

NTP advisors like what they hear at meeting

By Robin Mackar

Updates from National Toxicology Program (NTP) staff, which ranged from tests on chemicals spilled in West Virginia to systematic review and endocrine disruptor screening, were well received by the NTP Board of Scientific Counselors at their [meeting](http://ntp.niehs.nih.gov/about/org/bsc/meetings/past/index.html) (http://ntp.niehs.nih.gov/about/org/bsc/meetings/past/index.html) Dec. 9-10 in Rodbell Auditorium.

West Virginia chemical spill research

Just five months after receiving a nomination from the Centers for Disease Control and Prevention Agency for Toxic Substances and Disease Registry, and meeting with West Virginia state and local officials about conducting additional [studies](#) on the chemicals spilled into the Elk River in West Virginia in 2014, NTP had a research plan in place and some early findings to share.

[Scott Auerbach](#), Ph.D., of the NTP Biomolecular Screening Branch, presented a project overview, a timeline of activities, and introduced the board to eight different types of studies outlined in the plan. Auerbach provided a status update on each phase, from the least resource intensive — computational modeling, or structure-activity relationship analysis — to high-throughput testing, and then to the more complex rat prenatal toxicology studies. He also presented some early test results.

According to Auerbach, the 200 computational modeling scenarios completed by NTP helped determine the additional toxicology studies that are now being conducted. He also said that four of the spilled chemicals evaluated all tested negative using cell-based assays, which means they did not harm the cells they were tested against.

The research plan and study updates are available on the [NTP site](#) (http://ntp.niehs.nih.gov/results/areas/wvspill/) , which will be updated as studies are completed. Board member Robert Chapin, Ph.D., of Pfizer, New York City, complimented NTP on its nimbleness and its plan to communicate findings rapidly and openly.

Assessing the biological relevance of in vitro data

Warren Casey, Ph.D., who leads the NTP Interagency [Center](#) (http://ntp.niehs.nih.gov/pubhealth/evalatm/index.html) for the Evaluation of Alternative Toxicological Methods gave a presentation describing how high-throughput screening methods provide results that are 97 percent similar to the animal-based screening method, which shows promise for the use of *in vitro* data to prioritize the testing of large numbers of chemicals.

Using a case study that NTP developed with the U.S. Environmental Protection Agency (EPA), Casey presented results from the testing of 86 chemicals in 16 integrated high-throughput screening methods that measure the ability of chemicals to interact with the human estrogen receptor. Results were compared to results from the animal-based test (rodent uterotrophic bioassay) required by EPA as part of their Endocrine Disruptor Screening Program for assessing estrogen receptor activity. The two assays provided the same results for most of the tested chemicals. “This is an amazing predictive tool for determining whether or not a chemical has the potential to interact with the human estrogen receptor,” Casey said.

Systematic review, Report on Carcinogens, effectiveness of NTP, and more

Other topics discussed with the board included an update on activities related to the Report on Carcinogens, including the August [peer review](#) of trichloroethylene; learning about the status of NTP nominations to be studied, including two flame retardants; and hearing results from a pilot project that assessed the reach and effectiveness of NTP studies. Using hexavalent chromium as an example, the NTP Office of Liaison, Policy, and Review used a [logic model](#) (http://ntp.niehs.nih.gov/ntp/about_ntp/bsc/2014/dec/bsc_ntp_effectiveness_508.pdf)



Board Chair Lisa Peterson, Ph.D., from the University of Minnesota, kept the meeting on schedule, despite a heavily packed agenda. Also shown are NTP Associate Director John Bucher, Ph.D., left, and NTP Associate Director Nigel Walker, Ph.D., right. (Photo courtesy of Steve McCaw)



Lori White, Ph.D., left, who serves as the Designated Federal Officer for the board, and Linda Birnbaum, Ph.D., NTP and NIEHS director, paid close attention to the discussions among the board members. (Photo courtesy of Steve McCaw)

to document the impact that NTP research has had on many areas, including public health.

The board also gave unanimous support for the Office of Health Assessment and Translation to move ahead with completing a systematic review of the literature looking at the effects on the immune system of two persistent chemicals, perfluorooctanic acid and perfluorooctane sulfonate. The Office started the evaluation as part of a case study to pilot test the seven-step systematic review and evidence integration approach developed by NTP to reach hazard identification conclusions.

(Robin Mackar is the news director in the NIEHS Office of Communications and Public Liaison, and a frequent contributor to the Environmental Factor.)



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Auerbach presented the variety of approaches being used by NTP to study the potential health hazards from chemicals spilled into the Elk River in West Virginia. (Photo courtesy of Steve McCaw)



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Cherie Estill, Ph.D., from the National Institute for Occupational Safety and Health, provided updates on several collaborations between that institute and NIEHS, including looking into occupational exposures to bisphenol A, several flame retardants, and carbon nanotubes, and assessing manganese particles in welding fumes. (Photo courtesy of Steve McCaw)



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Board members Mary Beth Genter, Ph.D., of the University of Cincinnati, and Chapin listen and advise on topics presented by NTP staff. (Photo courtesy of Steve McCaw)



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One of the newer NTP staff members, Yun Xie, Ph.D., teamed with Mary Wolfe, Ph.D., deputy division director for policy, to present findings from a case study that showed how NTP findings on hexavalent chromium affected public health. (Photo courtesy of Steve McCaw)

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