Hi Bruce!
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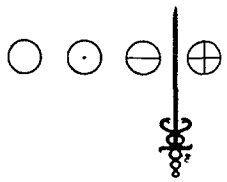

ENVIRONMENTAL CANCER INFORMATION CENTER

NYU study results

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statement prepared by Roy Albert, M.D.

transcribed by M.K. and verified

This Laboratory has been investigating several facets of the hematotoxic effects of inhaled benzene. These studies have concerned the leukemogenic and hematotoxic effects of the lifetime benzene exposure, the effects of inhaled benzene on hematopoietic cell kinetics, and the interaction of inhaled benzene and injected ethanol.

Lifetime exposure of rodents to 300 ppm benzene vapor has produced hematopoietic tumors, namely: 15% incidence of thymic lymphoma in C57BL mice (no controls developed this tumor), 2 cases of granulocytic leukemia in CD-1 mice, and one case of granulocytic leukemia in a Sprague-Dawley rat. In a more recent study, using an exposure regime of 1 week of exposure followed by 2 weeks of non-exposure for life at 300 ppm and 900 ppm, we have observed significant increases in the incidences of lymphoma and lung adenoma in CD-1 mice.

With regard to blood cell toxicity, we have observed significant depressions in the level of pluripotent stem cells and granulocyte/macrophage progenitor cells following 5 days exposure to 100 ppm in CD-1 mice. In another study, protracted exposures of CD-1 mice to 300 ppm produced an eight-fold increase in blast and promyelocytic cells, which are the predominant cell types in most cases of myelogenous leukemia. More recently, we have observed significant depression of erythroid stem cells and of B-lymphocyte colony-forming cells in C57BL mice after exposure to 10 ppm,

which is the current occupational exposure limit. The magnitude of the erythroid stem cell depression increased with increasing duration of exposure between 35 days to 180 days.

Concurrent exposures to ingested ethanol and inhaled benzene produced more severe depressions in the number of all hematopoietic cell types than exposure to benzene alone.