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Title: Allergyprotective effects of *Staphylococcus scuri* in a house dust mite (HDM) model of allergic airway inflammation

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Body: Background: Recently, epidemiological studies revealed a specific association between *Staphylococcus scuri* exposure and reduced asthma prevalences. Aim: To investigate the influence and role of *S. scuri*, a Gram-positive bacterium, on allergen-induced sensitization and airway inflammation in a murine model with a mixed phenotype (with eosinophil and neutrophil inflammation) using a clinically relevant allergen (HDM model). Methods: Mice were treated intranasally with *S. scuri* three times a week before and during repeated intranasal exposures to HDM extract. Lung function, recruitment of inflammatory cells as well as production of related cytokines and chemokines were measured. Results: The application of *S. scuri* strongly inhibited the generation of HDM extract-induced airway inflammation. Analyses of bronchoalveolar lavages showed a reduction of both, eosinophil and neutrophil numbers, in comparison to control-animals. The reduction of eosinophils correlated with a reduction of IL-5, and of goblet cell hyperplasia. The mRNA expression of eotaxin and KC, the key chemokines in the induction of eosinophils and neutrophils into allergic tissue, was markedly reduced. Conclusions: Administration of *S. scuri* to mice challenged with HDM extracts protects them from the development of airway inflammation and associated pulmonary pathology.