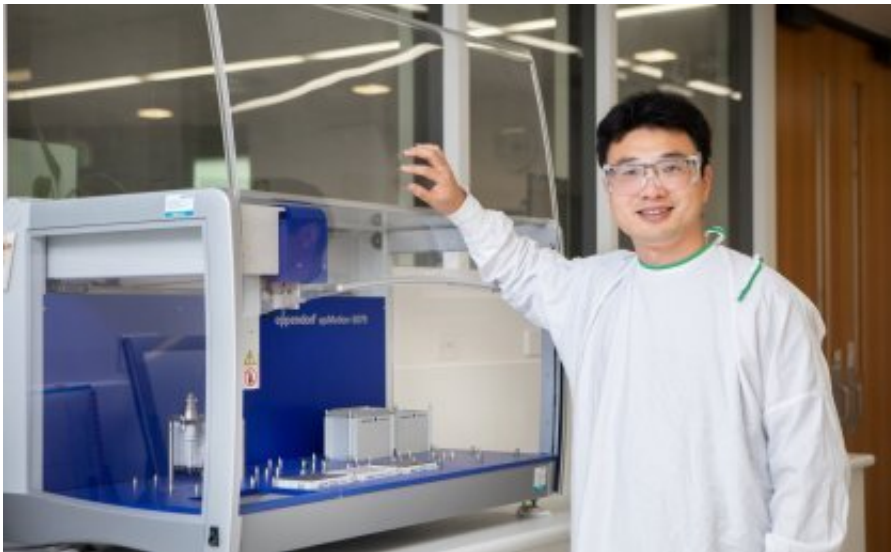


# Nanotechnology offers pain relief for tooth sensitivity

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Credit: University of Queensland

In an Australian first, researchers from the University of Queensland have used nanotechnology to develop effective ways to manage tooth sensitivity.

Dr. Chun Xu from UQ's School of Dentistry said the approach might provide more effective long-term pain relief for people with sensitive teeth, compared to current options.

"Dentin tubules are located in the [dentin](#), one of the layers below the

enamel surface of your teeth," Dr. Xu said.

"When [tooth enamel](#) has been worn down, and the dentin are exposed, eating or drinking something cold or hot can cause a sudden sharp flash of pain.

"The nanomaterials used in this [preclinical study](#) can rapidly block the exposed dentin tubules and prevent the unpleasant pain.

"Our approach acts faster and lasts longer than current treatment options.

"The materials could be developed into a paste, so people who have sensitive teeth could simply apply this paste to the tooth and massage for one to three minutes.

"The next step is clinical trials."

Tooth sensitivity affects up to 74 percent of the population, at times severely impacting quality of life and requiring expensive treatment.

"If [clinical trials](#) are successful people will benefit from this new method that can be used at home, without the need to go to a dentist in the near future," Dr. Xu said.

"We hope this study encourages more research using nanotechnology to address dental problems."

The team also included researchers from UQ's Australian Institute for Bioengineering and Nanotechnology (AIBN).

The study is published in *ACS Applied Nano Materials*.

**More information:** Yuxue Cao et al, Calcium-Doped Silica

Nanoparticles Mixed with Phosphate-Doped Silica Nanoparticles for Rapid and Stable Occlusion of Dentin Tubules, *ACS Applied Nano Materials* (2021). [DOI: 10.1021/acsanm.1c01365](https://doi.org/10.1021/acsanm.1c01365)

Provided by University of Queensland

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