

Dopamine Agonists

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Technology description

Background

Dopamine is a neurotransmitter in the central nervous system that has been implicated in numerous neurological disorders. For example, excess stimulation of dopamine may be linked to schizophrenia, whereas either excessive or insufficient functional dopaminergic activity may cause hypertension, narcolepsy, and other disorders including Parkinson's disease. The D1 receptor is a dopamine receptor subtype that may be a viable therapeutic target for dopamine-related pathologies. Accordingly, researchers have directed their efforts to design ligands that are selective D1 receptor agonists.

Technology Summary

Researchers at Purdue University have developed new molecules that fully and selectively activate the dopamine D1 receptor. The compounds derived are useful for treating patients having a dopamine-related dysfunction of the central nervous system (CNS) as well as conditions in which peripheral dopamine receptors are involved. They are expected to be effective against Parkinson's disease, improving cognition, memory, attention deficit hyperactivity disorder, and related developmental disorders.

Application area

Medical/Healthcare

Pharmaceuticals

Drug Development

Advantages

Lead compound is 50 times more selective for D1 receptors than for D2L receptors

Equipotent, but more selective than other D1 agonists

Potentially effective treatment for advanced Parkinson's disease and other CNS disorders

Orally bioavailable in animal models

Institution

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