

Technology/ Title	Method and composition for decreasing the psychotomimetic side effect and addictive disorder of ketamine	
Subtitle	A novel method to enhance the efficacy and safety of ketamine in treating neuropsychiatric disorders	
Technology Type	<input type="checkbox"/> Biotechnology	<input type="checkbox"/> Device/Diagnostics
	<input checked="" type="checkbox"/> Pharmaceutical	<input type="checkbox"/> Others:_____
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Link	https://patentimages.storage.googleapis.com/99/15/e7/afdb033e85ed9c/US11213495.pdf	
Technology Description	The present invention relates to a method for decreasing the psychotomimetic side effects and addictive disorders of ketamine by using betaine or a betaine metabolite. Especially, the present invention relates to a method for treatment of a variety of neuropsychiatric disorders including major depressive disorder, treatment-resistant depression, bipolar disorder, alcohol and substance use disorders, post-traumatic stress disorder, anxiety disorders, chronic pain, amyotrophic lateral sclerosis, Rett syndrome, comprising administrating ketamine combined with betaine or a betaine metabolite N,N dimethylglycine (DMG).	

Intellectual Property	Taiwan, Japan, USA, Canada, Israel, Europe
Key Publications	<ol style="list-style-type: none"> 1. Lin J, Chan MH, Lee MY, Chen YC, Chen HH. 2016. N,N-dimethylglycine differentially modulates psychotomimetic and antidepressant-like effects of ketamine in mice. Prog Neuropsychopharmacol Biol Psychiatry. 71(3):7-13 2. Lin J, Chan MH, Lee MY, Chen YC, Chen HH. 2016. Betaine enhances antidepressant-like, but blocks psychotomimetic effects of ketamine in mice. Psychopharmacology 233(17):3223-35 3. Chen ST, Hsieh CP, Lee MY, Chen LC, Huang CM, Chen HH, Chan MH 2021 Betaine prevents and reverses the behavioral deficits and synaptic dysfunction induced by repeated ketamine exposure in mice. Biomedicine & Pharmacotherapy 144, 112369

<p>Business Opportunity</p>	<p>The global market for antidepressants would reach USD 30.73 billion by 2030. Ketamine is a fast-acting antidepressant. Esketamine has been proved by FDA for treatment-resistant depression. Concerns still exist over adverse clinical outcomes that may stem from indefinite ketamine exposure, including cognitive impairment, increased propensity for delusions, and abuse liability. The present invention provides a method capable of alleviating concerns for ketamine use.</p>
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Mechanism of action

Betaine, an NMDA receptor glycine binding site partial agonist, with antidepressant properties, counteracts the adverse effects of ketamine

