World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Mechanisms of O-1602 Induced Endothelium-Independent Vasorelaxation of Rat Small Mesenteric Artery

Authors : Yousuf Al Suleimani, Ahmed Al Mahruqi

Abstract : A typical cannabinoid O-1602 induces vasorelaxation and activates the orphan G protein-coupled receptor GPR55 in human endothelial cells. The aim of this study is to characterize the mechanisms of endothelium-independent relaxation of O-1602 in the rat small mesenteric artery using wire myograph. In endothelium-denuded vessels, O-1602 partially produced concentration-dependent vasorelaxation. In vessels depleted of intracellular Ca2+ (by EGTA and methoxamine), CaCl2 produced concentration-dependent contraction. Preincubation with O-1602 (at 10 µM and 30 µM) abolished the contractile responses ($P<0.01$). The putative antagonist at novel “endothelial anandamide receptor” O-1918 (10 µM) significantly reversed the inhibitory effect of O-1602 on CaCl2-induced vasoconstriction. It is likely that the mechanism of endothelium-independent vasorelaxation to O-1602 is mediated by interfering with Ca2+ entry via an O-1918-sensitive pathway.

Keywords : O-1602, endothelium, vasorelaxation, calcium
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020