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Effects of Baicalin from Traditional Chinese Medicine against Lipopolysaccharide-induced Inflammation in BV2 Cells *In Vitro*

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SUMMARY. **Baicalin is a traditional medicine derived from *Scutellaria baicalensis* in China. In this study, we investigated its anti-inflammatory effects and the corresponding mechanism by using BV2 cells treated with lipopolysaccharides (LPS) to induce an inflammatory response *in vitro*. MTT(3-(4,5)-dimethylthiahiazo(-z-y1)-3,5-di-phenytetrazoliumromide) assay was used to observe the cell viability. The total nitric oxide (nitrate/nitrite) content in the cell supernatant was measured using the Griess reagent. The levels of IL-1β, IL-6, and TNF-α production were detected by enzyme-linked immunosorbent assay (ELISA). The levels of IL-1β, IL-6, and TNF-α production were significantly increased as induced by LPS in the supernatant of BV2 cells ($P < 0.01$). However, baicalin decreased the production of related inflammatory cytokines, including IL-1β ($P < 0.01$), IL-6 ($P < 0.01$), and TNF-α ($P < 0.01$). Furthermore, baicalin (100 μg/mL) significantly inhibited the expression of total nitric oxide (nitrate/nitrite) as induced by LPS in BV2 cells. Baicalin can alleviate the LPS-induced inflammatory responses in BV2 cells by downregulating the expression of inflammatory cytokines, suggesting its potential clinical use in neuroinflammation diseases.**

RESUMEN. Baicalina es una medicina tradicional derivada de *Scutellaria baicalensis* en China. En este estudio, investigamos sus efectos antiinflamatorios y el mecanismo correspondiente mediante el uso de células BV2 tratadas con lipopolisacáridos (LPS) para inducir una respuesta inflamatoria *in vitro*. Se usó el ensayo MTT (3-(4,5)dimetiltiasiazo (-z-i1)-3,5-di-feniltetrazolio) para observar la viabilidad celular. El contenido total de óxido nítrico (nitrato/nitrito) en el sobrenadante celular se midió utilizando el reactivo de Griess. Los niveles de producción de IL-1β, IL-6 y TNF-α se detectaron mediante el ensayo inmunoabsorbente ligado a enzimas (ELISA). Los niveles de producción de IL-1β, IL-6 y TNF-α aumentaron significativamente según lo inducido por LPS en el sobrenadante de células BV2 ($P < 0.01$). Sin embargo, baicalina disminuyó la producción de citoquinas inflamatorias relacionadas, que incluyen IL-1β ($P < 0.01$), IL-6 ($P < 0.01$) y TNF-α ($P < 0.01$). Además, la baicalina (100 μg/mL) inhibió significativamente la expresión del óxido nítrico total (nitrato/nitrito) inducida por LPS en células BV2. Baicalina puede aliviar las respuestas inflamatorias inducidas por LPS en células BV2 al disminuir la expresión de citoquinas inflamatorias, lo que sugiere su posible uso clínico en enfermedades de neuroinflamación.

KEY WORDS: baicalin, BV2 cells, lipopolysaccharides, neuroinflammation.

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