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Prevention And Treatment Of Chronic Pain Conditions Using Abeta Amyloid-Targeting Agents

Tech ID: 34775 / UC Case 2025-875-0

BRIEF DESCRIPTION

A mechanistic discovery linking amyloid beta (A β)-associated neurodegeneration with chronic pain after peripheral nerve injury, revealing A β as a novel therapeutic target.

FULL DESCRIPTION

Researcher at UC Irvine uncovered a novel mechanism linking neuronal amyloid beta (A β) production to chronic pain following peripheral nerve injury. The study revealed that post-injury disruptions in lipid metabolism and protein synthesis trigger the release of neurotoxic A β . Importantly, blocking A β production using inhibitors of NAAA (ARN19702), BACE1 (LY2811376, MK8931) or γ -secretase (NGP555) prevented the development of persistent pain hypersensitivity and associated anxiety-like behaviors in mice. This targeted approach offers a promising therapeutic pathway for chronic pain modification without affecting acute pain responses or cognitive functions.

SUGGESTED USES

- » Development of novel chronic pain therapeutics targeting A β pathways.
- » Repositioning of existing Alzheimer's drugs for chronic pain patients.
- » Pharmaceutical innovation in neurodegenerative and pain disorders.
- » Personalized medicine approaches for persistent pain management.

ADVANTAGES

- » Identifies a direct mechanistic link between neurodegeneration and chronic pain.
- » Offers a novel target for disease-modifying therapies in chronic pain.
- » Enables repositioning of existing Alzheimer's treatments for chronic pain management.
- » Provides a potential pathway to prevent or treat pain chronification.

PATENT STATUS

Patent Pending

RELATED MATERIALS

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OTHER INFORMATION

KEYWORDS

Alzheimer's Disease, Chronic Pain, Amyloid Beta

CATEGORIZED AS

- » **Medical**
 - » Disease: Central Nervous System
 - » Disease: Musculoskeletal Disorders
 - » Rehabilitation
 - » Therapeutics

RELATED CASES

2025-875-0

» Fotio, Y., et al. Piomelli, D. (2021). Antinociceptive Profile of ARN19702, (2-Ethylsulfonylphenyl)-[(2S)-4-(6-fluoro-1,3-benzothiazol-2-yl)-2-methylpiperazin-1-yl]methanone, a Novel Orally Active N-Acylethanolamine Acid Amidase Inhibitor, in Animal Models. *The Journal of Pharmacology and Experimental Therapeutics*, 378 (2).

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