

Reviewer's report

Title: Serum dioxin-like activity of Inuits across Greenlandic districts

Version: 3 **Date:** 19 July 2007

Reviewer: Linda Birnbaum

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General

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. CALUX is an improper use of a trademarked name held jointly by 2 companies that have spent millions of dollars validating their particular sample preparation technologies and bioassay to provide some assurance of the validity of the technology. This has not been done in this study; the technology used is not validated regarding its relationship to contamination levels of PCDDs, PCDFs, and or PCBs. The methodology used here is another form of measurement of transcriptional activation mediated by the Ah receptor with another cell line and another sample preparation procedure. Their unvalidated assay could be called an AhR transcriptional activation assay. It is not, at least yet, a measure of dioxin TEQ.
 2. The Hepa cell line used has variable induction characteristics, short connects to maximal response and rapid decrease in the response, and extreme sensitivity to non-dioxinlike chemicals. Some of this information has been published by Mike Denison and coworkers. For example, this cell line, after 4 hrs of incubation, will respond to just about anything.
 3. While these bioassays may be generating some useful information - perhaps that high concentrations of non-dioxin like PCBs may antagonise the activity of dioxin like compounds - this cannot be stated until it is validated using standards and more complete analytical measurements. What happens if different sample preparation is used? What is the relationship to HRGC/MS?
 4. Correlation methods are phenomenology fishing expeditions, particularly when the hypothesis being tested is weak.
 5. Why normalize assay on cell protein? What protein assay?
 6. Their conclusion, that as the body burden of POPs increase with age and the TEQ decreases, is not correct. Their measure of TEQ is not a TEQ according to the international definition of TEQ.
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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

What next?: Reject because scientifically unsound