

# PREPARATION OF NOVEL MORPHINE FRAMEWORK DERIVATIVES

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## PATENT STATUS

Patent Pending

## BRIEF DESCRIPTION

Addressing the global opioid crisis requires innovative pharmacological solutions that decouple effective pain relief from lethal side effects. Researchers at UC Berkeley have developed a suite of novel morphine framework derivatives engineered with a modified molecular skeleton to alter their bioactivity profiles significantly. Unlike traditional opioids, these derivatives are designed to interact with receptors in a way that provides potent analgesia while bypassing the pathways responsible for respiratory depression and addiction. Furthermore, certain variants within this framework exhibit antagonistic properties that could serve as a powerful alternative to naloxone for reversing opioid overdoses.

## SUGGESTED USES

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Non-Addictive Pain Management: Providing a safer alternative for patients suffering from acute or post-operative pain who are at high risk for opioid use disorder.

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Chronic Pain Therapy: Offering long-term relief for conditions such as neuropathy or cancer-related pain without the diminishing returns of tolerance and dependence.

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Opioid Overdose Reversal: Utilizing specific derivatives as high-affinity antagonists to counteract the effects of fentanyl or heroin more effectively than current standard treatments.

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Substance Use Disorder Treatment: Developing weaning protocols that use these derivatives to satisfy physical pain requirements while reducing the neurological reinforcement of addiction.

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Veterinary Medicine: Applying these safer analgesics in animal care where monitoring for respiratory distress is often challenging.

## ADVANTAGES

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Improved Safety Profile: Drastically reduces the risk of fatal respiratory depression, the primary cause of death in opioid-related incidents.

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Mitigated Addiction Potential: By targeting specific receptor conformations, these molecules avoid triggering the intense dopamine release associated with "reward" and physical dependency.

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High Potency: Maintains the gold-standard analgesic efficacy of morphine, ensuring that patient comfort is not compromised for the sake of safety.

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Structural Versatility: The modified framework allows for further chemical "tuning" to optimize the drug's half-life and metabolic path for different clinical needs.

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Novel Overdose Mechanism: Provides a potential secondary line of defense for emergency responders dealing with ultra-potent synthetic opioids that are resistant to standard doses of naloxone.

## RELATED MATERIALS

## CONTACT

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## INVENTORS

» Sarpong, Richmond

## OTHER INFORMATION

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