

Expert panel concurs with conclusions in draft NTP technical reports

By Ernie Hood

An expert panel, convened by NTP Oct. 29, peer reviewed four [draft technical reports](http://ntp.niehs.nih.gov/?objectid=ABD1DF87-A7F0-5D9B-0C6BA115E3117F5B) (<http://ntp.niehs.nih.gov/?objectid=ABD1DF87-A7F0-5D9B-0C6BA115E3117F5B>) and agreed with the NTP conclusions on the carcinogenicity and toxicity of the substances tested. The proceedings were webcast, and included presentations of study findings, public comments, peer-review comments, and panel discussions for each report.

The meeting kicked off with a briefing from NTP toxicologist Chad Blystone, Ph.D., who provided background information on the reports and the peer review process. The reports summarize NTP rodent toxicity and cancer studies on substances in our environment of public health concern to identify potential hazards for human health. They describe the methods, results, and draft NTP conclusions as levels of evidence - clear evidence, some evidence, equivocal evidence, no evidence or inadequate study - of carcinogenic activity under the specific conditions of the studies.

The peer reviewers were charged with evaluating the scientific and technical elements of each study, as presented in the draft technical report, and determining whether the study's experimental design, conduct, and findings support the conclusions. For each report, the peer-review panel provided their comments and discussed the study's findings and conclusions. NTP staff acknowledged the comments and responded to points raised by the panel. The panel voted to accept the draft conclusions, as written, in all four reports.

Vinylidene chloride

Vinylidene chloride is a high production volume chemical used to make common household products, artificial turf, pipes, lacquer resins and latex, and flame-resistant carpet backing. It was nominated for NTP study by the Agency for Toxic Substances and Disease Registry, primarily due to occupational exposure. Under the conditions of the two-year inhalation study, the NTP concluded that there was clear evidence of carcinogenic activity in male rats, some evidence in female rats, and clear evidence in male and female mice.

Cobalt metal

Cobalt metal was nominated by the Cobalt Development Institute, as well as the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America, better known as the United Automobile Workers, based on widespread occupational exposure and occurrence of hard metal disease associated with exposure to cobalt and its compounds. More than one million U.S. workers are potentially exposed to cobalt, primarily through skin or inhalation exposures. It is also present naturally in soil, groundwater, and sediments, and is an essential trace element found in vitamin B12. The panel agreed with the NTP draft conclusions of clear evidence of carcinogenic activity of cobalt metal in male and female rats and mice.

Glycidamide

Glycidamide is a metabolite of acrylamide, the known carcinogen found in certain baked and fried starchy foods, such as french fries and potato chips. When



The NTP technical report peer-review meeting included the seven members of the peer review panel, liaisons to the U.S. Food and Drug Administration and the NTP Board of Scientific Counselors, and NTP study scientists and pathologists for each of the four technical reports. (Photo courtesy of Steve McCaw)



NTP Laboratory Animal Management Group lead Angela King-Herbert, D.V.M., detailed changes in the rat models used by NTP in its technical reports studies. (Photo courtesy of Steve McCaw)



From left, panel members Norman Barlow, D.V.M., Ph.D., of Sanofi-Aventis, U.S.; Deborah Slechta, Ph.D., of the University of Rochester; and Russell Cattley, V.M.D., Ph.D., of Auburn University, paid close attention to the presentations outlining the conclusions reached by NTP on each of the four tested chemicals. (Photo courtesy of Steve McCaw)

acrylamide is consumed through food, the body converts it to glycidamide. Under the conditions of the two-year drinking water study, NTP concluded that there was clear evidence of carcinogenic activity in male and female rats and mice.

Tetrabromobisphenol A (TBBPA)

Nominated by NIEHS, TBBPA is a high production volume flame retardant widely used in plastics, paper, electronics, textiles, and adhesives. It is present in a variety of household products, such as computers, televisions, and mobile phones. The two-year gavage, or direct oral administration, studies yielded clear evidence of carcinogenic activity in female Wistar Han rats, equivocal evidence in male Wistar Han rats, some evidence in male mice, and no evidence in female mice.

In addition to the standard carcinogenicity studies, molecular characterization of select tumors was included in three of the four draft technical reports. These data separated spontaneous tumors from those in chemical-exposed groups. The panel reviewed the studies positively and encouraged further NTP molecular studies.

(Ernie Hood is a contract writer with the NIEHS Office of Communications and Public Liaison.)



Contemplating their response to a reviewer's question, NTP vinylidene chloride study scientist Michael Wyde, Ph.D., left, conferred with study pathologist Mark Hoenerhoff, D.V.M., Ph.D. (Photo courtesy of Steve McCaw)



John Cullen, V.M.D., Ph.D., right, professor of veterinary pathology at the North Carolina State University College of Veterinary Medicine, chaired the peer review panel. He is shown with NTP Associate Director John Bucher, Ph.D. (Photo courtesy of Steve McCaw)



Peer review panel members Terry Gordon, Ph.D., left, of the New York University Langone Medical Center, and Karen Regan, D.V.M., of Research Pathology Services LLC, participated in the sometimes lively discussions through the course of the day's meeting. (Photo courtesy of Steve McCaw)

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