Clonidine Enhances Type-2 Cationic Amino Acid Transporter Transcription in Endotoxin-activated Murine Macrophages

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摘要

Abstract

Background: We sought to evaluate the effects of clonidine on type-2 cationic amino acid transporter (CAT-2) transcription in endotoxin-activated murine macrophages.
Methods: To determine the effects of clonidine on CAT-2 transcription, confluent murine macrophages (RAW264.7 cells) were treated with 1× phosphate buffered saline, clonidine (1000 μM), lipopolysaccharide (LPS, 100 ng/mL), or LPS plus clonidine (10, 100, or 1000 μM). After reacting with LPS for 18 hours or a comparable duration in groups without LPS, cell cultures were harvested and the CAT-2 mRNA concentration was assayed. To determine the stability of CAT-2 mRNA, confluent macrophages were treated with LPS or LPS plus clonidine (100 μM). After reacting with LPS for 6 hours, CAT-2 transcription was terminated and the stability of CAT-2 mRNA was determined.
Results: The CAT-2 mRNA concentration of cell cultures receiving LPS plus clonidine (100 μM) or LPS plus clonidine (1000 μM) were significantly higher than that of the cell cultures receiving LPS alone, whereas the CAT-2 mRNA concentrations of cell cultures receiving LPS plus clonidine (10 μM) was comparable to that of cell cultures receiving LPS alone. The data indicated that clonidine significantly enhanced LPS-induced CAT-2 transcription. The estimated half-life of CAT-2 mRNA of cell cultures
receiving LPS was similar to that of cell cultures receiving LPS plus clonidine.
These results indicated that clonidine did not affect CAT-2 mRNA stability.
Conclusion: Clonidine enhances CAT-2 transcription in endotoxin-activated murine macrophages.