

**Leuk Res. 1994 Jan;18(1):17-21.**

**CD14 mediated endogenous TNF-alpha release in HL60 AML cells: a potential model for CD14 mediated endogenous cytokine release in the treatment of AML.**

Treon SP, Anand B, Ulevitch R, Broitman SA.

Department of Microbiology, Boston University School of Medicine, MA 02118.

In previous studies, HL60 AML cells treated with tumor necrosis factor-alpha (TNF), interferon-gamma (IFN), and lipopolysaccharides (LPS) displayed decreased growth and viability, enhanced monocytic pathway differentiation and endogenous TNF release. Endogenous TNF release by LPS/TNF/IFN treated HL60 cells was postulated to play a role with the above findings. In these studies, HL60 cells expressed CD14 when treated with TNF, IFN, and LPS. CD14 mediates TNF release in monocytes/macrophages in response to binding of LPS with LPS binding protein (LBP). CD14 was not expressed in either untreated or LPS only treated HL60 cells. CD14 expression was present and greater with HL60 cells cultured with LPS/TNF/IFN vs TNF/IFN (47.47% vs 9.07% positive, respectively) suggesting synergism for LPS in CD14 induction. CD14 expression was associated with endogenous TNF release, and with significantly higher levels by HL60 cells treated with LPS/TNF/IFN vs TNF/IFN ( $p < 0.001$ ). Addition of anti-CD14 antibody significantly reduced release of TNF in TNF/IFN ( $p < 0.001$ ) and LPS/TNF/IFN ( $p = 0.0013$ ) treated cells. KG1 and U937 AML cells treated with LPS, TNF, and IFN did not express CD14, nor release TNF. A model for inducing release of endogenous growth inhibitory cytokines by CD14 bearing AML cells is proposed as an approach to AML therapy.