

Supplementary Materials

Altered Network Function in Hippocampus After Sub-Chronic Activation of Cannabinoid Receptors in Early Adolescence

Johanna Rehn ¹, Lucas Admeus ² and Bernat Kocsis ^{1,*}

¹ Department Psychiatry, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA 02115, USA; johannapersonsrehn@gmail.com

² Sahlgrenska Academy, University of Goteborg, 41390 Gothenburg, Sweden; lucasadmeus@gmail.com

* Correspondence: bkocsis@hms.harvard.edu

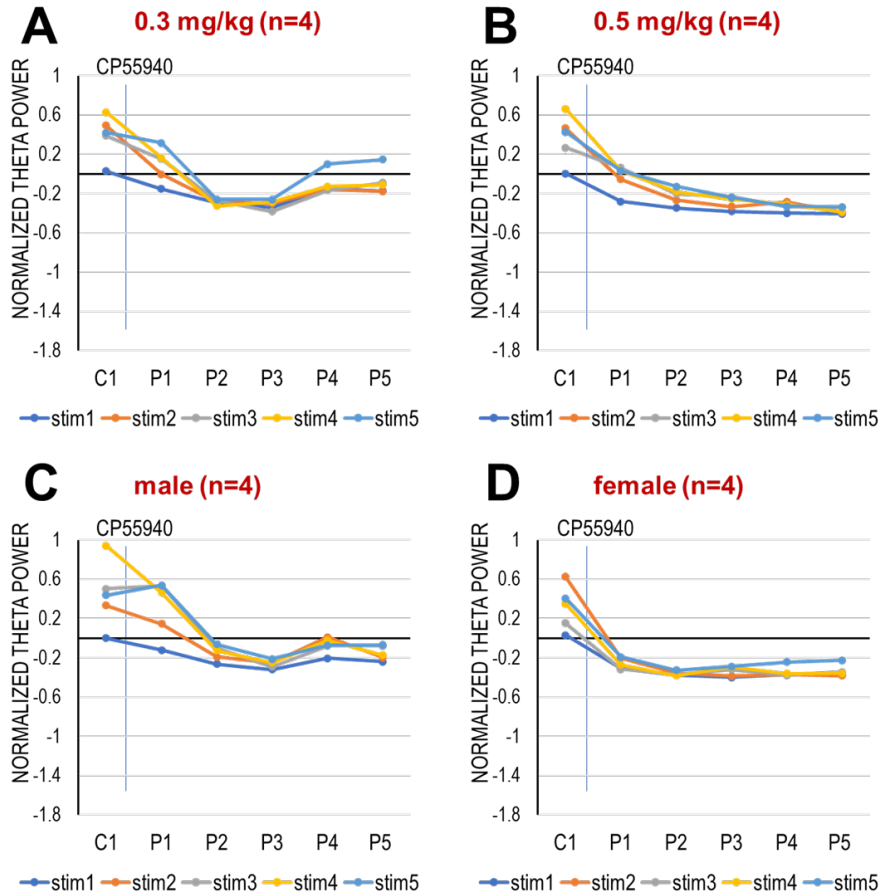


Figure S1. Effect of the testing dose (A-B) and sex (C-D) on the effect of CB1R activation in adult rats with no prior CB exposure. A-B. Effect of CP-55940 injected in different doses (0.3 and 0.5 mg/kg, A and B, respectively). C-D. Effect of CP-55940 injection in adult male (C) and female rats (D). Note slight differences of theta suppression only expressed in delayed onset (P4-P5) and less stable, shorter reaction (P2-P3) following the lower CP-55940 dose and in male rats.

Table S1. Individual experiments numbered/listed in the order of the date of recording performed under urethane anesthesia in adulthood.

Rat Number	Sex	Adolescent Treatment		Experiment in Adulthood	
		Timing (PND)	Compound	at Age (PND)	CP-55940 Dose
1	m	P42-46	vehicle	P72	0.3 mg/kg
2	m	P42-46	CP-55940	P73	0.3 mg/kg
3	f	P42-46	CP-55940	P74	0.3 mg/kg
4	f	P42-46	vehicle	P75	0.3 mg/kg
5	m	P42-46	CP-55940	P76	0.3 mg/kg
6	m	P32-36	vehicle	P70	0.3 mg/kg
7	m	P32-36	CP-55940	P71	0.3 mg/kg
8	f	P32-36	CP-55940	P72	0.3 mg/kg
9	f	P32-36	vehicle	P73	0.3 mg/kg
10	m	P32-36	CP-55940	P74	0.3 mg/kg
11	m	none			vehicle
12	m	none			vehicle
13	f	P42-46	vehicle	P88	0.5 mg/kg
14	f	P42-46	CP-55940	P89	0.5 mg/kg
15	m	P42-46	CP-55940	P90	0.5 mg/kg
16	m	P42-46	vehicle	P91	0.5 mg/kg
17	f	P32-36	vehicle	P85	0.5 mg/kg
18	f	P32-36	CP-55940	P86	0.5 mg/kg
19	m	P32-36	CP-55940	P87	0.5 mg/kg
20	m	P32-36	vehicle	P88	0.5 mg/kg
21	f	P32-36	CP-55940	P111	none
22	f	P42-46	CP-55940	P112	0.5 mg/kg
N=19*	m: n=10 f: n=9	Early: n=9 Late: n=10	CP-55940: n=11 Vehicle: n=9		0.3mg/kg: n=10 0.5mg/kg: n=9

* 19 experiments were used for statistical analysis. Rat#21 died at surgery, rats#11-12 were only used to verify experimental conditions, set-ups, to produce result shown in control animals in numerous prior studies (see e.g. ¹⁻⁴).

References

- 1 Hajos, M., Siok, C. J., Hoffmann, W. E., Li, S. & Kocsis, B. Modulation of hippocampal theta oscillation by histamine H3 receptors. *J Pharmacol Exp Ther* **324**, 391-398 (2008). <https://doi.org/10.1124/jpet.107.130070>
- 2 Sorman, E., Wang, D., Hajos, M. & Kocsis, B. Control of hippocampal theta rhythm by serotonin: role of 5-HT2c receptors. *Neuropharmacology* **61**, 489-494 (2011). <https://doi.org/10.1016/j.neuropharm.2011.01.029>
- 3 Mofleh, R. & Kocsis, B. Respiratory coupling between prefrontal cortex and hippocampus of rats anaesthetized with urethane in theta and non-theta states. *Eur J Neurosci* **54**, 5507-5517 (2021). <https://doi.org/10.1111/ejn.15384>
- 4 Thorn, C. W., Kafetzopoulos, V. & Kocsis, B. Differential Effect of Dopamine D4 Receptor Activation on Low-Frequency Oscillations in the Prefrontal Cortex and Hippocampus May Bias the Bidirectional Prefrontal-Hippocampal Coupling. *Int J Mol Sci* **23** (2022). <https://doi.org/10.3390/ijms231911705>