0442 ELUCIDATING MECHANISMS USING COMPARATIVE MOLECULAR EPIDEMIOLOGY: IMMUNOLOGIC ALTERATIONS IN WORKERS EXPOSED TO TRICHLOROETHYLENE AND FORMALDEHYDE

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Objectives There is a well-established connection between immune status and carcinogenesis, as an increased risk of cancer has been associated with a history of immunosuppressive medication use, with certain chronic infections such as HIV, and with certain autoimmune diseases and lifestyle factors which result in chronic immune alterations and abnormalities. Furthermore, more subtle changes in immune functioning, including imbalances in Th1/Th2 responses resulting from cytokine alterations, have been implicated in the oncogenic process via regulation of transcriptional factors and of tumor growth, angiogenesis, and cell differentiation and survival. Occupational exposures such as trichloroethylene (TCE) are hypothesized to increase cancer risk partly through immunological mechanisms. Characterizing the relationship between occupational chemical exposures and various immune markers could provide important insights into the link between occupational exposures, immunological responses to such exposures and subsequent cancer risk.

Method We previously have shown that occupational exposure to trichloroethylene and formaldehyde are associated with hematotoxic effects. Here, we compare the chemical-specific patterns of subsets of CD4 and CD8 cells and other immune-related markers from studies of factory workers exposed to these chemicals.

Results The complete blood cell count, lymphocyte subsets, and other immune markers from molecular epidemiology studies of occupational exposure to TCE and formaldehyde will be presented to evaluate the effect of these chemical exposures on immune marker concentrations.

Conclusions Our findings suggest that TCE and formaldehyde exposure can alter levels of immunologically active compounds and cell types in different patterns.