

LSP로 유도된 RAW 264.7 대식세포에서 TLR4/NF- κ B와 CXCL12/CXCR4 경로 억제를 통한 DATS의 항염증 효과

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Anti-inflammatory effects of DATS via suppression of cross talk between the TLR4/NF- κ B and CXCL12/CXCR4 pathways in LSP-stimulated RAW 264.7 macrophages

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ABSTRACT

Diallyl trisulfide (DATS) is an organic polysulfide compound found in garlic. Although certain studies have demonstrated that DATS possesses strong anti-inflammatory activity, the underlying molecular mechanisms remain largely unresolved. In this study, we examined whether DATS exerts anti-inflammatory activity and investigated the possible mechanisms. Our results indicated that DATS significantly suppressed the lipopolysaccharide (LPS)-induced release of nitric oxide (NO) and prostaglandin E2 by inhibiting inducible NO synthase and cyclooxygenase-2 expression at the transcriptional and post-transcriptional levels in RAW 264.7 macrophages. DATS also down-regulated Toll-like receptor 4 (TLR4) and myeloid differentiation factor 88 expression, and inhibited nuclear translocation of nuclear transcription factor- κ B (NF- κ B) in LPS-stimulated 264.7 macrophages. Furthermore, we found that these inhibitory effects of DATS were associated with the inhibition of chemokine receptor (CXCR4) and ligand (CXCL12) expression, and reactive oxygen species generation. Overall, the present data indicated that DATS had anti-inflammatory effects on LPS-activated macrophages, possibly via inhibiting the TLR4/NF- κ B and/or chemokine signaling pathways, and DATS could be a potential drug therapy for inflammation and its associated diseases.

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** (Acknowledgement) 본 논문은 환경부 및 정부(교육과학기술부)의 재원으로 국립낙동강생물자원관 (NNIBR201902101) 및 한국연구재단(NRF-2016R1C1B1014724)의 지원을 받아 수행된 연구이며, 이에 감사드립니다.