

## 1056 Unsaturated fatty acids inhibit saturated fatty acids-induced NLRP3 inflammasome activation

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Interleukin-1 beta (IL-1 $\beta$ ) is a pro-inflammatory cytokine involved in many diseases such as type 2 diabetes, atherosclerosis and gouty arthritis. All these pathologies are characterized by elevated free fatty acids levels. The aim of this study was to investigate *in vitro* whether free fatty acids could modulate the IL-1 $\beta$  release through the NLRP3 inflammasome.

Saturated fatty acids (SFAs) (C16 :0 and C18 :0) but not unsaturated fatty acids (UFAs) (C18 :1 and C18 :2) induced IL-1 $\beta$  secretion in PMA-differentiated human monocytic cell line THP-1 and LPS-primed human primary monocytes by a caspase-1- and NLRP3-dependent pathway. Furthermore, UFAs were able to inhibit SFAs-induced IL-1 $\beta$  release. The inhibiting effect of UFAs resulted from a lack of IL-1 $\beta$  and caspase-1 maturation. UFAs probably affect a step upstream the NLRP3 inflammasome as suggested by their ability to also inhibit NLRP3 inflammasome activation by other agents such as nigericin.

These results provide new insights in the field of metabolic disorders and underline the involvement of diet, mainly fats, in the appearance of several obesity-linked diseases characterized by a chronic and low grade inflammation.

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