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Sanggenol L Alleviates Inflammation and Ankles Joint Destruction through the Suppression of the P13K/AKT Pathway in Arthritis Prompted by Type II Collagen in Experimental Rats

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SUMMARY. **Rheumatoid arthritis (RA) is an autoimmune ailment with joint impairment and bone erosion. Hence, novel treatment approaches for RA are essential. In this current work, we assessed the anti-inflammatory and anti-arthritic potential of Sanggenol (SGL) on collagen-induced arthritis (CIA) for the first time. The rats were arbitrarily segregated into four sets: Normal, CIA, and CIA + SGL (25 and 50 mg/kg BW). The hematological, biochemical markers, cytokines, inflammatory enzymes, histopathology of ankle joint, and western blot were explored. Hematological alterations, inflammatory enzymes, cytokines, histopathological variations, and joint inflammation were attenuated by SGL in a dosage-dependent manner. The P13K/AKT proteins level, ceruloplasmin, rheumatoid factor, and C-reactive protein in RA were relapsed by SGL. The anti-rheumatic action of SGL was associated with the attenuation of the P13K/AKT signaling, which suppresses cytokine production and inflammation, which reduces cartilage damage. These findings mention that SGL is unveiled as a powerful therapeutic alternative for RA remedy.**

RESUMEN. La artritis reumatoide (AR) es una enfermedad autoinmune con deterioro de las articulaciones y erosión ósea. Por lo tanto, los nuevos enfoques de tratamiento para la AR son esenciales. En este trabajo actual, evaluamos el potencial antiinflamatorio y antiartrítico de Sanggenol (SGL) en la artritis inducida por colágeno (CIA) por primera vez. Las ratas se separaron arbitrariamente en cuatro conjuntos: Normal, CIA y CIA + SGL (25 y 50 mg/kg de peso corporal). Se exploraron los marcadores hematológicos, bioquímicos, citocinas, enzimas inflamatorias, histopatología de la articulación del tobillo y western blot. Las alteraciones hematológicas, las enzimas inflamatorias, las citocinas, las variaciones histopatológicas y la inflamación articular fueron atenuadas por SGL de forma dosis-dependiente. El nivel de proteínas P13K/AKT, ceruloplasmina, factor reumatoideo y proteína C reactiva en AR fueron recidivados por SGL. La acción antirreumática de SGL se asoció con la atenuación de la señalización de P13K/AKT, que suprime la producción de citocinas y la inflamación, lo que reduce el daño del cartílago. Estos hallazgos mencionan que SGL se presenta como una poderosa alternativa terapéutica para el tratamiento de la AR.

KEY WORDS: collagen-induced arthritis**,** cytokines, inflammation, P13K/AKT, sanggenol L.

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