

Stumpf C. Drug action on the electrical activity of the hippocampus.

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The review describes the electrical activity of the hippocampus and the effect of drugs on this activity. Basically, drugs may produce or inhibit hippocampal theta rhythm or induce seizure-like discharges in the hippocampus. The significance of the septum for hippocampal activity is stressed. [The *SCI*® indicates that this paper has been cited in over 190 publications.]

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About 30 years ago, I became interested in the hippocampal electrical activity, or more specifically, in the action of drugs on this activity. The results of my first study on this topic, which I undertook together with my collaborator of that time, S. Sailer, were published in 1957.¹ Many other papers followed. A comment on another publication of this series appeared as a *Citation Classic* in *Current Contents*®/Life Sciences five years ago.²

In September 1962 I attended a meeting of the Collegium Internationale Neuro-Psycho Pharmacologicum (CINP) in Munich to give a paper on "Drug action on septal and hippocampal units."³ At this occasion, I met one of the editors of the *International Review of Neurobiology*, John R. Smythies, who asked me if I would like to write a review on drug

action on the electrical activity of the hippocampus. I soon started, but because English is not my mother tongue I had some difficulties in drafting the text. It was a happy coincidence that about one year later I was invited to spend one academic year as a visiting associate professor at the Department of Pharmacology, Emory University, Atlanta, Georgia. During my stay there, I studied the fast component in the hippocampal electrical activity,⁴ but at the same time, one of my colleagues there, Harry L. Williams, was kind enough to help me formulate my review, which finally appeared in volume 8 of the *International Review of Neurobiology*.

I continued my research on drug actions on the hippocampal electrical activity for a few more years, but in 1968 my interest shifted to another brain area that exhibits a pronounced rhythmical activity under the influence of various drugs, i.e., the cerebellum-red nucleus system.⁵

I think that one reason why my review has become a *Citation Classic* is the fact that the so-called hippocampal theta rhythm has found widespread interest in the last 10 years or so. When I wrote my review, just one type of hippocampal slow-wave activity was known that could be elicited by a variety of stimulations and by various drugs. Later, it was found that obviously more than one type of hippocampal rhythm exists, and the theta rhythm, known in 1965 and covered in my review, must have appeared as a sort of "classical theta rhythm" to later scientists.

1. Sailer S & Stumpf C. Beeinflussbarkeit der rhinencephalen Tätigkeit des Kaninchens. *Arch. Exper. Pathol. Pharmacol.* 231:63-77, 1957.
2. Petsche H, Stumpf C & Gogolák G. The significance of the rabbit's septum as a relay station between the midbrain and the hippocampus. I. The control of hippocampus arousal activity by the septum cells. *Electroencephalogr. Clin. Neuro.* 14:202-11, 1962. (Cited 185 times.) [See also commentary in *Contemporary classics in the life sciences. Volume 1: cell biology*. Philadelphia: ISI Press, 1986. p. 327.]
3. Stumpf C. Drug action on septal and hippocampal units. *Neuropharmacology* 3:241-4, 1964.
4. ———. The fast component in the electrical activity of rabbit's hippocampus. *Electroencephalogr. Clin. Neuro.* 18:477-86, 1965. (Cited 90 times.)
5. Gogolák G & Stumpf C. Action of drugs on the cerebellar electrical activities. *Prog. Pharmacol.* 3:1-66, 1980.