

THE NATIONAL ACADEMIES

Advisers to the Nation on Science, Engineering, and Medicine

Board on Environmental Studies and Toxicology

**NATIONAL RESEARCH COUNCIL
FIFTH WORKSHOP OF THE STANDING COMMITTEE ON
RISK ANALYSIS ISSUES AND REVIEWS**

**RISK ASSESSMENT CONSIDERATIONS FOR INTERPRETATION OF BIOASSAY DATA
AND HUMAN BIOMONITORING DATA FOR THYROID-ACTIVE COMPOUNDS:
ISSUES OF VARIABILITY, CRITICAL REPRODUCTIVE-DEVELOPMENTAL PERIODS,
AND CROSS-SPECIES COMPARISONS**

**Public Meeting: May 15-16, 2008
National Academy of Sciences
Keck Center, Room 100
500 Fifth Street, NW
Washington, DC 20001**

PUBLIC AGENDA – May 15, 2008

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| 9:00 | Purpose of Workshop and Introduction of Committee Members | Bernard Goldstein, Chair |
| 9:05 | EPA's Expectation for Workshop | Peter Preuss, Director
National Center for Environmental Assessment |
| 9:10 | Overview of Workshop Format and Issues to be Discussed | Rick Corley
Committee |
| <i>THE THYROID AND THE HUMAN POPULATION</i> | | |
| 9:15 | Human Thyroid Function and Subtle Effects of Disruption | Greg Brent
UCLA |
| 9:55 | Susceptible Populations and Factors Influencing Susceptibility | Rosalind Brown
Harvard University |
| 10:35 | <i>BREAK</i> | |
| 10:50 | Genetic Polymorphisms in Population Affecting Thyroid Function | Theo Visser
Erasmus University
Medical Center |
| 11:30 | Ability of Rodent Systems to Inform Human Health Risk Assessment | Thomas Zoeller
University of Massachusetts |
| 12:10 | <i>LUNCH BREAK</i> | |

1:00 Panel Discussion [*Speakers, Committee Members, and Invited Panelists (Sam Refetoff, University of Chicago; Tracey Woodruff, University of California at San Francisco; Gary Kimmel, Consultant; and Lynn Flowers, EPA)*] – Discuss (1) qualitative and quantitative differences in thyroid function and regulation between the rat and human and (2) species differences in the degree of thyroid insufficiency needed to disrupt thyroid function and to alter neurodevelopment. Discuss special periods of vulnerability to altered thyroid status and changes in thyroid hormones that occur before and during gestation, lactation, and early development.

BIOMONITORING DATA AND MODELING

2:00 Biomonitoring Data on Thyroid-Active Compounds – Database and Issues Regarding Variability and Interpretation Benjamin Blount
CDC

2:40 Pharmacokinetic Modeling of the Hypothalamic-Pituitary-Thyroid Axis Jeffrey Fisher
University of Georgia

3:20 **BREAK**

3:30 Panel Discussion – [*Speakers, Committee Members, and Invited Panelists (Sam Refetoff, University of Chicago; Tracey Woodruff, University of California at San Francisco; Gary Kimmel, Consultant; and Lynn Flowers, EPA)*] – Discuss interpretation of human biomonitoring data with regard to variability over life stage and stability over time and compare findings based on studies of environmental chemicals in experimental animals with findings developed from human biomonitoring data.

4:30 Public Comment

5:00 **ADJOURN PUBLIC SESSION**

PUBLIC AGENDA – MAY 16, 2008

IMPLICATIONS OF FOR RISK ASSESSMENT

9:00 Risk Assessment vs. Cumulative Risk Assessment Lorenz Rhomberg
Gradient Corporation

9:30 Cumulative Effects and Mixtures of Thyroid-Active Compounds Kevin Crofton
EPA

10:00 Panel Discussion – [*Speakers, Committee Members, and Invited Panelists (Sam Refetoff, University of Chicago; Tracey Woodruff, University of California at San Francisco; Gary Kimmel, Consultant; and Lynn Flowers, EPA)*] – Questions to be discussed are as follows:

- How should information on mechanisms that affect thyroid homeostasis be considered in hazard identification and dose-response analysis. What is the relevance of non-human data on alterations in thyroid hormone homeostasis to human health risk assessments?
- What considerations are important for dose-response analysis of data from different life-stages, specifically addressing in utero and neonatal development?

- How can data on precursor events and changes in thyroid hormone homeostasis be used to inform the shape or models used for dose-response analysis?
- What factors are important for considering differential susceptibility associated with variability in thyroid status across the US population? How can this influence population risk estimates?
- How can data on biomarkers of thyroid status, including cross-species comparisons and variability over time, be used in risk assessment?
- Should a cumulative risk assessment approach be used for thyroid-active compounds? If so, should the selection criteria for grouping compounds be based on a common mode of action or on a common adverse end point?

11:30 Public Comment

12:00 ***ADJOURN PUBLIC SESSION***