Validation data for MSU crystals

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Version 21L22-MM

Monosodium urate (MSU) crystals are inducers of the NLRP3 inflammasome, a large intracellular multiprotein complex that plays a central role in innate immunity[1, 2]. NLRP3 inflammasome activation requires an initial signal ('priming'), provided by microbial molecules, such as lipopolysaccharide (LPS), and a secondary signal, provided by a wide array of stimuli including bacterial toxins, endogenous molecules, or crystalline structures such as MSU crystals. This triggers the multimerization of the NLRP3 inflammasome and caspase-1 activation with the subsequent maturation and secretion of IL-1β and IL-18.

The ability of MSU crystals to induce the NLRP3 inflammasome has been validated using THP1-HMGB1-Lucia™ cells. The production of IL-1β by THP1-HMGB1-Lucia™ cells was measured using HEK-Blue™ IL-1β cells. Treatment with MSU crystals induced IL-1β secretion, an indicator of NLRP3 inflammasome activation.

1. Schroder K. & Tschopp J., 2010. The inflammasomes. Cell 140(6):821-32. **2. Franchi L. *et al.*, 2012.** Sensing and reacting to microbes through the inflammasomes. Nat Immunol 13(4)325-32.

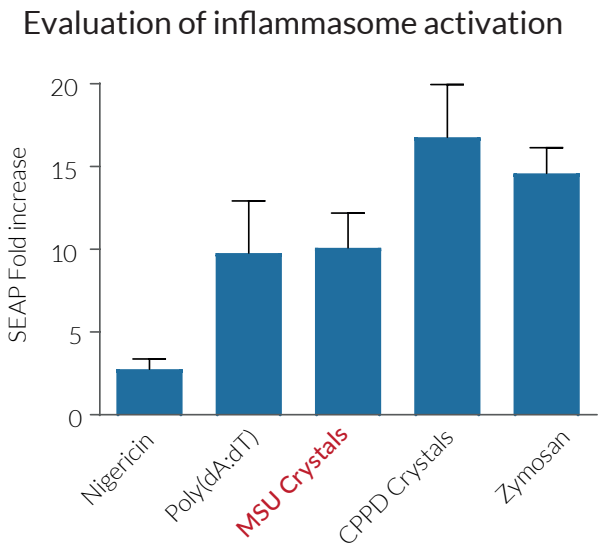

Figure 1. IL-1β production in THP1-HMGB1-Lucia™ cells. Cells were primed with 1 µg/ml LPS-EK for 3h and then incubated with inflammasome inducers; 8 µM Nigericin, 0.5 µg/ml complexed Poly(dA:dT), 200 µg/ml MSU Crystals, 100 µg/ml CPPD Crystals, or 1 mg/ml Zymosan. After 24h, supernatants were incubated with HEK-Blue™ IL-1β cells overnight and SEAP activity was assessed using QUANTI-Blue™ Solution. The optical density (OD) was read at 630 nm. Data are shown as a fold increase (mean ± SEM) over non-induced cells.

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