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## **Modulation of inflammatory genes in THP-1 derived macrophages by fatty acids**

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The incorporation of dietary fatty acids into the membranes of immune cells defines their physical and chemical properties. During an inflammatory response, macrophages trigger the activation of signaling pathways contributing to the course and duration of this process. Gene expression changes induced by and modified by fatty acids may modulate the inflammatory response. This study aims to explore the regulation of inflammatory gene expression by fatty acids in macrophages and how this determines the production of pro and anti-inflammatory metabolites in response to lipopolysaccharide (LPS) stimulation.

THP-1 cells were cultured with supplemented RPMI 1640 medium and differentiated to macrophages using phorbol 12-myristate 13-acetate. THP-1 derived macrophages were incubated with different fatty acids and with or without LPS. Cell pellets and supernatants were collected and signaling proteins and gene expression (cell pellets), and released cytokines and lipid mediators (supernatants) evaluated.

PMA treatment induced the expression macrophage features on THP-1 cells. LPS induced inflammatory signaling and the time-dependent release of cytokines and lipid mediators. The effects of fatty acids on these responses will be presented.

Our results suggest that the production of cytokines and lipid mediators is regulated by NF $\lambda$ B and other signaling pathways. Fatty acids may induce changes in inflammatory genes and signaling pathways in THP-1 macrophages.