

P29

Curcumin Inhibits Immunostimulatory Function of Dendritic Cells: Mitogen-Activated Protein Kinases and Translocation of NF- κ B as potential targets

Gi-Young Kim¹, Woo-Shin Ko², Cheung-Yun Jin¹, Min-Ho Han¹,
Yeong-Min Park³ and Yung Hyun Choi⁴

¹Research Institute of Oriental Medicine, ²Clinical Research Center of Oriental Medicine, ³Department of Microbiology & Immunology, Pusan National University College of Medicine, Busan 602-739; South Korea, ⁴Department of Biochemistry, Donggeui University College of Oriental Medicine, Busan 614-052, South Korea

Curcumin has been shown to exhibit anti-inflammatory, anti-mutagenic, and anti-carcinogenic activities. However, the effect of curcumin on the maturation and immunostimulatory function of dendritic cells (DC) largely remains unknown. In this study, we examined whether curcumin can influence surface molecule expression, cytokine production, and their underlying signaling pathways in murine bone marrow (BM) derived-DC. DC were derived from murine BM cells and used as immature or LPS-stimulated mature cells. The DC were tested for surface molecule expression, cytokine production, dextran uptake, the capacity to induce T-cell differentiation, and their underlying signaling pathways. Curcumin significantly suppressed CD80, CD86, and MHC class II expression, but not MHC I expression, in the DC. The DC also exhibited impaired IL-12 expression and proinflammatory cytokine production (IL-1, IL-6, and TNF- α). The curcumin-treated DC were highly efficient at Ag capture, via mannose receptor-mediated endocytosis. Curcumin inhibited LPS-induced MAPK activation and the translocation of NF- κ B p65. In addition, the curcumin-treated DC showed an impaired induction of Th1 responses and a normal cell-mediated immune response. These novel findings provide new insight into the immunopharmacological role of curcumin in impacting on the DC. These novel findings open perspectives for the understanding of the immunopharmacological role of curcumin and therapeutic adjuvants for DC-related acute and chronic diseases.