



Short communication

Sphingosine-1-phosphate augments agonist-mediated contraction in the bronchial smooth muscles of mice

Yoshihiko Chiba, Hiroki Takeuchi, Hiroyasu Sakai, Miwa Misawa

Department of Pharmacology, School of Pharmacy, Hoshi University, 2-4-41 Ebara, Shinagawa-ku,
Tokyo 142-8501, Japan

Correspondence: Yoshihiko Chiba, e-mail: chiba@hoshi.ac.jp

Abstract:

The effects of sphingosine-1-phosphate (S1P) on bronchial smooth muscle (BSM) contractility were investigated in naive mice. S1P had no effect on the basal tone of the isolated BSM tissues. However, in the presence of S1P (10^{-6} M), the BSM contractions induced by acetylcholine (ACh) and endothelin-1 (ET-1) were significantly augmented: both the ACh and ET-1 concentration-response curves were significantly shifted to the left. In contrast, the pretreatment with S1P had no effect on the contractions induced by high K^+ depolarization. It is thus possible that S1P augments BSM contraction induced by the activation of G protein-coupled receptors.

Key words:

sphingosine-1-phosphate (S1P), bronchial smooth muscle, airway hyperresponsiveness, asthma, mouse
