

P002 Regulation of macrophage CD163 and CD71 expression by iron.

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CD163 is a scavenger receptor expressed by monocytes and macrophages, which clears haemoglobin-haptoglobin complexes. We have investigated the role of environmental iron levels in regulating expression of this anti-inflammatory receptor. Blood mononuclear cells (MNC) were cultured for 7 days. Macrophage (M ϕ) markers CD11b (Mac 1a), CD14 (LPS receptor), CD16 (FcR3a), CD64 (FcRI) and CD71 (transferrin receptor) were used to track differentiation. M ϕ were then incubated for 18h in the presence of 10ng/ml IL-10 to induce CD163, together with Fe-saturated holotransferrin (holoTf) or Fe-free apotransferrin (apoTf) (0 - 25 μ M). Extracellular Fe was also depleted using the Fe-chelator desferrioxamine (0 -200 μ M). Surface antigen expression was detected using fluorescent-labelled antibodies and flow cytometry. M ϕ markers CD11b, CD64 and CD16 all increased over 7 day culture. CD14 decreased by 50%. CD71 expression increased 7-fold; CD163 increased 3.5-fold. Upon secondary culture with IL-10, holoTf produced a dose-dependent augmentation of CD163 expression ($p < 0.05$). apoTf showed no such effect. holoTf also induced CD163 without IL-10 ($p < 0.05$). Fe chelation resulted in a dose dependent reduction in IL-10-induced CD163 expression (maximal at 25 μ M desferrioxamine $p < 0.05$). In conclusion, increased Fe loading caused induction of mono/M ϕ CD163 and CD71 whilst depletion of Fe had the opposite effect. This could represent an important homeostatic mechanism for the uptake and removal of Fe by cells of the reticuloendothelial system during inflammation.