

cle sources have increased and attention has moved from coal mining industry to general environment. Secondly there is the major issue of poorly soluble particles (including coal mine dust, carbon black, TiO<sub>2</sub>) that cause lung cancer in rats. So far, risk assessment has tremendous problems in extrapolating these findings to humans and its historical data on dust-overloaded coal miners' lungs are used to resolve this issue.

Finally, Nanotechnology continuously produces new materials in the ultrafine range. Although inhalation exposure is considered to be minimal in this technology, some particles are being used for carrier purpose in medical applications. While coal mining was the black gold of the early 20th century, Nanotechnology is up to even higher expectations in the 21st century. However, learning from the past and current insights into the adverse effects of particles, we have to invest in new methods both in testing and risk assessment to allow a sustainable development of nanomaterials. Before jumping into this pool of opportunities a lesson of the past and especially in coal mine induced respiratory diseases is obligatory.

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##### Genetic susceptibility in pneumoconiosis

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Silicosis and Progressive Massive Fibrosis (PMF) are chronic interstitial lung diseases with a complex etiology that can occur after cumulative dust exposure. A large number of mediators such as cytokines, antioxidants and growth factors have been implicated in the pathogenesis of experimental and human pulmonary fibrosis. Common functional polymorphisms in these genes have been shown to influence individual susceptibility against various lung pathologies including, cancer, asthma, and chronic obstructive pulmonary disease. In light of this, we investigated associations between cytokine, antioxidant and fibrogenic gene variations and the development and severity of dust-induced pulmonary fibrosis in ex-coal miners with silicosis and PMF. A significant association was found between silicosis and the TNF $\alpha$  –238, TNF $\alpha$  –308 and IL-1RA +2018 variants. Also, an association between accelerated decline in lung function and genetic variations in cytokine genes were investigated in

firefighters. There is a broad range of rates of longitudinal decline in lung function among firefighters, and this cannot be explained with differential occupational smoke exposure. Genetic differences in pulmonary response to respiratory toxicants likely play a role in determining the rate of longitudinal decline. Our results showed that the presence of IL-1 $\beta$  +3953, IL-1RA +2018 and TNF $\alpha$  –308 variants are associated with the decline rate of lung function as measured by FEV1. These findings suggest that specific variants of cytokine genes may influence individual susceptibility to occupational pulmonary diseases.

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##### Asbestos and asbestosis in Croatia: Past, present and future

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This study gives a historical review of the national use of asbestos, the first and later appearance of asbestos-related diseases in the country, health risk derived from para-occupational exposure to asbestos, and the national and European Union (EU) regulations on the asbestos issue. Between 1945 and 1990 Croatia had a strong shipbuilding and asbestos cement industry. The first cases of asbestosis were reported in 1960, and 317 cases were recorded from 1990 to 2000. The Croatian Cancer Registry recorded a total of 248 cases of pleural mesothelioma between 1991 and 1997, two-third of which were attributable to occupational exposure to asbestos. Regulations on maximal allowable concentrations for harmful agents in the work environment and biological limit value, including all forms of asbestos were issued in 1993. By including asbestos on the Health Ministry's list of toxic materials, Croatian government banned the manufacture, trade and use of asbestos, effective January 1, 2006. This ended the manufacture, trading and use of asbestos and asbestos products, suspended all asbestos production in Croatia and brought Croatia into line with the member states of the EU. On February 14, 2006, the Ministry of Health released a revised version of the List, whereby the sale and commercial use of asbestos remain off limits, but the production of asbestos products is allowed. Besides, para-occupational exposure seems to be at least as dangerous as occupational because the majority of people are not aware of it. Major asbestos exposure continues today in building, renovation, demo-