Reviewer's report

Title: Rapid chemokinetic movement correlates with the invasive potential of lung cancer cells; a functional molecular approach.

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Reviewer: Remi Houlgatte

Reviewer's report:

General
This paper compares a sub-population of H460 lung cell-line, having a more chemokinetic character, to unselected control cells using functional assays (cell migration), immunohistochemistry and gene expression. Many statistical informations are missing and conclusions are excessive.

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

Microarray data:
- What are the methods used by the authors, and which parameters (FDR, threshold ...) ? This should be clearly described in the Methods section.
- What are the positive and negative fold changes on Table 3. Log2 Log10 ? Are these values significant?
- How many genes are significantly up and down regulated in KINE/CON cells ? What fraction of these genes are involved in Adhesion ?
- Discussion p16: "We focused on a panel of genes that regulate cellular adhesion ..." How these genes were selected ?
- Are the microarray data available ?

Statistics:
- Chemokinesis (Table 2): Are the observed differences significant ? At which threshold using which test ? The number of measurements (n=...) should be added to Mean and SD. If it is always the same (eg. n=4), provide it in the legend of the table.

- Table 1: The migrating cells have been counted. Why semi-quantitative data are provided in table 1 ? And how "Data represent the mean +/- SD of triplicate determinations" (legend of table 1) ?

- Are the differences observed in fig. 4 significant ? Threshold, test used ...

Figure is an hypothesis not supported by experience. It can be written in discussion, but it cannot be a figure.

Many sentences are excessives:
- title: "Rapid chemokinetic movement correlates with the invasive potential of lung cancer cells ..." Is the Cell Adhesion a measure of the Invasive Potential ? Are the KINE cells moving rapidly ("Rapic chemo...").
- Conclusions of the abstract: "... and its regulation, distinct that of chemotaxis ..." Were are the data supporting that?
- Discussion p16: "A model derived from this work fits ..." No data in this paper support this model. You can assume this model in the discussion.

...Where are the data supporting the following sentences in Conclusion:
"This study SHOWS that whereas chemotaxis alone promotes ... "
"... chemokinesis is a better correlate for invasion and metastasis"
"The significance of this data is that it may now be possible ..."
...

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

- Methods page 8: "Microarray analysis and real-time PCR"
  There is no real-time PCR data in this paper

- Fig 3: Please add a legend on on the figure itself (Con / Kine) (Paxillin / Actin / Both)

- Page 5 "... differential gene expression patterns ..." The word "pattern" should be removed. A list of 6 genes with their fold-changes cannot be defined as a pattern

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests