Reviewer's report

Title: DNA methylation differences at growth related genes correlate with birth weight: a molecular signature linked to developmental origins of adult disease?

Version: 1 Date: 30 December 2011

Reviewer: Gudrun Moore

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Major Compulsory Revisions

More clinical phenotypic detail is needed on the new borns:

Birth weight varies considerably with sex (boy children 200 g heavier); gestational age (>37 weeks 100g per week); ethnicity (Asian babies 200g lighter) and parity (first babies 200g lighter than third baby). There is no data on any of these parameters for the 48 newborns studied.

Almost all genes could be argued to have a role in the growth phenotype so it is not surprising that many in this screen did?

Minor Essential Revisions

In Background of Abstract p2: change 'but few have been reproduced..' to but these studies are difficult to reproduce in man and large cohort studies are needed due to the large inter individual variance in transcription levels

Missing reference; page 17 second paragraph fourth line after (and brain)…

Reciprocal imprinting of human GRB10 in placental trophoblast and brain: evolutionary conservation of reversed allelic expression.

Discretionary Revisions

The affect of ART on short and long term clinical outcomes may have different sequelae to those of normal conceptions.

I believe that there must be a relationship between the methylation status and the transcriptional level. These have to be linked. If they are not functionally linked then the premise of methylation affecting phenotypic outcome falls down?

These are recommendations for improvement which the author can choose to ignore. For example clarifications, data that would be useful but not essential.
Please note that both the comments entered here and answers to the questions below constitute the report, bearing your name, that will be forwarded to the
authors and published on the site if the article is accepted

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

No competing interests