

# Understanding the Mechanism, Therapeutic Applications and Risks of Hallucinogens

Ross Chari\*

Department of Pharmacology, North Carolina State University, Raleigh, USA

## DESCRIPTION

Hallucinogens, also known as psychedelics, are a class of substances that induce profound alterations in perception, cognition, and emotions. From ancient rituals to modern therapeutic applications, these substances have been used by diverse cultures throughout history. This article aims to provide an overview of hallucinogens, including their history, effects on the brain, potential therapeutic uses, and associated risks.

## Historical background

Hallucinogens have a rich history that spans across various cultures and time periods. Indigenous societies have long used natural hallucinogenic plants like peyote, psilocybin mushrooms, and ayahuasca for spiritual and healing purposes. In the mid-20th century, Western interest in these substances grew, leading to the discovery and synthesis of Lysergic Acid Diethylamide (LSD) by Albert Hofmann in 1938. The counterculture movement of the 1960s embraced psychedelics, advocating for their potential to expand consciousness and induce introspection.

## Mechanism of action

Hallucinogens primarily target the serotonin system in the brain. They bind to serotonin receptors, particularly the 5-HT<sub>2A</sub> subtype, leading to altered neural activity and neurotransmitter release. This disruption in normal brain functioning results in the characteristic effects of hallucinogens, such as sensory distortion, synesthesia, and ego dissolution. The precise mechanisms underlying these effects are still being investigated, but research suggests that the default mode network, responsible for self-referential thinking, is significantly impacted by hallucinogens.

## Effects and experiences

Hallucinogens induce a wide range of subjective experiences, often referred to as "trips." These experiences can vary greatly between individuals and even between different sessions.

Common effects include visual distortions, heightened emotions, changes in perception of time and space, and a sense of interconnectedness with the universe. Many users report profound spiritual and mystical experiences, leading to increased well-being, personal insights, and a greater sense of empathy and connectedness.

## Therapeutic applications

In recent years, there has been a resurgence of interest in the therapeutic potential of hallucinogens. Clinical research suggests that substances like psilocybin and MDMA (3, 4-methylenedioxymethamphetamine) can be effective in treating mental health conditions such as depression, anxiety, and Post-Traumatic Stress Disorder (PTSD). Psychedelic-assisted therapy involves a guided experience, often in combination with psychotherapy, allowing individuals to confront and process underlying traumas or deeply rooted emotional patterns. Preliminary studies have shown promising results, with long-lasting positive changes in mood, increased psychological well-being, and a reduction in symptoms.

## Risks and considerations

While hallucinogens generally have a favorable safety profile, there are risks associated with their use. Bad trips, characterized by intense fear, anxiety, or paranoia, can occur, particularly in uncontrolled or unsupportive environments. Hallucinogens can also trigger latent psychiatric conditions, exacerbate existing mental health issues, or lead to persistent perceptual changes in vulnerable individuals. Additionally, the recreational use of synthetic hallucinogens and the potential for adulteration pose health risks. Therefore, responsible use, informed decision-making, and appropriate set and setting are crucial factors to mitigate potential risks.

Hallucinogens have captivated human curiosity for centuries, offering profound and transformative experiences. Recent scientific research suggests that these substances hold promise as therapeutic tools, assisting individuals in navigating psychological difficulties and promoting personal growth.

**Correspondence to:** Ross Chari, Department of Pharmacology, North Carolina State University, Raleigh, USA, E-mail: rchari@ncsu.edu

**Received:** 01-Jun-2023, Manuscript No JDMT-23-24711; **Editor assigned:** 05-Jun-2023, PreQC No JDMT-23-24711 (PQ); **Reviewed:** 19-Jun-2023, QC No. JDMT-23-24711; **Revised:** 26-Jun-2023, Manuscript No JDMT-23-24711 (R); **Published:** 03-Jul-2023; DOI: 10.35248/2157-7609.23.14.297

**Citation:** Chari R (2023) Understanding the Mechanism, Therapeutic Applications and Risks of Hallucinogens. J Drug Metab Toxicol. 14:297.

**Copyright:** © 2023 Chari R. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

However, the exploration of hallucinogens requires caution, respect, and proper guidance to ensure safety and maximize their potential benefits. As research and societal attitudes

continue to evolve, it is essential to strike a balance between scientific exploration, responsible use, and respect for the powerful nature of hallucinogenic experiences.