Reviewer's report

Title: Arachidonic acid and cancer risk: a systematic review of observational studies

Version: 1 Date: 18 September 2012

Reviewer: Claudia Agnoli

Reviewer's report:

This is a systematic review of observational studies on the association between an essential n-6 fatty acid, i.e. arachidonic acid # both from diet and as a biomarker # and risk of colorectal, skin, breast, prostate, lung, and stomach cancers in observational studies. To my knowledge, this is the first systematic literary review covering these topics. However, some issues should be addressed before publication.

MAJOR COMPULSORY REVISIONS

1. Methods, Study selection, lines 113-114: why didn’t the authors assess the articles independently? Independent articles selection is a key step in a systematic literary review process, therefore the choice of a different kind of selection should be strongly motivated.

MINOR ESSENTIAL REVISIONS

1. Methods, Quality assessment and data extraction, lines 122-129: what is the difference between reporting quality and methodological quality? This should be shortly explained in the text.

2. Methods, Quality assessment and data extraction, lines 141-143: the authors should specify what is the minimal number of studies to perform a meta-analysis taking into account the study design.

3. Discussion, lines 230-251: in this section of the discussion the authors in part re-explain the methodology used for the systematic literature review. I suggest to shorten this part.

4. Discussion, lines 296-301: the link between low reporting quality and publication bias is not clear and should be rewrite in a clearer manner.

5. Discussion, line 339: the authors wrote that they did not use search terms for ARA levels of tissue in PubMed searching. What did they mean? It is not clear from the text.

Level of interest: An article of limited interest

Quality of written English: Acceptable

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