

## Publication

## Air pollution and subclinical airway inflammation in the SALIA cohort study

**JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**

ID 2557841

**Author(s)** Vossoughi, Mohammad; Schikowski, Tamara; Vierkötter, Andrea; Sugiri, Dorothea; Hoffmann, Barbara; Teichert, Tom; Herder, Christian; Schulte, Thomas; Luckhaus, Christian; Raulf-Heimsoth, Monika; Casjens, Swaantje; Brüning, Thomas; Krämer, Ursula**Author(s) at UniBasel** [Schikowski, Tamara](#) ;**Year** 2014**Title** Air pollution and subclinical airway inflammation in the SALIA cohort study**Journal** Immunity & ageing**Volume** 11**Number** 1**Pages / Article-Number** 5**Keywords** Particle exposure, Epidemiology, Inflammatory markers, Induced sputum, Exhaled breath condensate

The association between long-term exposure to air pollution and local inflammation in the lung has rarely been investigated in the general population of elderly subjects before. We investigated this association in a population-based cohort of elderly women from Germany.; In a follow-up examination of the SALIA cohort study in 2008/2009, 402 women aged 68 to 79 years from the Ruhr Area and Borken (Germany) were clinically examined. Inflammatory markers were determined in exhaled breath condensate (EBC) and in induced sputum (IS). We used traffic indicators and measured air pollutants at single monitoring stations in the study area to assess individual traffic exposure and long-term air pollution background exposure. Additionally long-term residential exposure to air pollution was estimated using land-use regression (LUR) models. We applied multiple logistic and linear regression analyses adjusted for age, indoor mould, smoking, passive smoking and socio-economic status and additionally conducted sensitivity analyses.; Inflammatory markers showed a high variability between the individuals and were higher with higher exposure to air pollution. NO derivatives, leukotriene (LT) B<sub>4</sub> and tumour necrosis factor- $\alpha$  (TNF- $\alpha$ ) showed the strongest associations. An increase of 9.42  $\mu\text{g}/\text{m}^3$  (interquartile range) in LUR modelled NO<sub>2</sub> was associated with measurable LTB<sub>4</sub> level (level with values above the detection limit) in EBC (odds ratio: 1.38, 95% CI: 1.02 -1.86) as well as with LTB<sub>4</sub> in IS (%-change: 19%, 95% CI: 7% - 32%). The results remained consistent after exclusion of subpopulations with risk factors for inflammation (smoking, respiratory diseases, mould infestation) and after extension of models with additional adjustment for season of examination, mass of IS and urban/rural living as sensitivity analyses.; In this analysis of the SALIA study we found that long-term exposure to air pollutants from traffic and industrial sources was associated with an increase of several inflammatory markers in EBC and in IS. We conclude that long-term exposure to air pollution might lead to changes in the inflammatory marker profile in the lower airways in an elderly female population.

**Publisher** BioMed Central**ISSN/ISBN** 1742-4933**edoc-URL** <http://edoc.unibas.ch/dok/A6263113>**Full Text on edoc** Available;**Digital Object Identifier DOI** 10.1186/1742-4933-11-5**PubMed ID** <http://www.ncbi.nlm.nih.gov/pubmed/24645673>**ISI-Number** WOS:000335058300002

