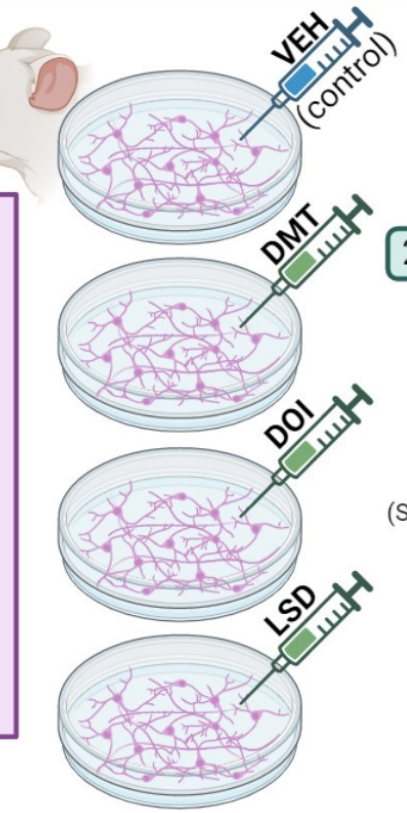
Psychedelics Promote Structural and Functional Neural Plasticity

Ly, Calvin, et al. "Psychedelics Promote Structural and Functional Neural Plasticity." *Cell Reports*, vol. 23, no. 11, June 2018, pp. 3170–3182, www.cell.com/cell-reports/pdf/S2211-1247(18)30755-1.pdf, 10.1016/j.celrep.2018.05.022.

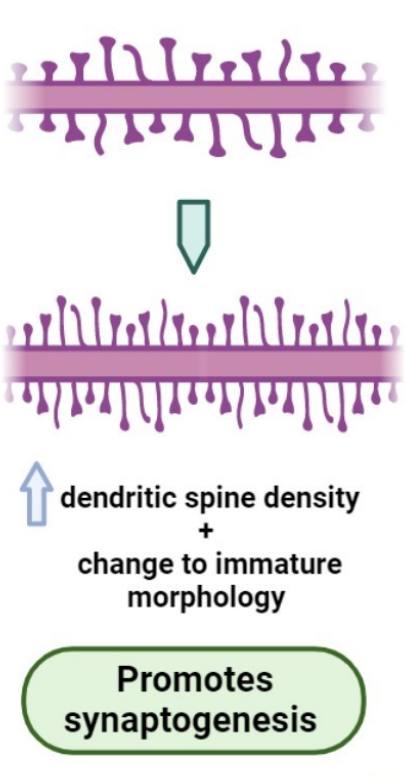
Visual summary by: Eline Poinsignon-Clavel. Images produced with BioRender app.biorender.com

in vitro



24h

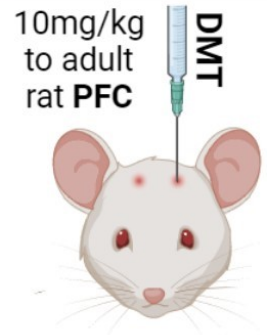
SIM
(Structured Illumination Microscopy)



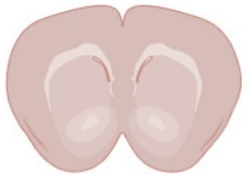
dendritic spine density
+
change to immature morphology

Promotes synaptogenesis

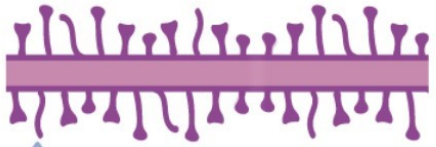
in vivo



24h



Golgi-cox staining

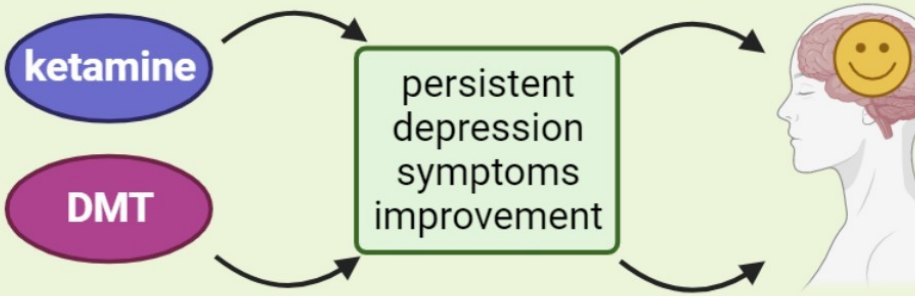


PFC dendritic spine density
+
functional effects

Persistent structural & functional changes
(comparable to 10mg/kg of **ketamine**)

erotonergic psychedelics (DOI, DMT, LSD) showed promotion of ural plasticity by significantly increasing spinogenesis *in-vivo* and *n-vitro*. Increased spine density & promotion of immature spine orphology was observed for all tested psychedelics *in-vitro*. This leads to increased function and number of synapses. Usual amine dose (10mg/kg) of DMT (short half-life) was administered *in vivo* to compare their effects. Similar results of persistent unctional & structural changes were observed, demonstrating rsistent promotion of neural plasticity, and indicating DMT (and other serotonergic psychedelics) as potential treatment for depression due to similar effects to ketamine.

Implications



Therapeutic use of DMT for **depression treatment** (& related disorders)