

# Ayurveda, Homeopathy and Chinese Medicine

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## Traditional herbal formula Yueju pill demonstrates features of next-generation antidepressants with novel mechanisms

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Yueju pill is a Traditional Chinese Medicine (TCM) which consists of five herbs, formulated to treat depression-related syndromes 800 years ago. Yueju is still widely prescribed to treat various conditions, including digestive dysfunctions and depression. Recently, we found that Yueju pill promotes fast-onset antidepressant-like efficacy in clinical and preclinical studies. As conventional antidepressants have a major disadvantage in delayed onset for depression treatment, the novel findings of Yueju's unique rapid antidepressant efficacy and underlying mechanisms are of great significance both clinically and scientifically, such as prevention of suicide and uncovering novel neurobiological mechanisms of antidepressant activity. In preclinical studies, a single dose of Yueju rapidly attenuates the depression-like symptoms in various animal models and the antidepressant effects could last even longer than ketamine, the prototype fast-acting antidepressant with adverse behavioral and neurotoxic potential. We also revealed the critical neuromolecular mechanisms involving improved neural plasticity by Yueju. Moreover, Yueju targeted more therapeutic sites, and the activation of PKA-CREB-BDNF signaling pathway underlies the strain-dependent differences in the lasting antidepressant effects. Yueju was also effective in a novel model of treatment-resistant postpartum depression. Importantly, a clinical pilot study supported its fast-onset antidepressant efficacy. Our study also displayed that the *Gardenia jasminoids* Ellis (Zhi Zi) plays the primary role in the rapid antidepressant effects of Yueju and identified the effective fractions and candidate compounds. This line of studies suggests the classic TCM formula is invaluable therapeutic treatment for depression and may be used for treatment of the treatment-resistant depression.

### Biography

Gang Chen is the Head of Center for Translational Systems Biology and Neuroscience and Director of the Key Laboratory of TCM for Brain Diseases at Nanjing University of Chinese Medicine. He obtained his PhD in Psychology at Rutgers University in 2004. Since the time he was appointed as the Jiangsu Distinguished Professor in 2012, he has established a cutting-edge lab to decipher the scientific basis by which TCM treats complex brain disorders, using multidisciplinary approaches, particularly the neurobiological, systems biological, phytomedicine and modern quantitative genetics technologies. His team has published more than 16 papers on treatment of depression using TCM herbal formula and/or bioactive ingredients in international journals, including 3 in *Scientific Reports*. He is currently the Committee Member of International Brain and Behavior Genetic Society (IBANGS) and has been invited to talk and chair in many international scientific conferences.

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