Reviewer's report

Title: An assessment of recently published gene expression data analyses: Reporting experimental design and statistical factors

Version: 1 Date: 18 April 2006

Reviewer: Tom A Trikalinos

Reviewer's report:

General
This is an important question. The paper would benefit from streamlining in the discussion section. Please note some points below.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. CONSORT is irrelevant. Try referring to the MIAME statement, which is probably what you targeted.

2. The major problem in microarray data analyses is that at the same time the available information is too limited and too extensive. Limited because samples are few; extensive because thousands of genes are assessed. This may result in data dredging from the part of the investigators. See the 2003 Lancet paper by Ntzani & Ioannidis and the 2005 Lancet paper by Michiels et al. on microarray studies and comment accordingly.

   My view is that the specifics of the methods are less important; most probably in microarray analyses we are limited by the lack of (extractable) information in the data, rather than the suboptimal use of statistical methods.

3. Focus on the importance of the validation of the analyses' findings. Contrast independent validation with bootstrap validation or no validation at all. Again, I point you to th aforementioned papers.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. Consider illustrating the different ways people analyse data from such studies, perhaps in a table.

2. Consider describing (briefly) the variety of the diseases and the outcomes among papers assessing real data.

3. Consider stating the search algorithm you employed.

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Discretionary Revisions (which the author can choose to ignore)
What next?: Accept after minor essential revisions

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

Quality of written English: Acceptable

Statistical review: No

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