Title: LSC 2013 abstract - The role of glutaredoxin-1 in diesel exhaust particles-induced pulmonary inflammation

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Body: Rationale: Inhalation of diesel exhaust particles (DEP) is associated with an oxidative and inflammatory response in the lung (Provoost et al., J Allergy Clin Immunol., 2012, 129: 483-491). Glutaredoxin-1 (GRX1) is a cytosolic enzyme that can regulate redox-dependent signalling cascades and pro-inflammatory transcription factors via modulation of protein glutathionylation. We investigated whether GRX1 regulates DEP-induced pulmonary inflammation. Methods: WT and GRX1 knockout (KO) mice were intratracheally instilled with saline or 100 µg DEP (SRM 2975). Inflammatory cell recruitment towards the bronchoalveolar lavage fluid (BALF) and lung tissue were examined by flow cytometry. Results: WT mice showed increased neutrophil recruitment towards BALF in response to DEP exposure, which was augmented in GRX1 KO mice. The recruitment of monocytes and dendritic cells to BALF was similar between DEP-exposed WT and GRX1 KO mice. In lung tissue, DEP-induced inflammation was comparable between WT and GRX1 KO. Conclusion: GRX1 has a limited, but protective role in DEP-induced neutrophilic inflammation. Funding: Fund for Scientific Research Flanders - Belgium (FWO Vlaanderen; Research Project G.0329.11N), Interuniversity Attraction Poles (IUAP) - Belgian Science Policy P6/35 and P7/30 and Concerted Research Initiative of the Ghent University, Project No BOF/GOA 01G01009.