

Reviewer's report

Title: Data transfer from animal models to human studies: what is the challenge?
Case of persistent organohalogenes.

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Reviewer: gemma calamandrei

Reviewer's report:

The paper by Suvorov and Takser addresses a very important issue in toxicology research, namely the reliability of data obtained in animal models for risk assessment and related regulatory policies. They identify a number of constraints that may be responsible for the large time gap between animal research findings (i.e. adverse effects of a given chemical on different target organs/systems) and regulatory decision (i.e. banning of this same chemical compound from the market).

In this framework, they performed a thorough review of the literature on PCBs and PBDEs, and conclude that methodological limitations in animal experiments are largely responsible for the delay in decision making concerning toxic substances.

Major compulsory revision

1. However, I have a major concern on this paper: the so called 7 requirements for "harmonized animal experiment" described in 2nd paragraph are treated very superficially in the subsequent paragraphs, in spite of the importance of each single topic.

As an example, in developmental toxicology choice of dosages is crucial when designing experiments aimed at reproducing the human exposure scenario: very often it is a hard choice determined by the need of a compromise between toxicokinetic models (rare and often built in the adult organism) and internal dose reported by human studies (if any). The same considerations hold true for route of exposure, it depends on both developmental phases and toxicokinetic.

And what are "sensitive endpoints"? Do the authors mean biomarkers to be measured non-invasively, to be transferred from animals to humans?

The paragraph on animal species used deserves to be more thoroughly treated.

Altogether, while the premises of this paper are good, it fails to add new or original information in the field, and treatment of some of the issues is rather naive.

I suggest the authors to focus on the comparison between PCBs' and PBDEs' studies and treating the specific methodological issues within this framework, avoiding generalisation.

2. The paper requires extensive english revision!

Minor essential revisions:

1. Figure 2 not readable!

Are Figure 6 and Figure 7 necessary? In general, insert explanatory titles (i.e. PCBs, PBDEs, etc.) in the figures.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Not suitable for publication unless extensively edited

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

Declaration of competing interests:

I declare that I have not competing interests