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	☐Biotechnology	☐Device/Diagnostics
	■Pharmaceutical	☐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	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	
Business Opportunity	Ketamine is a fast-acting antidepressant, and the market for ketamine clinics in USA is projected to reach USD 6.9 billion by 2030. As its medical use for mental health conditions grows, there has been a	

	concerning rise in both illicit ketamine seizures and reports of ketamine poisoning. In response to these issues, the present invention provides an innovative solution designed to mitigate the risks associated with ketamine use, ensuring safer and more effective treatment.