

# Psychoplastogens For Treating Hearing-Related Disorders

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## ABSTRACT

Researchers at the University of California, Davis, have developed a novel approach to treat hearing-related disorders with a new type of psychoplastogen that can increase the synapse density in the ear, correlating with hearing ability.

## FULL DESCRIPTION

Hearing loss is an issue that affects a large portion of the population. In addition to psychological effects of hearing loss, hearing loss is also associated with a higher risk of other disorders, most notably dementia. Hearing loss is caused by the loss of synapses and neurites in the cochlea, which can result from noise or chemical exposure or due to the normal aging process.

Researchers at the University of California, Davis have developed a method to utilize psychoplastogens to induce synaptogenesis and neuritogenesis in the cochlea. Psychoplastogens induce the formation of new synapses ("synaptogenesis") and new neurites ("neuritogenesis") in certain neurons expressing 5-HT<sub>2</sub> receptors. These 5-HT<sub>2</sub> agonists operate on more specific pathways, helping to avoid off-target effects. The utilization of psychoplastogens to induce synaptogenesis in the ear has significant advantages over other current candidates such as BDNF or Trk agonists, as BDNF and Trk agonists will activate nearly all neurons in the nervous system, which can have undesirable effects. Furthermore, BDNF does not cross the blood brain barrier, whereas psychoplastogens readily do.

## APPLICATIONS

- ▶ Therapy for treating hearing loss in those who suffer noise-induced or age-related hearing loss
- ▶ Prophylaxis against future noise or chemical exposure in certain settings

## FEATURES/BENEFITS

- ▶ Promote synaptogenesis in the ear
- ▶ Rescue hearing loss due to synaptic loss in the ear.

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	<a href="#">20250057822</a>	02/20/2025	2022-560

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## INVENTORS

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## OTHER INFORMATION

### KEYWORDS

cochlea, hearing loss, psychoplastogens, neuritogenesis, synaptogenesis, neurotrophic factors, serotonin receptors, 5-HT<sub>2</sub> receptors, 5-HT<sub>2</sub> agonists, noise exposure, aging, neurodegeneration

## CATEGORIZED AS

- ▶ **Biotechnology**
- ▶ Health
- ▶ **Medical**
- ▶ Other
- ▶ Therapeutics

## RELATED CASES

2022-560-0

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Novel Psychoplastogenic Tropanes for Treating Brain Disorders](#)
- ▶ [Combinations of Psychoplastogens and DYRK1A Inhibitors](#)
- ▶ [Iboga Entactogens](#)
- ▶ [dimerLight](#)

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