

# Platonin attenuates LPS-induced CAT-2 and CAT-2B induction in stimulated murine macrophages

黃俊仁

Chen CC;Lee JJ;Tsai PS;Lu YT;Huang CL;Huang CJ

摘要

## Abstract

Background: Platonin, a cyanine photosensitizing dye, is a potent immunomodulator that suppresses acute inflammation. Platonin not only inhibits interleukin (IL)-1  $\beta$ , IL-6, and tumor necrosis factor (TNF)- $\alpha$  production but also improves circulatory failure in septic rats. In addition, platonin reduces plasma nitric oxide (NO) formation during sepsis. However, the effects of platonin on inducible NO synthase (iNOS) and cationic aminoacid transporter (including CAT-2, CAT-2 A, and CAT-2B) expressions during sepsis remain uninvestigated. Methods: Five groups of confluent murine macrophages (RAW264.7 cells) were randomly allocated to receive a 1-h pretreatment of one of five doses of platonin (0.1  $\mu$ M, 1  $\mu$ M, 10  $\mu$ M, 100  $\mu$ M, or 1000  $\mu$ M) followed by lipopolysaccharide (LPS; 100 ng ml<sup>-1</sup>). For negative, positive, and platonin control, three other groups of cell cultures were randomly allocated to receive phosphate-buffered saline, LPS, or platonin (1000  $\mu$ M). The cultures were harvested after exposing them to LPS for 18 h or a comparable duration in those groups without LPS. NO production, L-arginine transport, and expression of the relevant enzymes were then evaluated. Results: Platonin significantly attenuated LPS-induced up-regulation of iNOS expression and NO production in stimulated murine macrophages in a dose-dependent manner. Platonin also significantly inhibited up-regulation of CAT-2 and CAT-2B expression as well as L-arginine transport in LPS-stimulated murine macrophages in a dose-dependent manner. In contrast, CAT-2 A expression in murine macrophages was not affected by LPS and/or platonin. Conclusions: Platonin attenuates NO production and L-arginine transport in LPS-stimulated murine macrophages possibly through inhibiting iNOS, CAT-2, and CAT-2B expression