Validation data for Isoliquiritigenin

https://www.invivogen.com/isoliquiritigenin

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Isoliquiritigenin is an inhibitor of NF-κB and the NLRP3 (NOD-like receptor (NLR) pyrin domain-containing protein 3) inflammasome. NF-κB regulates multiple aspects of innate and adaptive immune functions and serves as a pivotal mediator of inflammatory responses. While the NLRP3 inflammasome is an innate immune sensor that is activated by a two-step process; a first signal ('priming') is provided by microbial molecules such as lipopolysaccharide (LPS), and the second signal is provided by a wide array of stimuli including endogenous molecules or crystalline substances such as monosodium urate (MSU) crystals. Inflammasome activation triggers caspase-1-mediated interleukin-1β (IL-1β) production and secretion.
The ability of isoliquiritigenin to inhibit the NLRP3 inflammasome was validated using InvivoGen's THP-1/HEK-Blue™ IL-1β assay. This assay uses the secretion of IL-1β by THP1-Null2 cells as an indicator of NLRP3 inflammasome induction. The IL-1β production by these cells is measured using HEK-Blue™ IL-1β cells. Treatment with isoliquiritigenin inhibited IL-1β secretion in a dose-dependent manner **(Figure 1)**.

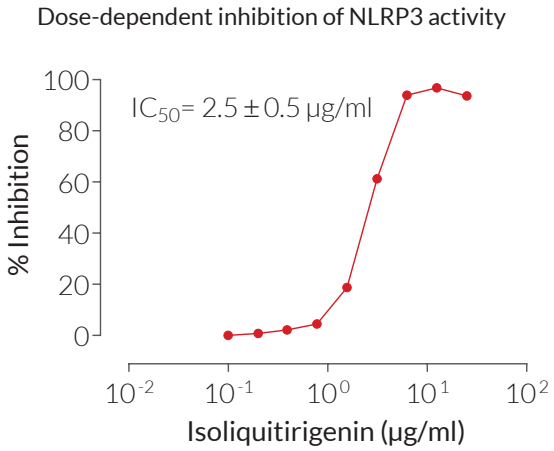

Figure 1: Isoliquiritigenin inhibits the NLRP3 inflammasome response in a dose-dependent manner.
THP1-Null2 cells, primed with LPS-EK (1 µg/ml for 3 h), were stimulated with MSU (150 µg/ml) and increasing concentrations of isoliquiritigenin. After overnight incubation, IL-1β secretion was analyzed by adding 50 µl of supernatant from treated THP1-Null2 cells to HEK-Blue™ IL-1β cells. IL-1β-induced activation of NF-κB was assessed by measuring the levels of SEAP in the supernatant of HEK-Blue™ IL-1β cells using QUANTI-Blue™ Solution, a SEAP detection reagent, and by reading the optical density (OD) at 655 nm. Data are shown as a percentage (%) inhibition of the maximal response for the ligand with no inhibitor.

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