First-in-class Compounds for the Treatment of Neurological Disorders

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Technology description

These compounds target the NMDA glutamate receptor. Schizophrenia is characterized by disintegration of both thought processes and emotional responses, impacting approximately 2.4 million Americans. The brains of schizophrenics show multiple abnormalities compared to normal brains, including a lowered number of NMDA type glutamate receptors. Currently available therapeutics do not address this mechanism, making these compounds potential first-in-class therapeutics.

Technical Summary

Emory researchers have discovered a group of compounds that function as NMDA receptor potentiators, increasing the activity of existing NMDA receptors by selectively binding to their NR2 subunits. This specific class of potentiators also exhibit selectivity for two particular forms of the NR2 subunit, NR2C and NR2D, and were identified through a cell screening assay. There are currently no clinically feasible potentiators for NMDA receptors containing NR2C or NR2D, making these compounds possible first-in-class therapeutics. Beyond schizophrenia, these compounds may have use in treating other disorders where glutamate dysfunction is indicated such as bipolar disorder, depression, and epilepsy.

Application area

Potential therapeutic for treating a range of neurologic/psychiatric conditions (schizophrenia, depression, epilepsy) or for use as a cognitive enhancer.

Advantages

Compounds uniquely target, the NMDA receptor's C/D subunits due to their novel backbone structure. No current therapeutics for schizophrenia target the glutamate system or the NMDA receptor's subunits.

Institution

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