



Creatine Microparticles for Highly Effective Intranasal Delivery

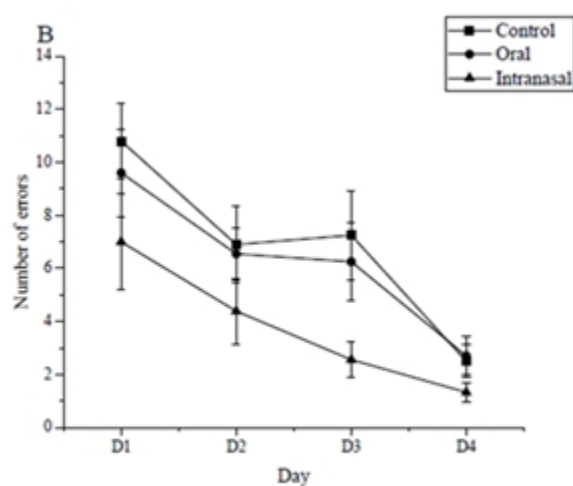
Tech ID: 34030 / UC Case 2025-657-0

BACKGROUND

Creatine is a naturally occurring molecule that plays a vital role in brain energy supply, and supporting cognitive functions. While oral creatine supplementation is known to enhance muscle performance, its impact on the brain is limited due to the blood-brain barrier (BBB). The BBB restricts the passage of many substances like creatine into the brain.

BRIEF DESCRIPTION

Professor Xiaoping Hu's lab at the University of California, Riverside has developed a novel method that allows creatine to bypass the BBB and directly reach the brain. The technology works by delivering creatine intranasally using microparticles. These creatine particles have shown to not exhibit cytotoxicity, are highly stable, and are not disruptive to cell barriers. This technology is advantageous over traditional creatine monohydrate and anhydrous creatine because the smaller particle size ensures even distribution and greater permeability across the BBB.



APPLICATIONS

- ▶ A new formulation to bypass the blood-brain barrier for direct delivery of creatine to the brain intranasally.
- ▶ To increase the amount of creatine that reaches the brain to improve the benefits of creatine like raised cognitive performance, reduced muscle recovery time, and increased athletic performance.

PATENT STATUS

Patent Pending

CONTACT

Grace Yee
grace.yee@ucr.edu
 tel: 951-827-2212.

OTHER INFORMATION

KEYWORDS

Creatine, blood brain barrier, delivery, microparticles, brain, cognitive performance, athletic performance

CATEGORIZED AS

- ▶ **Medical**
- ▶ Other
- ▶ **Nanotechnology**
- ▶ NanoBio

RELATED CASES

2025-657-0

RELATED MATERIALS

- ▶ [Chen, Kaiqing, and Xiaoping Hu. "Intranasal creatine administration increases brain creatine level and improves Barnes maze performance in rats." Brain research bulletin vol. 201 \(2023\): 110703. doi:10.1016/j.brainresbull.2023.110703 - 07/08/2024](#)

University of California, Riverside

Office of Technology Commercialization

200 University Office Building,

Riverside, CA 92521

otc@ucr.edu

research.ucr.edu/

[Terms of use](#) | [Privacy Notice](#) | © 2025, The Regents of the University of California