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## Arousal-enhancing properties of the CB1 cannabinoid receptor antagonist SR 141716A in rats as assessed by electroencephalographic spectral and sleep-waking cycle analysis

Vincent Santucci, Jean-jacques Storme, Philippe Soubrié, Gérard Le Fur

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### Abstract

The effects of the central (CB1) cannabinoid receptor antagonist SR 141716A on the sleep-waking cycle were investigated in freely-moving rats using time scoring and power spectral analysis of the electroencephalogram (EEG). Over a 4-hour recording period, SR 141716A (0.1, 0.3, 1, 3 and 10 mg/kg I.P.) dose-dependently increased the time spent in wakefulness at the expense of slow-wave sleep (SWS) and rapid eye movement sleep (REMS), delayed the occurrence of REMS but did not change the mean duration of REMS episodes. Moreover, the compound induced no change in motor behavior. At the efficient dose of 3 mg/kg I.P., SR 141716A reduced the spectral power of the EEG signals typical of SWS but did not affect those of wakefulness. Taken together, these results demonstrate that the EEG effects of SR 141716A reflect arousal-enhancing properties. In addition, the present study suggests that an endogenous cannabinoid-like system is involved in the control of the sleep-waking cycle.

### Keywords

SR 141716A; cannabinoid receptor antagonist; electroencephalogram; sleep-waking cycle

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