

# In laboratory, scientist turns off chemo pain

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In a recent paper published in the journal *Pain*, Saint Louis University researchers describe their success in an animal model in turning off the excruciating pain that often accompanies a colorectal cancer drug.

Daniela Salvemini, Ph.D., professor of pharmacology and physiology at SLU, studies [pain](#) pathways, the series of interactions between molecular-

level components that lead to pain in the body.

One type of pain she examines is [chemotherapy](#) induced [neuropathic pain](#) (CINP), a debilitating side effect of chemotherapy that can appear as tingling or numbness in the hands and feet, shooting or burning pain in the limbs, or can feel like hot or cold temperature extremes. In addition to causing patients suffering, CINP is often a limiting factor when it comes to [treatment](#).

"Thanks to the increased efficacy of [cancer](#) treatment, there are nearly 14 million cancer survivors in the United States," Salvemini said. "Many of these survivors suffer from long-term side effects of CINP, for which there are no proven strategies for prevention or treatment.

"This is a huge unmet medical need."

In her current paper, Salvemini studied the platinum-based chemotherapy drug oxaliplatin which is widely used to treat colorectal cancer. Over 60 percent of patients who received oxaliplatin develop CINP, and it can last for years after treatment.

The research team found that the pain pathway associated with this [drug](#) was driven by increased expression of an enzyme, adenosine kinase, in astrocytes (a type of central nervous system cell) and decreased adenosine signaling at a key receptor, A3AR. By supplementing this signaling with A3AR agonists, the researchers were able to block the development of CINP without interfering with the anticancer properties of platinum based drugs.

These findings advance researchers' understanding of pain pathways and provide new information about how drugs may be able to treat chemotherapy pain. Perhaps most encouraging, existing A3AR agonists currently are being studied in advanced clinical trials as novel anticancer

agents. This paper makes a strong case for evaluating those drugs for use together with oxaliplatin to limit CINP while treating cancer.

**More information:** Carrie Wahlman et al, Chemotherapy-induced pain is promoted by enhanced spinal adenosine kinase levels through astrocyte-dependent mechanisms, *PAIN* (2018). [DOI: 10.1097/j.pain.0000000000001177](https://doi.org/10.1097/j.pain.0000000000001177)

Provided by Saint Louis University

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