TECHNICAL CHARGE TO EXTERNAL PEER REVIEWERS

EXTERNAL PANEL REVIEW OF "AN APPROACH TO USING TOXICOGENOMIC DATA IN U.S. EPA HUMAN HEALTH RISK ASSESSMENTS: A DIBUTYL PHTHALATE (DBP) CASE STUDY"

BACKGROUND

The National Center for Environmental Assessment (NCEA) is interested in developing methods to use genomic data effectively in U.S. Environmental Protection Agency (EPA) health and risk assessments. NCEA prepared this document for the purpose of describing and illustrating an approach to use toxicogenomic data in risk assessment. This document is intended to be useful to EPA risk assessors in the Integrated Risk Information System (IRIS) Program, Program Offices, and Regions, as well as scientists outside of EPA, as an example of an approach to using toxicogenomic data in risk assessment. In addition to the overall approach, this document includes a description of considerations, issues, and exploratory methods for evaluating and analyzing toxicogenomic data in EPA health and risk assessments. A case study to illustrate and test the approach is described for the chemical dibutyl phthalate (DBP). The case study presented in this document is a separate activity from the DBP IRIS health assessment.

The goal of this document is to describe a methodical approach to mine toxicogenomic data for use in EPA risk assessments and the DBP case study that illustrated this approach. The approach includes the application of toxicogenomic data to mechanism and mode of action information as well as to other risk assessment steps, depending on the type of toxicogenomic studies available for a given chemical. The focus of this document is on the approach that was developed and less on new information regarding DBP.

CHARGE QUESTIONS

1. Evaluate and comment on the organization and clarity of the presentation. Please make specific suggestions on how to improve.

2. Evaluate and comment on the approach (Figure 7-1) to using genomic data in risk assessment. Do you consider this approach:

   a) flexible enough to accommodate different risk assessment practices?;
   b) a valid one for examining genomic data and integrating these data into risk assessment?; and
   c) useful for performing future risk assessments?

   Please provide justification for your responses to the two questions. If your answers are Ano@ to either a or b, please provide specific suggestions that would improve the approach used in the case study.

3. Evaluate and comment on the quality and completeness of the data and published articles discussed in the document. Please recommend any additional published data, in the peer-reviewed literature, which may enhance the quality of the document. Please justify their inclusion.

4. Evaluate the soundness of the DBP case study chemical selection, scope of the case study, and conclusions.

5. Evaluate the relevance and completeness of the recommendations, research needs, and issues for future consideration (Chapter 7).

6. Considering the stated goals and scope of the case study, were the goals of the document achieved? If not, what could be done to better meet the goals?