

Dr. Ruth Lunn  
Director, RoC Center  
NIEHS, P.O. Box 12233, MD K2-14  
Research Triangle Park, NC 27709

Dear Dr. Lunn:

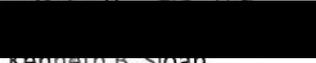
I have read the Formaldehyde Expert Panel Report, and I certainly agree that formaldehyde exposure by inhalation in the workplace and in homes by release of formaldehyde from commercial products should be reduced to as low a levels as possible. The problem with the label of "known to be a human carcinogen" without any qualifying statements is that it does not take into account the route of administration or the fact that our bodies produce it from normal metabolism of endogenous biochemical precursors. Your panel recognizes that the endogenous levels of formaldehyde in human blood are relatively high at 0.1 M and that those levels represent "a significant challenge for low-dose extrapolation." However, they present no mechanism for dealing with this "challenge."

In addition, the panel does not seem to have recognized in its deliberations that in the development of prodrugs which release formaldehyde or acetaldehyde upon their metabolism to the parent, active drug, it was found that the concentration of formaldehyde in blood was not affected by the release of formaldehyde from the prodrug (Chromatographia, 43 (1996) 501-506 as an example). Thus low level exogenous formaldehyde sources do not significantly affect formaldehyde levels in the blood. This is due to the fact that mammalian systems have efficient biochemical mechanisms for metabolizing formaldehyde into formate and ultimately into CO<sub>2</sub> (see Journal of Pharmaceutical Sciences, 97 (2008) 4108-4118).

Another criticism of the panel's report is the apparent reliance on the 1000 mg per liter dose of formaldehyde in water causing excess testicular adenomas. If completely absorbed, this dose is 330 times on a molar basis the normal levels of formaldehyde in human blood. If this is the only evidence of oral toxicity, then this sounds like the prelude to another saccharin-like debacle.

The problem with the label "known to be a human carcinogen" without any qualifying statements is that to do-gooders will try to use this label as an excuse to eliminate formaldehyde from everything without realizing their own bodies produce it and actually contribute to the formaldehyde levels in the air from their own exhalation. Following the same thought process, the same do-gooders will no doubt eventually raise the issue that oxygen causes ROS damage and eventually certain cancers. Thus, we need to eliminate oxygen from the environment. I guess one has to use some common sense here.

Sincerely,

  
Kenneth B. Sloan  
Professor, Medicinal Chemistry