

The Time of Psychedelics

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Certifications
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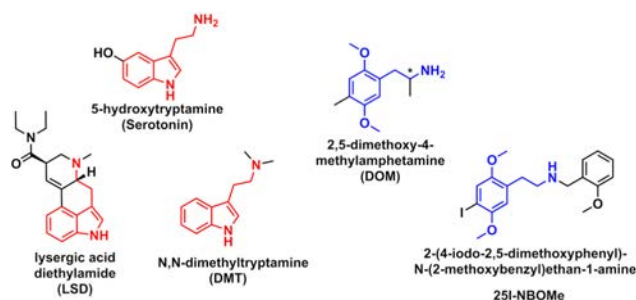
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Agenda

1. What are psychedelics?
2. Famous Users
3. Market potential
4. Clinical challenges
5. Lessons from cannabis
6. Actions



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Nutrasource Introduction



- Clinical and regulatory contract research organization (CRO)
- Based in Guelph, ON established 2002
- Specialty is working with supplements and botanicals to pharmaceutical standards
- Extensive experience with cannabis and psychedelics

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What are Psychedelics?



- A subclass of hallucinogenic drugs
- Examples: Magic mushrooms (psilocybin), LSD (Lysergic acid diethylamide), ketamine, Peyote (mescaline), Ibogaine, DMT, ayahuasca



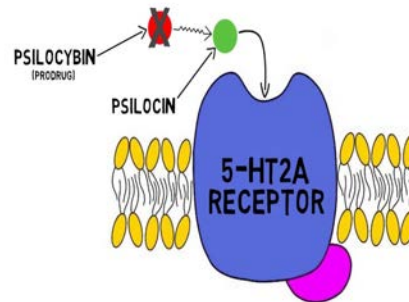
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How do the “work”?

1. Increases neuroplasticity
2. Increases and modifies neural communication channels
3. Create a “receptive” state of mind
 - Synergy between drug-induced hyperplasticity and therapy



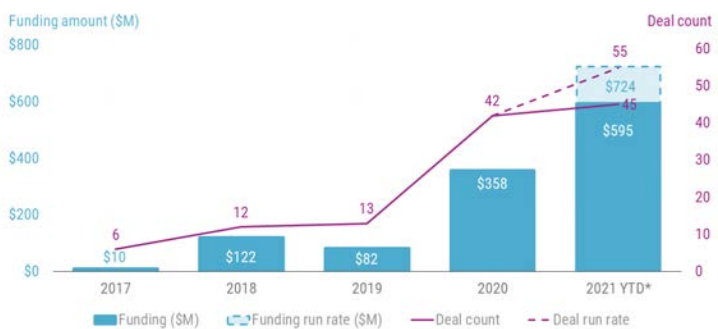
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Market Potential

1. By Market Cap
2. By Conditions
 - Depression
 - Anxiety
 - PTSD
 - Addiction

Psychedelic funding jumps again in 2021

Disclosed deals & equity funding (\$M), 2017 – 2021 YTD (10/28/21)



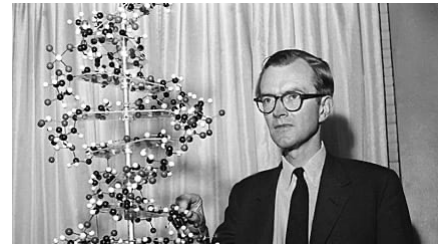
Source: cbinsights.com *2021 full-year data is based on a run rate as of 09/28/21.

CBINSIGHTS

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Famous Psychedelic Users

- Francis Crick
- Nobel prize 1962
- Co-discoverer of the DNA structure
- Purportedly used [LSD] as a “thinking tool”



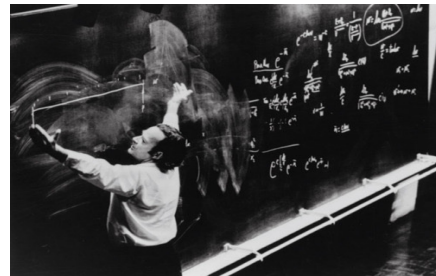
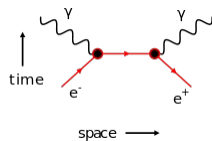
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Famous Psychedelic Users

- Richard Feynman
- Nobel prize 1965
- Theoretical physicist specializing in quantum mechanics
- LSD, ketamine and marijuana



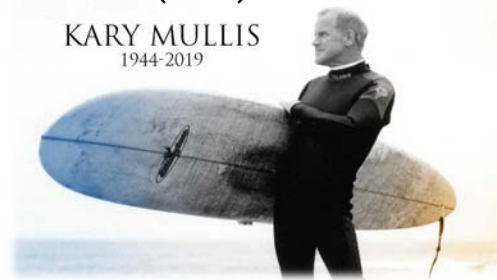
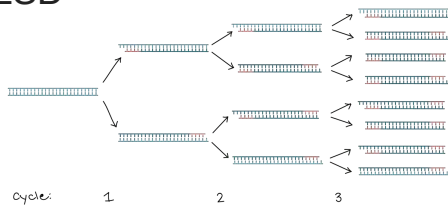
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Famous Psychedelic Users

- Kary Mullis
- Nobel prize 1993
- Founding father of polymerase chain reaction (PCR)
- LSD



Clinical Challenges with Psychedelics

- Masking/Blinding
- Expectancy bias
- “effects of psychedelics are entirely due to its amplification of the placebo response”



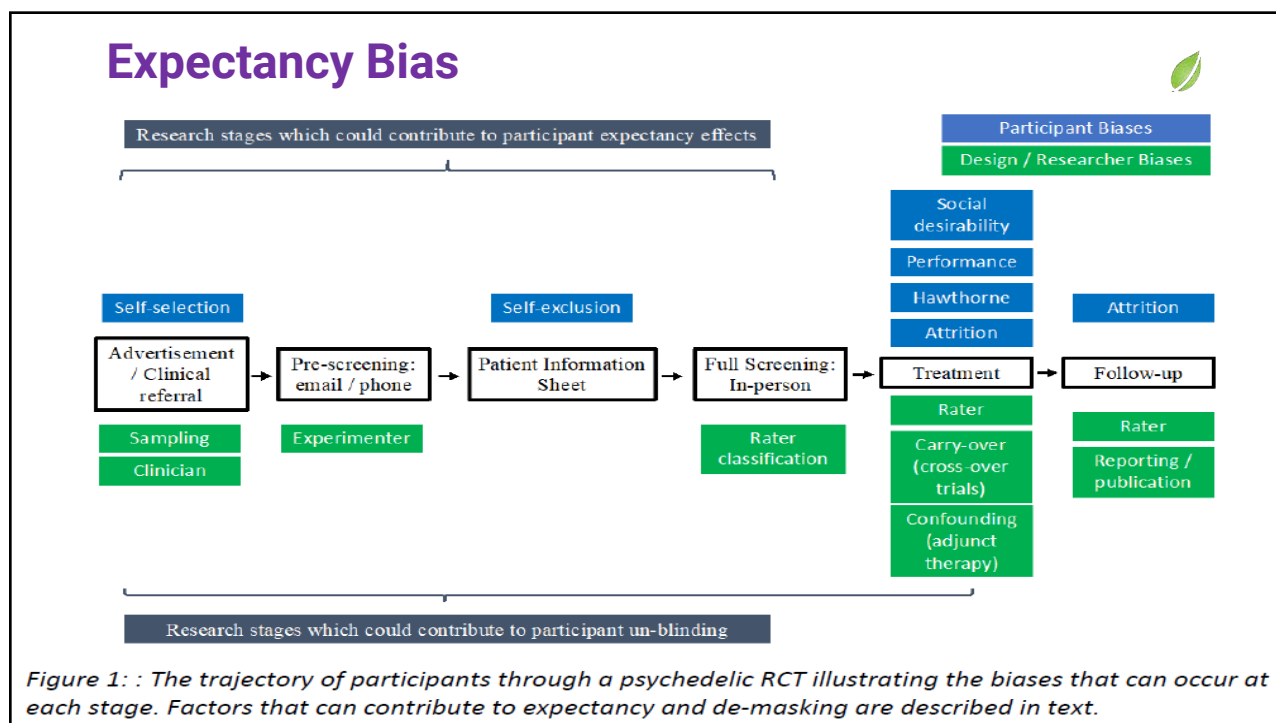
$$BI_{James} = \frac{(1 + P_{DK} + (1 - P_{DK}) \cdot K_D)}{2} \quad (8)$$

where $K_D = \frac{P_{D0} P_{De}}{P_{De}}$, (9)

$$P_{D0} = \sum_{i=1}^2 \sum_{j=1}^2 \frac{w_{ij} P_{ij}}{1 - P_{DK}}, \quad (10)$$

$$\text{and } P_{De} = \sum_{i=1}^2 \sum_{j=1}^2 \frac{w_{ij} P_{ij} (P_i - P_{i0})}{(1 - P_{DK})^2} \quad (11)$$


James Blinding Index (JBI)



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Clinical Challenges with Psychedelics

- Potential Solutions
 - Trial Designs
 - Active placebo control
 - Active drug comparison
 - Measure and monitor blinding and expectancy
 - Careful recruiting and communication
 - Use biomarkers
 - Meet with regulators (FDA & HC)



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Lessons from Cannabis

- Run clinical studies
- Differentiate product with clinically proven claims
- If legalized recreationally, unlikely clinical research will happen
- Race to the bottom



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Actions for Industry

- Run clinical trials
- Run carefully designed clinical trials
- Don't screw this up like Cannabis

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Thank You!

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