



TECHNOLOGY

Treatment of depression, anhedonia, chronic stress conditions and PTSD with (2R,6R)-HNK

OVERVIEW

Ketamine exerts rapid and sustained antidepressant effects after a single dose in patients with depression, but its use is associated with undesirable side effects. With the novel discovery of the actions of ketamine metabolites on the AMPA and not the NMDA glutamate receptors as previously reported, initial studies have reported similar effects of ketamine without the negative effects.

This technology is a method to exploit the effects of the ketamine metabolites, (2R,6R)-hydroxynorketamine (2R,6R-HNK) and (2S,6S)-hydroxynorketamine (2S,6S-HNK), on the AMPA glutamate receptors to exerts rapid and sustained antidepressant effects after a single dose in patients with depression. The antidepressant actions were demonstrated to involve the early and sustained activation of AMPA receptors and not the NMDA receptor inhibition seen with ketamine. Side effects concerns found with the administration of ketamine was not found, opening up the potential for the treatment of patients suffering from depression and related CNS disorders.

APPLICATIONS

The depression drug market is expected to reach \$16.8 billion by the end of 2020 with major driving forces being an aging population and the introduction of drugs with reduced side effects. Major depressive disorder is the most common mental disorder and estimated to affect 16 million or ~7% of the adult US population. Despite a number of available medications, most patients require several weeks to months to respond to available drugs. Many patients never attain sustained remission of their symptoms and live with debilitating symptoms. Major depressive disorder is the leading cause of disability in the US and worldwide.

ADVANTAGES

Potent, single dose treatment

Reduced side effects

STAGE OF DEVELOPMENT

Demonstrated (2R,6R)-HNK enantiomer exerts behavioral, electroencephalographic, electrophysiological and cellular antidepressant-related actions in mice.

CONTACT INFO

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Additional Information

INSTITUTION

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PATENT STATUS

U.S Patent # 10,919,842 (issued 2022) Australia Patent # 2017238859 and China Patent#201780027680.8 (issued 2022)

LICENSE STATUS

Available for licensing (co-owned with another institution)

CATEGORIES

- Therapeutics
- Small molecules

INVESTIGATOR(S)

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EXTERNAL RESOURCES

- [NMDAR inhibition-independent antidepressant actions of ketamine metabolites.](#)

TG-2015-116, TG-2016-107