

1-(Benzo[1,2-b:4,5-b']Difuran-4-yl)alkyl-2-amines and 1-(2,3,6,7-Tetrahydrobenzo[1,2-b:4,5-b']Difuran-4-yl)butan-2-amines as Serotonin Receptor Modulators for Neurodegenerative Disorders

Tech ID: 34429 / UC Case 2026-385-0

ABSTRACT

Researchers at the University of California, Davis have developed novel serotonin receptor modulators designed as mixed 5-HT_{2A/2C} partial agonists that demonstrate promising disease-modifying potential for Parkinson's Disease with improved safety and efficacy.

FULL DESCRIPTION

This technology comprises a novel series of conformationally constrained analogues of Ariadne, non-hallucinogenic phenethylamines that act as mixed partial agonists at serotonin 5-HT_{2A} and 5-HT_{2C} receptors. These compounds leverage structural modifications to enhance potency, selectivity, and therapeutic index compared to existing compounds. By modulating serotonin receptors to promote neuroplasticity and dopaminergic neuron function, they provide potential disease-modifying effects in Parkinson's Disease (PD) models alongside mood and cognitive benefits, while avoiding hallucinogenic side effects and off-target cardiac toxicity associated with 5-HT_{2B} receptor activation.

APPLICATIONS

- ▶ Therapeutics for Parkinson's Disease with potential disease-modifying benefits.
- ▶ Drug candidates for neurodegenerative diseases involving dopaminergic and serotonergic systems.
- ▶ Mood and cognitive enhancement agents in psychiatric and neurological disorders.
- ▶ Pharmaceutical development pipelines targeting selective serotonin receptor modulation.
- ▶ Advancement of novel, safer psychedelic-inspired psychoplastogens.

FEATURES/BENEFITS

- ▶ Modifies Parkinson's Disease progression by targeting the serotonin system.
- ▶ Improves receptor selectivity to reduce cardiac valvulopathy risks.
- ▶ Avoids hallucinogenic effects by providing partial agonism below the hallucinogenic threshold.
- ▶ Increases potency to enable lower therapeutic dosing.
- ▶ Combines neuroplastic, neurogenic, and dopaminergic modulation for comprehensive neurological support.
- ▶ Expands applicability to mood elevation and cognitive enhancement.

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OTHER INFORMATION

KEYWORDS

5-HT_{2A} receptor, 5-HT_{2C} receptor, Ariadne analogues, conformational constraint, neuroplasticity, neuroprotection, Parkinson's disease, partial agonist, serotonin receptor modulators, therapeutic index

CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ **Health**
- ▶ **Medical**

- ▶ Introduces a pharmacologically novel agent for multiple neurodegenerative and psychiatric disorders.
- ▶ Aligns with FDA breakthrough designation precedents for advancing psychedelic therapeutics.
- ▶ Addresses limited efficacy and symptomatic focus of current Parkinson’s Disease therapies.
- ▶ Fills the gap for disease-modifying drug candidates in Parkinson’s Disease.
- ▶ Prevents unwanted hallucinogenic effects associated with serotonergic treatments.
- ▶ Enhances cardiac safety by minimizing off-target 5-HT2B receptor activation.
- ▶ Overcomes poor potency and high dosing requirements of current 5-HT2A/2C agonists.
- ▶ Reduces neurodegenerative disease burden, improving cognitive and mood outcomes.

- ▶ [Disease: Central Nervous System](#)
- ▶ [New Chemical Entities, Drug Leads](#)
- ▶ [Therapeutics](#)

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2026-385-0

PATENT STATUS

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