Title: Role of peroxiredoxin 6 in lipopolysaccharide-induced mucin production in mice

Body: Objective: Mucus hypersecretion is a prominent manifestation in many chronic airway inflammation diseases. MUC5AC is a major component of airway mucus and can be activated by reactive oxygen species (ROS). Peroxiredoxin 6 is expressed in airway epithelium and protects the airway from oxidative stress generated during the process of chronic inflammation. The present study aimed at evaluating the role of peroxiredoxin 6 in lipopolysaccharide-induced mucin production in mice. Methods: Wild-type, peroxiredoxin 6 (+/+) or peroxiredoxin 6 (-/-) mice were challenged by intratracheal instillation of lipopolysaccharide (5 mg/kg) for 4 hrs or 24 hrs. The expression of MUC5AC gene and protein in lungs was measured in realtime RT PCR and immunohistochemistry. MUC5AC protein levels in bronchoalveolar lavage (BAL) were measured in ELISA. Results: After lipopolysaccharide instillation, MUC5AC gene and protein levels in lungs were significantly increased. Furthermore, significantly increased MUC5AC gene and protein production were observed in peroxiredoxin6-/- mice compared with C57BL/6 mice. On the contrary, MUC5AC gene and protein production in peroxiredoxin6+/+ mice were significantly lower than that of C57BL/6 mice. Conclusions: Thus, our results implicate involvement of peroxiredoxin 6 in the development of mucin production.