Transient Stimulation with Psychoplastogens is Sufficient to Initiate Neuronal Growth

Supplemental Material
(3 pages)

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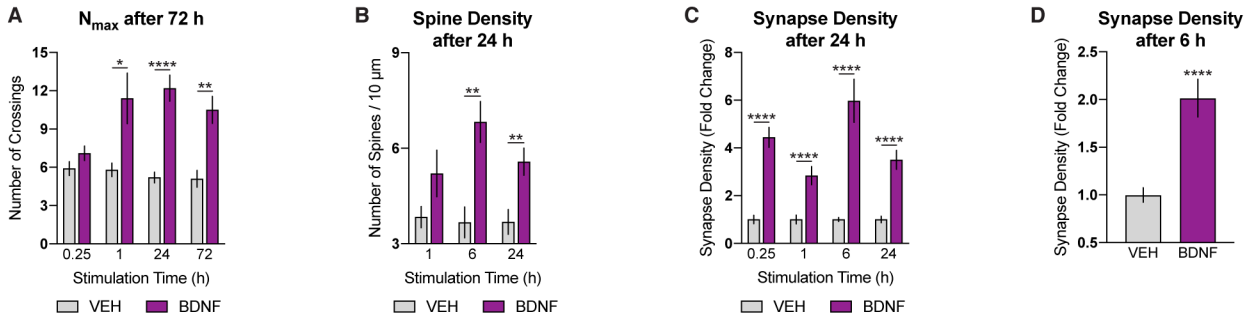

Figure S1. Transient stimulation with BDNF is sufficient to induce growth of cortical neurons, Related to Figure 1. (A) Cortical cultures (DIV3) were treated with BDNF (50 ng/mL) for short periods of time and then allowed to grow for a total of 72 h. Maximum number of crossings (N_{max}) of the Sholl plots are presented as a measure of dendritic arbor complexity (n = 10 neurons). (B) Cortical cultures (DIV19) were treated with BDNF (50 ng/mL) for short periods of time and then allowed to grow for a total of 24 h before dendritic spine density was assessed. (C) Cortical cultures (DIV19) were treated with BDNF (50 ng/mL) for short periods of time and then allowed to grow for a total of 24 h before synapse density was assessed via colocalization of pre- and postsynaptic markers (VGLUT1 and PSD-95, respectively). (D) Cortical cultures (DIV19) were treated with BDNF (50 ng/mL) for 6 h before synapse density was assessed. Data are represented as mean ± SEM. *p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001, as compared to VEH control. For A–C, multiple t tests were performed and p values were corrected for multiple comparisons using the Holm-Sidak method. For D, a one-way analysis of variance with Dunnett's post hoc test was utilized. VEH = vehicle.

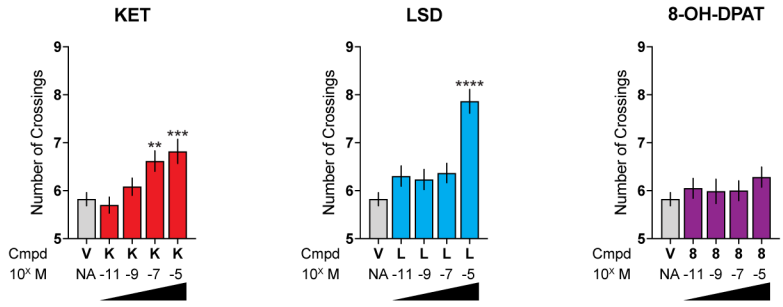

Figure S2. Transient stimulation with psychoplastogens increases dendritic growth in a concentration-dependent manner, related to Figure 1. Cortical cultures (DIV3) were treated with compounds at various concentrations for 1 h and then allowed to grow for a total of 72 h. The maximum number of crossings (N_{max}) of the resulting Sholl plots are shown. Data are represented as mean ± SEM (n = 52–136 neurons). *p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001, as compared to VEH control following a one-way analysis of variance with Dunnett's post hoc test. V = vehicle; K = KET = ketamine; L = LSD = lysergic acid diethylamide; 8 = 8-OH-DPAT = 7-(Dipropylamino)-5,6,7,8-tetrahydronaphthalen-1-ol. See also Figure 1.

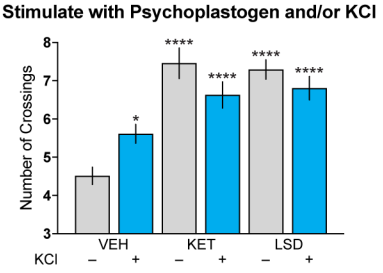

Figure S3. Stimulation with Potassium Does Not Produce Psychoplastogen-Like Effects on Dendritogenesis, Related to Figure 4. Cortical cultures (DIV3) were treated with psychoplastogens (10 µM) for 1 h in the presence or absence of KCl (40 mM) and then allowed to grow for 71 h. The maximum number of crossings (N_{max}) of the resulting Sholl plots are shown. Data are represented as mean ± SEM (n = 35–41 neurons). *p < 0.05, **p < 0.01, ***p < 0.001, ****p < 0.0001, as compared to VEH control without KCl following a one-way analysis of variance with Dunnett's post hoc test. VEH = vehicle; KET = ketamine; LSD = lysergic acid diethylamide; KCl = potassium chloride. See also Figure 4.