European Respiratory Society
Annual Congress 2013

Abstract Number: 2155
Publication Number: P1574

Abstract Group: 5.3. Allergy and Immunology
Keyword 1: Air pollution **Keyword 2:** No keyword **Keyword 3:** No keyword

Title: The role of glutaredoxin-1 in pulmonary inflammation induced by diesel exhaust particles

Dr. Sharen 13673 Provoost sharen.provoost@UGent.be [1], Ms. Katrien 13674 De Grove katrien.degrove@ugent.be [1], Dr. Ken 13675 Bracke Ken.Bracke@ugent.be [1], Prof. Dr Guy 13676 Brusselle Guy.Brusselle@ugent.be MD [1], Prof. Dr Guy 13677 Joos Guy.Joos@ugent.be MD [1], Dr. Tania 13680 Maes tania.maes@ugent.be [1] and Dr. Niki 13746 Reynaert n.reynaert@maastrichtuniversity.nl [2]. [1] Department of Respiratory Medicine, Ghent University Hospital, Ghent, Belgium, 9000 and [2] Department of Respiratory Medicine, Nutrim School for Nutrition, Toxicology and Metabolism, Maastricht University Medical Centre, Maastricht, Netherlands .

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. Here, we hypothesised that GRX1 regulates DEP-induced pulmonary inflammation. Methods: WT and GRX1 knockout (KO) mice were intratracheally instilled with saline or 100 µg DEP (SRM 2975) on day 1, 4 and 7. On day 9, 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, which was augmented in GRX1 KO mice. The recruitment of monocytes and dendritic cells to BALF was comparable between DEP-exposed WT and GRX1 KO mice. In lung tissue, DEP-induced inflammation was not different 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. Sharen Provoost is a post-doctoral researcher of the Fund for Scientific Research in Flanders (FWO Vlaanderen).