

P001 Role of CD14 in the recognition of smooth and rough LPS in the lung

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Introduction: CD14 is essential for activation of the TLR4-MD2 complex *in vitro* by the smooth form but not rough form of LPS.

Aim of our study was to investigate the role of CD14 in the distinction of different LPS chemotypes *in vivo* during lung inflammation.

Methods: CD14-KO and WT mice were intranasally inoculated with smooth or rough LPS (0.1, 1.0 and 10 μ g). Lung inflammation was quantified by determining differential cell counts and TNF- α concentrations in bronchoalveolar lavage fluid obtained 6h later.

Results: Lung inflammation was attenuated in CD14-KO mice treated with 0.1 μ g smooth LPS as indicated by reduced neutrophil influx and lower TNF- α concentrations. Surprisingly, CD14-KO mice demonstrated enhanced lung inflammation upon administration of 10 μ g smooth LPS. Lung inflammation induced by rough LPS was also partly CD14 dependent: whereas CD14-KO mice displayed less neutrophil influx upon inoculation with 0.1 μ g LPS, these mice showed enhanced TNF- α release after administration of 1.0 and 10 μ g LPS.

Conclusions: CD14 facilitates the effects of low dose LPS in the lung *in vivo*, whereas this receptor inhibits the effects of higher LPS doses. The ability of CD14 to discriminate between smooth and rough LPS *in vitro* is less clear *in vivo* during lung inflammation.