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HEADLINE: IN BLOW TO BACKERS, EPA BARS USE OF TOXCAST TESTS FOR ENDOCRINE SCREENING

BODY:

EPA is blocking pesticide industry officials from using results from its in vitro toxicological testing program, ToxCast, in lieu of animal-based tests required by the controversial endocrine disruptor screening program (EDSP), a blow to industry and animal rights activists who hoped to use ToxCast results, which they view as a cheaper and less-destructive testing regime than is currently required by EDSP.

Over the past few months, EPA has denied 90 percent of requests from pesticide industry officials to use ToxCast and other alternative data to determine whether their pesticides should be subject to a second round of testing under the EDSP, according to results posted on EPA's website. By contrast, the agency has so far only approved three cases where it has been willing to allow the use of existing data in lieu of EDSP tier one testing, though none of those allows use of ToxCast data.

The denials stem from a policy memo written last June and now circulating among EDSP critics, where EPA indicates unequivocally that ToxCast test results cannot be used instead of the animal-based testing that industry and animal rights activists argue is costly, unnecessary and ambiguous in EDSP. Relevant documents are available on InsideEPA.com.

The memo's authors, Robert Kavlock and Hal Zenick, argue that ToxCast is a research program not yet ready for regulatory use. Kavlock is director of the agency's National Center for Computational Toxicology (NCCT), and Zenick is director of the National Health and Environmental Effects Research Lab. "It is our position that the ToxCast in vitro assays cannot at this time be considered an acceptable alternative to the EDSP tier one in vivo or in vitro assays."\

The memo gives several reasons for its decision, including that the "reliability and responsiveness of the ToxCast assays are still being determined"; the relevance of the assays is yet to be determined; ToxCast assays do not evaluate all of the endpoints that the EDSP tier one assays do and most of the ToxCast assays do not account for absorption, distribution, metabolism and excretion of chemicals in the whole body as in vivo testing does.

"Until all of the relevant methods, data, analyses and conclusions from phase one and two of ToxCast are appropriately peer-reviewed and published, it is not possible to rigorously and transparently evaluate the application of these results to regulatory decisions," Kavlock and Zenick's June 16 memo states.

Industry and others hoping EPA would limit the amount of animal testing for EDSP are unimpressed by EPA's argument. One industry source questions why the ToxCast results are not good enough for use in considering chemicals' ability to disrupt the human endocrine system, "and yet they can still use that activity to characterize [Gulf oil spill chemical] dispersants."

And a PETA scientist says that while EPA raises "some realistic scientific concerns" with regard to using the ToxCast data in a regulatory program, these concerns also exist for the binding assays used in EDSP tier one, which introduce "an enormous amount of variability " in lab testing.

Similarly, the PETA source points out that while the memo correctly states that the ToxCast assays do not cover all known hormonal pathways, the tier one assays do not either. "The ToxCast spectrum is much broader than tier one, plus it contains other pathways related to endocrine," the source says. "That argument really doesn't hold up."

ToxCast is a high throughput in vitro testing system that studies the reactions of human cells and proteins to chemical exposure. Housed in NCCT within EPA's research office, the program is intended to develop new cellular and computational toxicology methods, some of which are in line with recommendations from a landmark 2007 National Academy of Sciences study that sought to update toxicology test methods.

Most recently, the program was used to compare various oil dispersing chemicals to determine those of lesser toxicity during the Deepwater Horizon spill in the Gulf of Mexico.

But the agency's June 16 memo indicates that the program's results remain too preliminary for use in the EDSP, which was mandated by Congress as part of the Food Quality Protection Act of 1996. The law required EPA to create a program to test whether pesticides and other chemicals could interfere with human hormones, or the endocrine system. EPA has struggled to launch the program ever since, with many years spent selecting and validating the assays for the testing program.

EDSP is set up as a two-tiered screen, with the first tier intended to determine if a chemical has the potential to interact with human androgen, estrogen or thyroid hormones. A second tier is intended to provide information for risk assessment. EPA Nov. 4 announced a guidance document explaining how it will determine whether chemicals should progress from tier one to the significantly more expensive tier two testing -- a document panned by industry as vague, brief and unhelpful. The document also indicated that the agency is still in the process of validating all but one of the tests it intends to include in tier two of EDSP. -- Maria Hegstad