Interleukin-6 and lipopolysaccharide modulate hepcidin mRNA expression by Hepg2 cells

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Iron homeostasis is controlled by hepcidin (Hpc) as well as other ways. Hpc expression is regulated by iron (Fe) storage and by inflammation, but the joint effect of both stimuli remains unclear. We studied the modulatory role of inflammatory agents (IL6 and LPS) over Hpc and DMT1 mRNA expression in HepG2 cells preloaded with Fe. HepG2 cells were preloaded with different Fe concentrations (holo-Tf or Fe-NTA) and then incubated with IL6 or LPS. We measured intracellular Fe levels by AAS with graphite furnace, transferrin receptor (TfR) by ELISA and mRNA relative abundance of Hpc and DMT1 by qRT-PCR. The maximum effect on Fe uptake was observed in cells incubated with 30 ng/ml IL6 ($p < 0.01$) and 500 ng/ml LPS ($p < 0.05$). In HepG2 cells preloaded with holo-Tf or Fe-NTA and challenged with IL6 and LPS, we observed a decreased: (a) Hpc mRNA relative abundance (two-way ANOVA: $p < 0.05$ and $p < 0.001$, respectively), (b) DMT1 mRNA relative abundance and TfR1 protein levels (two-way ANOVA: $p < 0$