



Reem Al-Ahmad

Doyle/Easterly Award
Ph.D. Candidate, Chemistry
Second Year ARCS Scholar



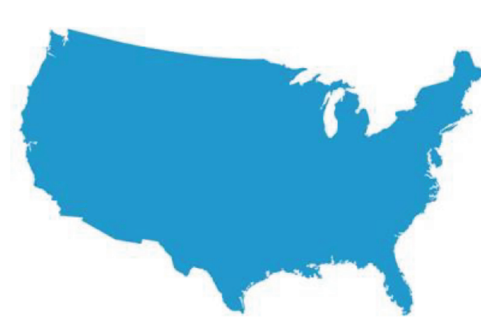
EMORY
UNIVERSITY

The First Semisynthesis of (-)-Veragranine A Enables Access to Novel Non-Opioid Analogs for Chronic Pain Treatment

We developed a scalable synthesis of Veragranine A to address its scarcity, leveraging its structural diversity to design novel calcium channel inhibitors. This approach accelerates drug discovery and emphasizes the potential of targeting calcium channels for non-addictive, safer, and more effective treatments.

Chronic Pain: A Global Challenge

According to WebMD, at least 100 million Americans, and more than 1.5 billion people worldwide suffer from some kind of chronic pain.

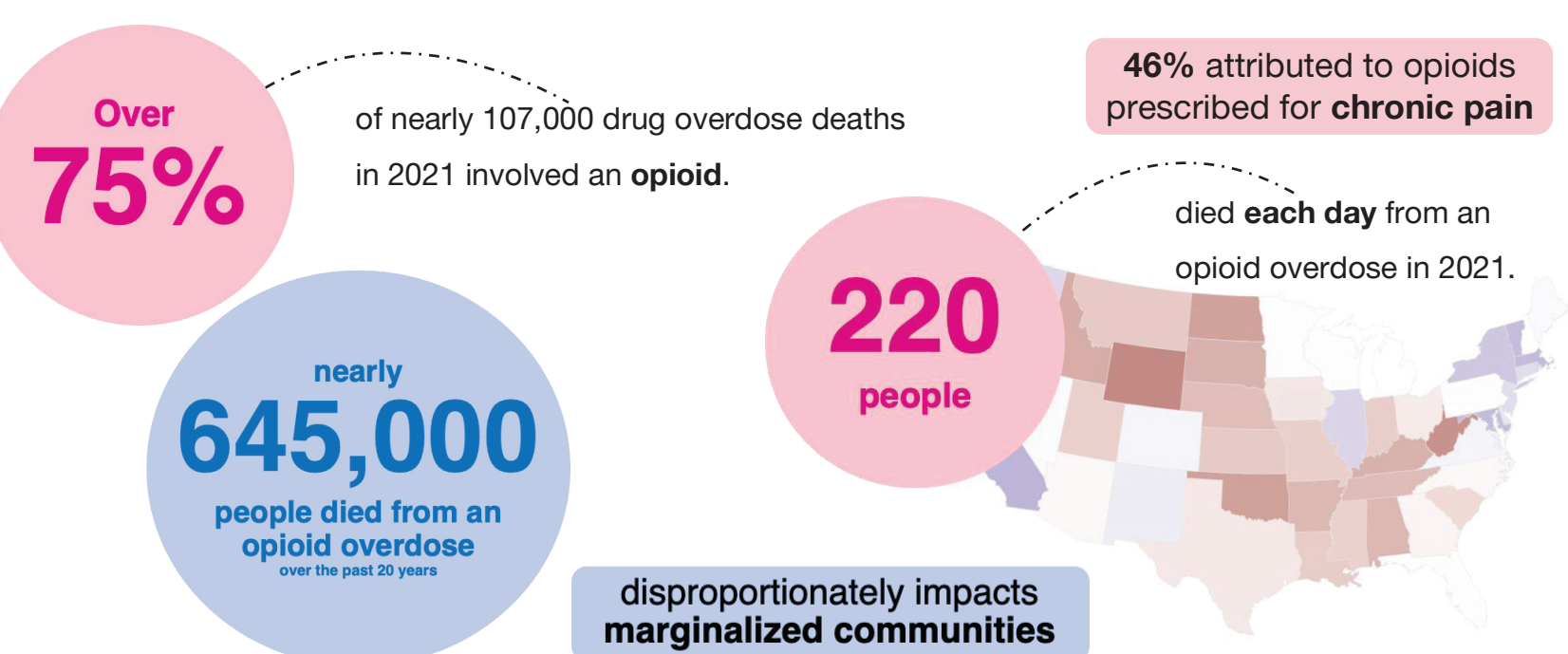


100+ million US chronic pain sufferers

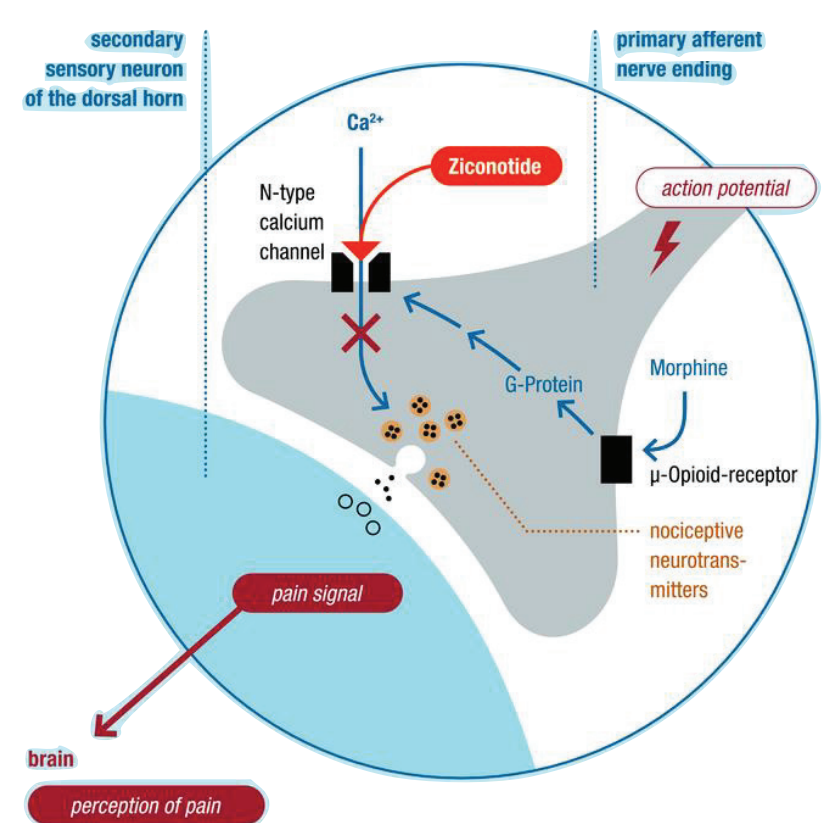


1.5 billion worldwide chronic pain sufferers

The Opioid Crisis



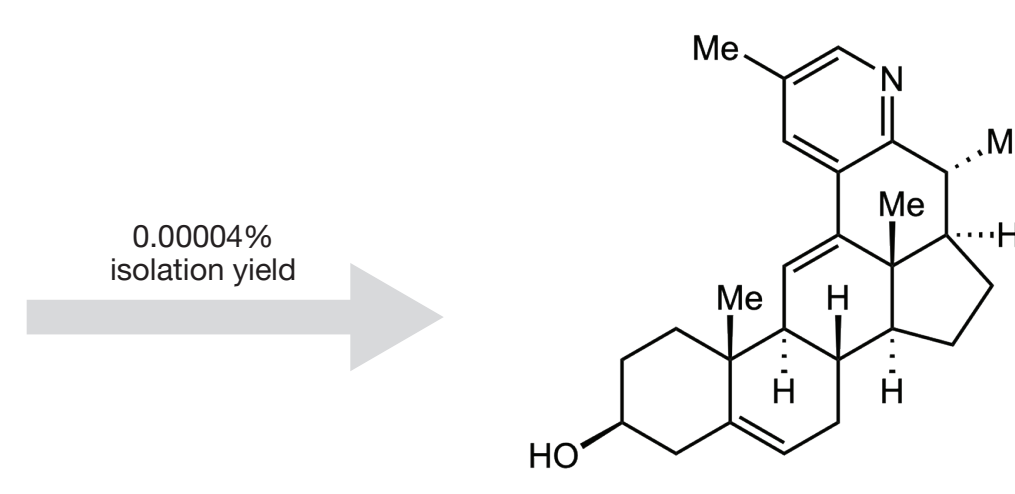
Calcium Channels: Promising Non-Opioid Target



Veragranine A: Calcium Channel Inhibitor

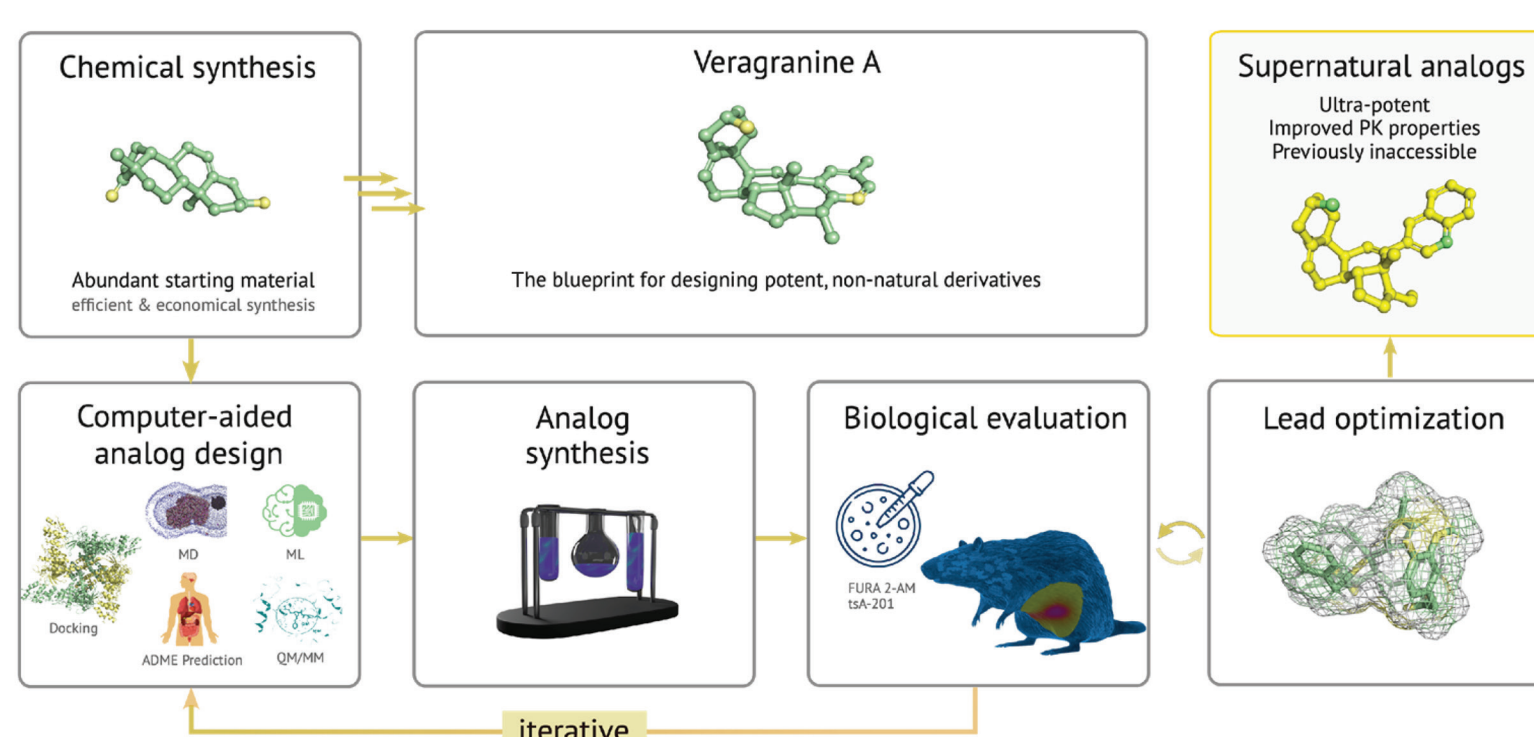


Veratrum Grandiflorum

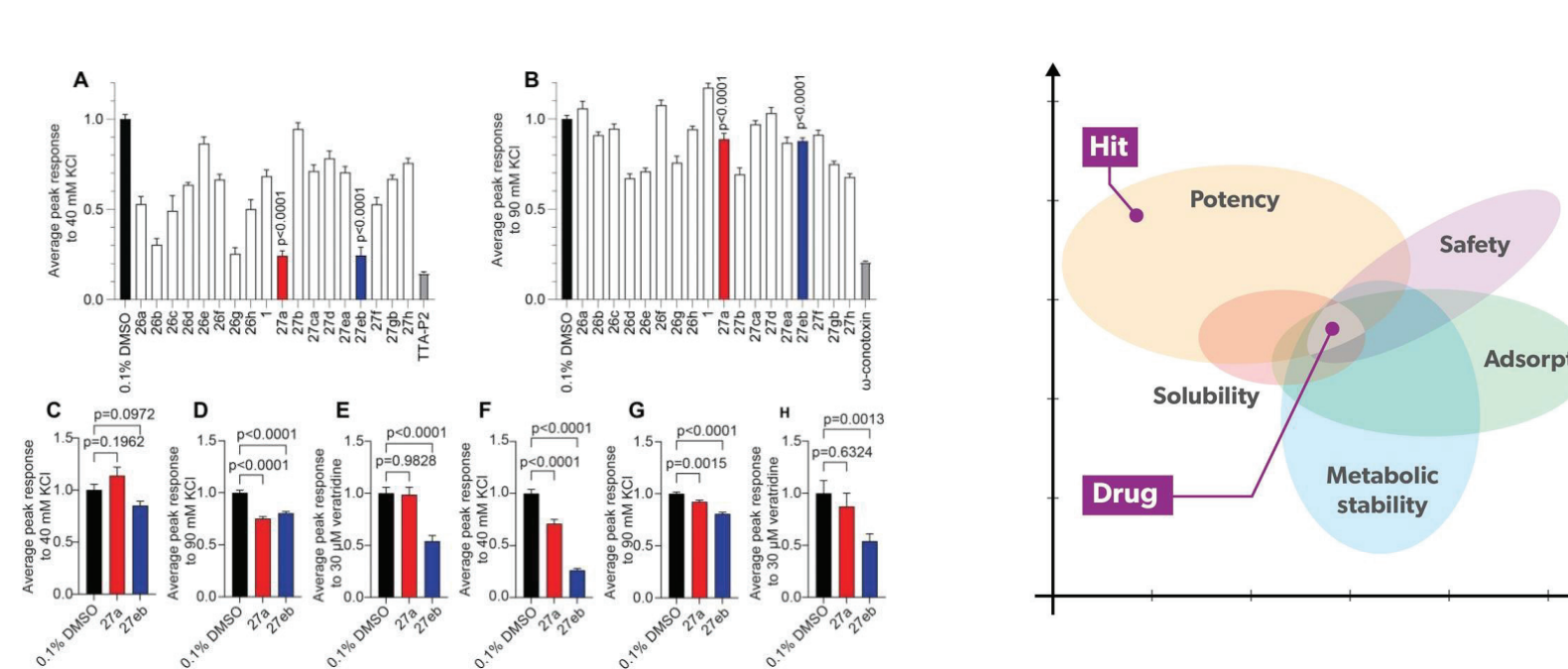


- Severely scarce in nature
- No reported synthesis

Expanding Chemical Landscape of Veragranine A



Results & Future Work



- Aim 1: Achieve sustainable, short, and efficient synthesis towards Veragranine A & novel analogs
- Aim 2: Identify lead compound(s) with greater *in vivo* efficacy for further clinical development

Scholar Awards Celebration
November 12, 2025



Igniting
Innovation
in Georgia