

Reviewer's report

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

Version: 1 **Date:** 23 February 2007

Reviewer: Greet Schoeters

Reviewer's report:

General:

General evaluation:

The manuscript contains relevant information as to the total POPs level which may not be a suitable proxy of the DLCs levels and thus the composition of the POPs in the body must be taken into account for the assessment of DL- activity of biological samples. This information should be published. However the number of individuals per study area is small , and there is some concern that conclusions from separate districts with respect to interfering life style factors need further confirmation.

The discussion could be more structured around the main observations that have been made : i) the proportion of dioxin like compounds (DLCs) in the POPs mixture may be a dominating factor affecting the level of serum DL-activity; ii) the inverse association between serum DL-activity and POPs can be explained by the higher level of compounds antagonizing the AhR function probably due to selective POP bioaccumulation in the food chain.

Some tables can be omitted.

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

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Abstract:

Line 15 : the bio-accumulated serum POPs were extracted...

Results:

85% of the samples had detectable agonistic DL-activity....: limit of detection of the assay determines the sensitivity

"Data of the genders were similar" specify whether you are referring to mean or median values?

Conclusion 1: is this not so by definition of the assay performance?

Background:

Pg 4: " ... adverse effects on reproductive neurobehavioral " do you mean on " reproduction and neurobehaviour"?

Methods

Pg 7 line 6: questionnaires

Pg8 line 2 : to get the actual mixture

Pg 8 line 9: cell protein content

Pg 8: "'Intra CV" means between replicates and "inter CVs" between independent assays (please specify

Calculation and statistical analysis:

Pg 8: what do you mean by independent assays?

Pg 8: What means % additive/ synergistic? % of the samples with additive or synergistic activity?

Pg 8 last line: indicate the level of significance you considered

Pg 10 : Is age included as a confounder in this model ?

Pg 9-10: What do you do with the confounder if you identify the confounder as significant, do you adjust for that confounder in all your calculations?

Results:

Pg 11 demographic and life style factors :

the differences that you mention are they statistically significant? Indicate this in the table

Pg 11: the plasma level of POPs

Indicate if statistical significant differences are observed with ANOVA

The ranges of POP measurements are very large, the number of individuals included in the study per district is small. Did you do power calculations to get an idea of the number of individuals that should be enrolled in a study in order to find significant differences?

Pg 11: The serum level of AhR-TEQ and AhRcomp activity

Include only the figures, they contain the same information than the tables

Pg 15 : correlations with life style factors:

Why is the correlation between age / fish intake and sum of PCBs , sum of pesticides not calculated ?

This could indicate whether positive associations between age and serumfat concentrations of specific PCBs and pesticides as found in different other studies , is observed in your study population as well. This could also be helpful information for the discussion.

Discussion:

Pg 17 line 7-10 is unclear ,

Can you with the available information already exclude that the lower AhTEQ levels of Inuits compared to European populations is not due to the inactivation at the AhR by higher concentrations of other POPs?

Pg21, lines 1-2 explain why the negative correlation between serum AhR-TEQ and age, should be in accordance to the frequency of marine food intake and POPs bioaccumulation over time. Is there more non-marine food intake with age? And if so why would the body burden than decrease?

Table 5: you give a β for AhRcomp? And an r for AhR TEQ

The heading indicates Pearson correlation coefficients

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept after minor essential revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.