Short communication

Constitutive activity of β-adrenergic receptors in C6 glioma cells

Paulina Sokołowska1, Jerzy Z. Nowak1,2

1Center for Medical Biology, Polish Academy of Sciences, Łódzka 106, PL 93-232 Łódź, Poland
2Department of Pharmacology, Medical University of Łódź, Żelizowskiego 7/9, PL 90-752 Łódź, Poland

Correspondence: Jerzy Z. Nowak, e-mail: jz.nowak@pharm.am.umed.pl

Abstract:
Alprenolol and propranolol (0.001–10 μM) significantly and concentration-dependently inhibited both isoprenaline-driven and basal (non-stimulated) cyclic adenosine monophosphate (cAMP) accumulation in the rat C6 glioma cells, showing high potency particularly in the latter condition (IC50 values of 30 and 27 nM, respectively). In the rat cerebral cortical slices, these two tested β-adrenoceptor antagonists inhibited the isoprenaline-evoked cAMP response, but had no effect on the nucleotide accumulation under basal (non-stimulated) conditions. The obtained results suggest that native β-adrenoceptors occurring in C6 glioma cells may be constitutively active.

Key words:
β-adrenergic receptors, C6 glioma cells, propranolol, alprenolol, inverse agonists, constitutive receptor activity