Docket #: S24-029

Composition Matter and Method for Development of Ligands as Therapeutic Agents

Opioid use disorders are responsible for a huge number of deaths in the US and abroad every year. Treatments like methadone offer a path to recovery for heroin addiction, but are burdened with high relapse rates, strict governmental oversight, and continued abuse potential, highlighting the need for non-opioid alternatives.

Cannabis derivatives offer a possible treatment for opioid dependence. The Shamloo lab at Stanford has previously found evidence that suggested the CB2 cannabinoid receptor is a meditator of the anti-addictive properties of cannabis derivatives. In this invention, the inventors have designed a library of agonists for the CB2 receptor that maximize selectivity without activating the CB1 receptor. The CB1 receptor is responsible for the psychoactive properties of cannabinoids. Thus, the agonists provided a solution that can successfully minimize the psychoactive effects of cannabinoid use, while maximizing their therapeutic affect against addiction-related behaviors. Beyond opioid use dependence, the compound library also has applications in pain relief and management, inflammatory disorders, neuroinflammation, and other brain disorders.

Stage of Development
Preclinical

Applications

- Substance use disorder treatment
- Inflammatory Pain

Advantages

- Enhances therapeutic effect of cannabinoids and reduced psychoactive effects

Patents

- Published Application: WO2026198619

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