Reviewer's report

Title: Effects of breastfeeding on rat and human development: A translational life-history perspective

Version: 1 Date: 18 October 2012

Reviewer: Mark A Hanson

Reviewer's report:

This is an interesting paper which reports the results of a multigenerational study of the effects of the timing of weaning in rats, and also of breast vs. formula feeding and the quality of maternal care in humans, on subsequent development for phenotype in a life-history context. Whilst the authors make a good case for conducting the studies, and for lumping all the results together into one paper, the manuscript as it stands is far from adequate. There are major problems with the data presentation, analysis and interpretation which make it very hard to assess, and even to judge the adequacy of the study design itself. These are:

1. There is really no clear a priori hypothesis set out in the introduction. The paper is written in a somewhat anecdotal style, where the rationale shifts as it proceeds.

2. The cross-fostering of pups to non-lactating dams, followed by subsequent separation, constitutes two distinct challenges. Thus the interpretation of timing of weaning is confounded by time spent with a foster mother.

3. The data is extensive but is presented in a somewhat selective way, e.g. comparison with D26 or D21 data

4. There is little information on statistical methods, so it is not possible to assess their validity. The n is not given, especially for subsequent generations; were litter effects controlled for?; use of repeated t tests across a time course is not appropriate because this assumes points are distinct, when of course the data at each time point are related; was connection for multiple comparisons made?

5. The figures do not have adequate legends or labelling and units on the axis

6. The methodology of which animals were mated with which in F1/F2 is not clear. To give one example, what does “offspring of late weaned d16 parents, compared to d26 offspring had greater d10-body-fat mass …” (Page 6, lines ½) mean?

7. The human studies are not really comparable, as they are a comparison between breast and non-breastfed infants, with the additional complexities of mother-infant attachment. These data cannot be presented adequately here and, if appropriate, merit a thorough and detailed presentation and analysis in a separate paper.

8. The paper appears to have been hastily written or not proof-read, so that inaccuracies such as “rump-tale length) have crept in. Crown –rump length?
Quality of written English: Needs some language corrections before being published

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

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