

Isovitexin suppresses lipopolysaccharide-mediated inducible nitric oxide synthase through inhibition of NF-kappa B in mouse macrophages

林美香

Lin CM;Huang ST;Liang YC;Lin MS;Shih CM;Chang YC;Chen TY;Chen CT

Abstract

Isovitexin exhibits potent antioxidant activities. In this study, the activity of nitric oxide synthase (iNOS) in lipopolysaccharide (LPS)-activated RAW264.7 macrophages after incubation with isovitexin was investigated. Isovitexin was able to reduce the production of hydrogen peroxide induced by LPS in mouse macrophage RAW264.7 cells. The cells incubated with isovitexin had markedly reduced LPS-stimulated NO production with an IC₅₀ value of 58.5 μM. The expression of iNOS was also inhibited when the cells were treated with isovitexin. A transient transfection experiment showed that isovitexin suppressed the iNOS promoter and NF-κB-dependent transcriptional activities. It was also found to inhibit IKK kinase activity and prevent the degradation of IκBα in activated RAW264.7 cells. Additionally, Western blotting analysis revealed that isovitexin prevented the translocation of NF-κB from the cytoplasm to the nucleus. Our results indicate that its ROS scavenger and IKK inhibitory activities also contribute to the suppression of ROS-mediated NF-κB activity. These results suggest that isovitexin, a food phytochemical contained in dietary rice products, might have biological significance.