



## **NEW STUDY FROM THE NATIONAL TOXICOLOGY PROGRAM (NTP) FINDS NO ASSOCIATION BETWEEN FORMALDEHYDE AND LEUKEMIA**

A recently-completed study adds further compelling evidence that the current body of existing mode of action data do not support a causal association between formaldehyde and leukemia. In a study sponsored by the National Institute of Environmental Health Sciences (NIEHS)'s National Toxicology Program (NTP) and presented in March 2014 at the Society of Toxicology's annual meeting, SOT 2014, NTP researchers found no cases of leukemia in genetically predisposed mice exposed to relatively high doses of inhaled formaldehyde.

### **NTP STUDY**

Designed to substantiate a hypothesis that formaldehyde or formaldehyde-induced damage could reach the bone marrow to potentially cause leukemia, the NTP study specifically tested whether inhaled formaldehyde could cause damage to stem cells in the nasal epithelium or circulating in local blood vessels, which then could move in general circulation throughout the body and seek out tissues that support blood cell development and become leukemic cells. To test the hypothesis, the study authors exposed mice with a genetic predisposition to myeloid leukemia to various levels of formaldehyde for eight weeks. The mice were then held for 32 weeks after exposure, at which time multiple tissue samples were taken, including blood and bone marrow. The study authors found nasal lesions that would be expected from a port-of-entry carcinogen, but no impact on the background rate of any other tumors, as evidenced by histopathological analysis of various tissues. In addition, formaldehyde had no effect on hematological parameters. **The study authors found no evidence of leukemia, and concluded that "formaldehyde inhalation did not cause leukemia in these genetically predisposed mice."**

This finding is particularly important because it provides additional evidence for the lack of transport of inhaled formaldehyde beyond the portal of entry. As the study authors note, there is already a significant body of evidence demonstrating that inhaled formaldehyde does not induce formation of detectable levels of DNA adducts in sites outside of the nasal cavity, indicating that it does not travel to distant sites in the body. When taken together, the data do not support a mode of action for leukemia, suggesting it is not biologically plausible.

### **EPA's Revision of the Formaldehyde IRIS Assessment**

This research comes at a critical time and should inform EPA's potential conclusions on the evidence for causality of formaldehyde and leukemia. The U.S. Environmental Protection Agency (EPA) is revising the formaldehyde Integrated Risk Information System (IRIS) assessment, expected to be released by EPA in late summer 2014.