

# Combinations of Psychoplastogens and DYRK1A Inhibitors

Tech ID: 34754 / UC Case 2022-528-0

## ABSTRACT

Researchers at the University of California, Davis have developed a class of compounds intended for the treatment of neurodegenerative diseases such as Alzheimer's by inhibiting DYRK1A kinase and modulating 5-HT<sub>2</sub>R<sub>s</sub>.

## FULL DESCRIPTION

This technology consists of compounds functioning as both inhibitors of the kinase DYRK1A and psychoplastogenic modulators of serotonin 2 receptors (5-HT<sub>2</sub>R<sub>s</sub>). These compounds are considered promising for developing therapeutics to treat neurodegenerative diseases like Alzheimer's. DYRK1A is known to phosphorylate amyloid precursor protein and tau protein, which play a role in the pathophysiology of Alzheimer's, Down Syndrome, and related diseases. Inhibiting DYRK1A activity, along with promoting cortical neuron growth through 5-HT<sub>2</sub> modulation has potential for rescuing the cortical atrophy and cognitive impairment observed in conditions like Alzheimer's and Down syndrome.

## APPLICATIONS

- ▶ Treatment of neurodegenerative diseases, particularly Alzheimer's disease.
- ▶ Treatment of Down syndrome.
- ▶ Potential use in the development of a new class of therapeutics for neurodegenerative disorders.

## FEATURES/BENEFITS

- ▶ Inhibits DYRK1A activity, involved in the development of neurodegenerative diseases and Down syndrome.
- ▶ Blocks tau hyperphosphorylation.
- ▶ Promotes cortical neuron growth.
- ▶ Potential synergism between DYRK1A inhibition and 5-HT<sub>2</sub>R<sub>s</sub> for Alzheimer's prevention/treatment.
- ▶ Development and progression of treatments for Alzheimer's and related neurodegenerative diseases.

## PATENT STATUS

| Country                   | Type                           | Number      | Dated      | Case     |
|---------------------------|--------------------------------|-------------|------------|----------|
| Patent Cooperation Treaty | Reference for National Filings | 2024/220485 | 10/24/2024 | 2022-528 |

Patent Pending

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## OTHER INFORMATION

### KEYWORDS

Alzheimer's disease,  
 Down syndrome,  
 DYRK1A, kinase inhibitor,  
 neurodegenerative  
 diseases,  
 psychoplastogen,  
 serotonin 2 receptor, tau  
 hyperphosphorylation,  
 therapeutics

### CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Health
- ▶ **Medical**
- ▶ New Chemical Entities, Drug Leads
- ▶ Therapeutics

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [dimerLight](#)
- ▶ [Psychoplastogens For Treating Hearing-Related Disorders](#)

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