which contributes to physical dependence and addiction," said Zachariou and Alex Serafini, Ph.D., a postdoc in BU's pharmacology, physiology & biophysics department and first author of the paper.

"The data from this study contributes to a much larger set of data supporting the use of this drug for conditions such as chronic [pain](#)."

More information: Randal A. Serafini et al, Tianeptine promotes lasting antiallodynic effects in a mouse model of neuropathic pain, *Neuropsychopharmacology* (2023). [DOI: 10.1038/s41386-023-01645-w](https://doi.org/10.1038/s41386-023-01645-w)

Provided by Boston University School of Medicine

Citation: Researchers use the antidepressant tianeptine to manage chronic pain (2023, July 24) retrieved 3 May 2024 from

<https://medicalxpress.com/news/2023-07-antidepressant-tianeptine-chronic-pain.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.