July 26, 2012 Meeting of the Scientific Guidance Panel for Biomonitoring California

Summary of Panel Input and Recommendations

The Scientific Guidance Panel (SGP) for the California Environmental Contaminant Biomonitoring Program (also known as Biomonitoring California) met on July 26, 2012 in Oakland. This document briefly summarizes the Panel's input and recommendations on each agenda item and related public comments. To view or download the presentations, other meeting materials, and the full transcript, visit the July SGP meeting page.

Panel Business

Dr. Carl Cranor was sworn in as a new Panel member. Dr. Cranor is a distinguished professor of philosophy and member of the faculty of the Environmental Toxicology Graduate Program at the University of California at Riverside. Dr. Cranor's short biography is available on-line.

Program Update

Presentation by Dr. Michael Lipsett*, Chief, Environmental Health Investigations Branch, California Department of Public Health (CDPH); Lead for Biomonitoring California*

Panel members:

- Suggested the Program consider working with Technology, Entertainment, and Design (TED) to develop a video on biomonitoring.
- Suggested publishing results from the Firefighters Occupational Exposures (FOX) Project in Environmental Health Perspectives or another high impact journal.
- Encouraged release of more detailed biomonitoring results as soon as possible.
- Suggested analysis of higher levels in Biomonitoring California cohorts compared to the U.S. general population, including research into possible sources of higher levels.
- Suggested examining the possible impact of different jobs within the FOX population.
- Inquired about the Program's work on dried infant blood spots and encouraged further research into using these samples.
- Requested more information on the survey of county health officers (*the information will be presented at the next SGP meeting*).

Davis Baltz, a public commenter from Commonweal, also encouraged release of

biomonitoring results as soon as possible and offered help in disseminating the results widely. He commended the Program on the recent addition of non-halogenated aromatic phosphates to the designated list and encouraged a continued focus on emerging flame retardants.

Laboratory Update

Presentation by Dr. Jianwen She, *Chief, Biochemistry Section, Environmental Health Laboratory (EHL) Branch at CDPH*

Presentation by Dr. Myrto Petreas, *Chief, Environmental Chemistry Branch, Environmental Chemistry Laboratory (ECL), California Department of Toxic Substances Control (DTSC)*

- Dr. Tom McKone offered his assistance in interpreting the observed differences in levels of flame retardants in dust in the Bay Area compared to the Sacramento area.
- Dr. Luderer noted the planned purchase of a time-of-flight spectrometer by ECL and its potential for looking for previously unknown target compounds.

Ms. LaVonne Stone of the Fort Ord Environmental Justice Network encouraged wide distribution of information on Biomonitoring California. She expressed concern about chemical exposures in Monterey County and regarding environmental justice issues. She indicated that engagement of the Program with community organizations would be very helpful. (*Panel members noted the Program's commitment to community involvement.*)

Chemical Selection Update

Presentation by Sara Hoover, *Chief, Safer Alternatives Assessment and Biomonitoring Section, Office of Environmental Health Hazard Assessment (OEHHA)*

Panel members suggested that the Program:

- Continue to check the U.S. Food and Drug Administration database for newly approved substitutes and determine the minimum database of information (for example, on toxicity and exposure) required for submission of a proposed substitute. This could inform the choice of substitutes to evaluate further.
- Evaluate how well *in vitro* activity predicts *in vivo* activity.
- Continue to use structure activity approaches to help identify potential exposure and health concerns for chemicals without adequate data.
- Determine if there is any discussion between federal agencies in evaluating this group of chemicals.

- Pursue updated information on production volume (the publicly available information is for the reporting year 2006).
- Evaluate which chemicals come up in multiple different *in vitro* and *in vivo* screens as a way of prioritizing the chemicals.
- Consider adipogenesis as an endpoint based on *in vitro* evidence that BPA and BADGE had been documented to induce these effects.
- Continue to pursue the pilot laboratory screening approach to screen for the presence of these compounds in bulk urine (combined urine samples, de-identified) or in urine samples from volunteers.

Based on the screening so far, Panel members noted there are potential concerns about many of these chemicals, with bisphenol S at the top of the list in terms of priority.

Biomonitoring Chemicals with Short Half-lives in Humans: Issues in Interpreting and Communicating Individual Results

Presentation by Asa Bradman, *Associate Director, Center for Environmental Research and Children's Health (CERCH), School of Public Health, UC Berkeley*

Panel members:

- Discussed how to systematically categorize the sources of variability in biomonitoring results, such as inter-individual variability in chemical half-life, variability in day-to-day chemical exposures, seasonal variability, and age variability.
- Noted that detecting a chemical in an individual, regardless of variability in the results, provides some information about exposure.
- Indicated that specific chemical half-lives would not be useful to provide to participants.
- Suggested the Program:
    - Try to simply convey the concept of the body burden and how it depends not only on chemical half-life, but also on rate of exposure.
    - Work to come up with simple language that most people would understand.
    - Consider giving examples to illustrate what might affect the levels of chemicals in the body (for example, eating barbecued chicken causing a spike in the PAH level).
    - Provide information on persistent compounds and chemicals with short half-lives in separate sections in the results return materials.
    - Offer follow-up testing if possible.
    - Consider carefully which chemicals should be tested in urine if they are already being tested in blood. For example, consider not testing lead in urine.
    - Consider the option of providing a general explanation of chemicals measured in blood (tending to be the more persistent chemicals) and

chemicals measured in urine (tending to be the more short-lived chemicals).

Public comment:

Davis Baltz of Commonweal commented on important context to provide in returning results, including:

- The range of values that are found across a cohort;
- If possible, a comparison between a single measurement and a 24-hour measurement;
- The key message that these chemicals are in the world, people are widely exposed, and it's often not clear what actions, if any, people should take;
- Education on reducing possible exposures, if available; and
- The importance of particular actions, such as ingesting fruit or breast-feeding, and not only the chemical exposure issue, such as exposure to pesticides or persistent organic pollutants.

Mr. Baltz further noted that Commonweal and other organizations will be engaging with communities to help explain what biomonitoring can and can't tell people. He also emphasized that people are capable of understanding these nuances.

A public comment from Dr. Lesa Aylward and Dr. Sean Hays of Summit Toxicology was submitted electronically. They noted the importance of considering issues related to intraindividual variability in biomonitoring results and made suggestions for the Program, including:

- If data exist on intraindividual variability for a compound, some indication on the extent of variability could be provided.
- If data are not available, a pharmacokinetic model could be used to predict the extent of variability.
- A detailed discussion of variability in the results return materials would not be consistent with the level of information in those materials.
- Generic language could be provided to help volunteers appreciate that if their measured levels are at the high end of the range, a different subsequent urine void may indicate much lower levels. Conversely, someone with very low measured levels may have higher levels in a different void.
- The Program could consider developing web-based communication materials to provide a more detailed discussion and a link could be provided or offered in print format for those participants wishing more information.

Open Public Comment Period

Davis Baltz of Commonweal commented that the purpose of the Program is to generate high quality scientific data on body burdens of chemicals and make it publicly available. He recommended that the Program let most of the conversation about what to do with

biomonitoring information, including policy implications, be conducted through other forums.

Rachel Washburn of Loyola-Marymount University suggested considering just telling people that a chemical was detected in their body and giving them only the range of the group, instead of their exact result. (*This suggestion is not feasible, because of the legal requirement for the Program to return individual results to those participants who request them*).