Reviewer's report

Title: A Round Robin Approach to the Analysis of Bisphenol A (BPA) in Human Blood Samples

Version: 1  Date: 23 December 2013

Reviewer: Hanne Frederiksen

Reviewer's report:

This is an amazing work and a carefully prepared paper reporting data from a very important robin approach on analysis of BPA in human blood samples. This study is highly needed and contribute with crucial new argues to the ongoing discussion on BPA. The authors should be congratulated in their efforts.

I will strongly recommend publication of the paper, and I have only few comments, questions and suggestions.

Major comments

1. Is the placement for glucuronic acid on the BPA molecule unique? Please describe uBPA and BPA-G and the labeled compounds used for spiking and control material more detailed – company, structure, labeling etc. What is an authentic standard?
2. Please describe the procedure for preparation of double-stripped serum (charcoal dextran).
3. It seems like the labs measured lower BPA-G levels in almost all spiked serum samples than the predicted concentrations in these samples (phase 2 and 3 experiment, fig 3 and suppl fig 4). For instance, in both experiment all four labs measured lower conc. in the highest spike levels than the predicted conc., but was 19.53 ng/ml the “though” conc.? How was the facit or through values of uBPA and BPA-G determined? Please comment.

Minor comments

1. In phase 1 serum was collected from human patients, but in phase 3 the serum was collected from multiple individuals also later on called donors. Was all blood samples taken from healthy volunteer donors?
2. Was the final conclusion on sample storing at different temperatures, that storing of both samples and control material was ok at -20#C? And for how long?
3. How was tubes for storing at -20#C tested BPA-free?
4. It is somewhat confusing to distinguish between the phase 2 and first part of phase 3 experiment, was the difference that the labs had the possibility to use authentic standards including 13C-BPA-G in experiment 3? And did the labs actually used 13C-BPA-G in phase 3, and did this improved the results?
5. Second part of Phase 3, All donors were instructed to avoid sources for BPA,
but which?

6. Results from fig 1 and suppl fig 1B,C would be easier to read in on table instead of spread in two figures in both main paper and supplementary.

7. This paper contains a lot of tables and figures, so please try to simplify by use of the same terms, abbreviations etc. Especially in table 2, 3 and suppl. Table 1, for instance use h or hours not both, mL or µL and use the same notation for mass transitions etc. (supple fig 1).

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.