



Activation of orexin/hypocretin type 1 receptors stimulates cAMP synthesis in primary cultures of rat astrocytes

Agata Woldan-Tambor¹, Kaja Biegańska¹, Anna Wiktorowska-Owczarek³,
Jolanta B. Zawilska^{1,2}

¹Department of Pharmacodynamics, Medical University of Łódź, Muszyńskiego 1, PL 90-151 Łódź, Poland

²Institute for Medical Biology, Polish Academy of Sciences, Lodowa 106, PL 93-232 Łódź, Poland

³Department of Pharmacology, Medical University of Łódź, Żeligowskiego 7/9, PL 90-752 Łódź, Poland

Correspondence: Jolanta B. Zawilska, e-mail: jolanta.zawilska@umed.lodz.pl

Abstract:

The effects of orexins, which are also named hypocretins, on cAMP formation were examined in primary cultures of rat astrocytes. Orexin A, an agonist of OX₁ and OX₂ receptors, stimulated cAMP production with an EC₅₀ value of 0.68 μM and potentiated the forskolin-induced increase in the nucleotide synthesis. [Ala¹¹-D-Leu¹⁵]orexin B, an agonist of OX₂ receptors, was inactive. The effects of orexin A were antagonized by SB 408124, a selective blocker of OX₁ receptors, but were not affected by TCS OX2 29, a selective antagonist of OX₂ receptors. We hypothesized that the activation of OX₁ receptors stimulated cAMP synthesis in primary rat astrocyte cultures.

Key words:

orexin, orexin receptors, astrocytes, cerebral cortex, cAMP
