Searching for "Magic Pill": A Novel Adenosine Modulator in the Treatment of Schizophrenia and Stress-Related Disorders

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Schizophrenia and stress-related disorders impose significant health challenges on patients and societal resources. To address these pressing needs, a novel compound, the Novel Adenosine Modulator (NAM), extracted from Gastrodia elata, a Chinese herbal medicine recognized for its calming properties, has emerged. Our study aims to investigate NAM's therapeutic potential in treating these mental illnesses. Two mouse models, exhibiting schizophrenia- and stress-related behaviors induced by drugs and stress, respectively, were utilized. In Experiment 1, schizophrenia-like behaviors were induced in mice using the NMDA receptor antagonist, MK-801. We conducted three distinct behavioral experiments to assess NAM's efficacy against positive, negative, and cognitive symptoms of schizophrenia in mice. NAM effectively mitigated hyperlocomotion induced by MK-801 in the open field test, indicating its potential for treating positive symptoms without severe side effects. However, it did not influence MK-801 induced sensorimotor gating deficits. In Experiment 2, unpredictable chronic mild stress (UCMS) was employed to induce stress-related disorders such as anxiety and depression. Four behavioral experiments were conducted to evaluate depressive- and anxiety-like behaviors. NAM treatment notably ameliorated anhedonia in the sucrose preference test, suggesting its efficacy in addressing depressive symptoms of stress-related disorders. Collectively, our findings underscore NAM's promising therapeutic potential for alleviating positive symptoms of schizophrenia and depressive symptoms of stress-related disorders. The neural mechanism underlying its therapeutic effects is worth further investigation.

Awards Won:
American Psychological Association: Complimentary student affiliate memberships
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