

## **Abstract for the 101st AACR meeting in Washington, 17-21 April, 2010**

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**Not included in abstract due to a fixed limit of 30 authors, but are foreseen to be included in  
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relationship; Lung neoplasms; Case-control studies

**Title: Diesel motor exhaust and lung cancer risk in a pooled analysis from case-  
control studies in Europe and Canada**

**Introduction:** Diesel-motor exhaust (DME) is classified by IARC as probably carcinogenic to humans. The epidemiological evidence is evaluated as limited since many studies lack adequate information on tobacco smoking and only few studies reported on exposure-response relationships. Our objective is to investigate the risk of lung cancer following occupational exposure to DME, while controlling for smoking and potential occupational confounders.

**Methods:** The SYNERGY project pooled information on lifetime work histories and tobacco smoking from more than 13300 cases and 16300 controls from case-control studies conducted in 12 European countries and Canada. A job exposure matrix based on ISCO codes, assigning no (0), low (1) or high (2) exposure to DME was applied to determine level of exposure to DME. Cumulative exposure was defined as:  $\Sigma(\text{level}^2 * \text{duration})$ . Odds ratios (OR) of lung cancer and 95% confidence intervals (CI) were estimated by unconditional logistic regression, adjusted for age, sex, study, pack-years and time since quitting smoking, and ever employment in a “Group A” job, i.e. occupations with established lung cancer risk.

**Results:** Workers exposed to low levels of occupational DME exposure had an increased risk of lung cancer after 40 years of exposure OR 1.31 (95% CI 1.14-1.51), while workers exposed to high DME levels experienced a similar risk already after short duration (<10 years) OR 1.29, 95% CI 1.15-1.46. Cumulative DME exposure showed a significant exposure-response trend (p-value <0.000) with an OR of 1.31 (95% CI 1.20-1.44) in the highest quartile. These results were similar in workers never employed in “Group A” jobs, lending support to the assumption that confounding due to other occupational exposures was not responsible for the observed risk. Analyses in sub-populations of women and never-smokers also indicated an increased risk of lung cancer following occupational DME exposure.

**Conclusion:** Our results indicate that occupational exposure to DME is associated with an increased risk of lung cancer.