Reviewer's report

**Title:** Public heath concern behind the exposure to persistent organic pollutants and the risk of metabolic diseases

**Version:** 1 **Date:** 8 February 2012

**Reviewer:** Andreas Gies

**Reviewer’s report:**

This manuscript of Ruzzin is a review on the assessment of POPs and Dioxins in particular. It is well written except many orthographical and grammar errors. In an edited and improved form it is worth publishing as it addresses some main points of discussion in this field.

However there is some room for further improvement.

**Major revisions to be made:**

In the Stockholm Convention 12 different POPs have been agreed to be phased out. This paper only deals with two of them substantially: Dioxins and PCBs. There are three lines (120-123) discussing the use of DDT. The author should decide either to discuss the use of DDT in malaria vector control thoroughly or to omit this paragraph. There is a WHO position paper on this from 2007 that is worth discussing together with numerous papers carefully trying to weight burden of disease and environmental effects of DDT. Whatever the position of the author might be: this issue is one of the most challenging in modern toxicology with many ethical implications. So if this will be included in this review it deserves a thorough discussion.

If the author decides to omit the DDT paragraph, the title of the paper should reflect that only PCBs and dioxins are discussed.

**Line 182-198**

The authors argue that AhR receptor binding derived TEFs do not reflect metabolic effects in humans. Here alternative modes of action (not through the AhR system) should be discussed. There are pros (Wang 2011 in EHP) and cons (Alonso-Magdalena 2011 in Nature Rev. Endocr.) that AhR-Receptors are involved.

Are conventional TEF-based assessments suitable to protect humans from metabolic outcomes of dioxins also? Or is metabolic disruption the most sensitive endpoint.

**Time trends of metabolic disease and POPs:**

There have been numerous papers on time trends of dioxin and PCB concentration in human blood (Humblet 2011, Furuya 2010, Rylander 2009, LaKind 2009, Wiesmüller, 2007). It would be worth discussing these time trends and the time trends of metabolic disease to strengthen the hypothesis that both
might be related.

Minor revisions:
Line 48 to 59: The author claims that the prevalence of metabolic diseases increases worldwide. It would be appropriate to discuss time trends given in lit. 1 and 2 and not only rates of obese people.
Line 163 ff:
Limitations of risk assessment: It should be mentioned that the derivation of TEFs by SCF has only be based on non-carcinogenetic endpoints (Gies, 2007)
Table 1: No source given, not novel, in my view not necessary

Careful revision by a native speaker is advised. There are numerous orthographical and grammar errors throughout the manuscript. Some of them are listed below:
Line 72: areas not area
Line 73: physical not chemical
Line 77: contains not containing
Line 80: Cross-sectional studies with a link to diabetes are epidemiological studies, too
Line 83: omit “people with”
Line 88: shown not showed
Line 105: disruptor not disruptor
Line 129: believed not believe
Line 190: my collaborators and I: avoid personal style
Line 192: were not was

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:
I declare that I have no competing interests