

**Ling Cao: Models for Discovering Methods to Reduce Chronic Pain**  
**“The Academic Minute”**  
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**Narrator:**

On University of New England Week — Chronic pain takes over your life. I'm Dr. Lynn Pascarella, president of the American Association of Colleges and Universities, and today on “The Academic Minute,” Ling Cao, professor of immunology, examines the fight for relief.

**Ling Cao:**

My research focuses on chronic pain, especially exploring how the interactions between the immune system, body's defense system, and the nervous system affect the development of neuropathic pain, a type of pain that happens if the part of the nervous system that processes the sensation of pain, touch, temperature, vibration, and body position is damaged.

My team uses different mouse models, including models for HIV infection. We have examined the contribution of several molecules that are known to be critical in the immune system while fighting infections. These molecules are also found on glial cells that are located in the central nervous system and play certain functions as cells in the immune system.

For example, we have identified a molecule, CD 40, found on microglia, one type of a glial cell that can contribute to the maintenance of neuropathic pain and the development of HIV-associated neuropathy.

Depletion of CD 40 can significantly improve animals' pain related behaviors.

We realize that the knowledge obtained from animal models cannot represent all aspects of human pain. We started to work with patients with chronic pain by collaborating with local clinics and patient support groups and began to utilize the growing health-related databases.

This combination approach also taught us that chronic pain is most effectively managed using a multidisciplinary personalized strategy. The long-term goal of our study is to identify novel drug targets as well as behavior and policy changes that could improve the health of the patient's suffering from chronic pain.

**Narrator:**

That was Ling Cao of the University of New England. You can find this, other segments, and more information about the professors at [academicminute.org](http://academicminute.org).

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