Gene environment interactions: the case of asbestosis

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The gene-environment interactions will be presented on the example of our study into asbestosis.

Our study included 262 cases with asbestosis and 265 controls with no asbestos-related disease. Data on cumulative asbestos exposure and smoking were available. PCR based methods were used for genotyping. To assess asbestosis risk, logistic regression analysis was used.

The associations between *MnSOD* Ala–9Val polymorphism and the risk of asbestosis and between *iNOS* genotypes and asbestosis were modified by *CA* –262 C > T polymorphism. A strong interaction was found between *GSTM1*-null polymorphism and smoking , *iNOS*$(CCTTT)_n$ polymorphism and smoking, and between *iNOS*$(CCTTT)_n$ polymorphism and cumulative asbestos exposure.

The findings of our study suggest that in addition to environmental and/or occupational exposure to hazards, the genetic factors as well as the interactions between different genotypes, genotypes and lifestyle factors, and between genotypes and environmental/occupational exposure may have an important influence on the development of diseases.