Reviewer's report

Title: Identification of a novel set of genes reflecting different in vivo invasive patterns of human GBM cells

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Reviewer: Bernard Malfoy

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The authors report the identification of a set of differentially expressed genes in two types of long term glioblastoma multiform cell cultures corresponding to two categories of growth behavior in xenograft: nodular like (NL) and highly diffuse (HD). 3 cases of each type was analysed. Gene expression was studied by microarray, RT-PCR, immunofluorescence and immunoblot.

The number of genes differentially expressed (34) is never indicated. The full name of the genes and possibly a short presentation of their function should be usefull in the text or in supplemental data. GPR23 in table 1 and in figure 3 is LPARA in the texte

Page 14, parag 2, it is stated that signifiant GO are Biological Process and Cell Compartment , corresponding genes are not given and are not futhermore discuss. In contrast “cell adhesion” is indicated in the legend of table 1 and discuss in the discussion. Which genes are actually relevant?

Why “arbitrary selected genes” were analysed using complementary methods? Only 3 genes were analysed by 2 methods. Several genes presented in the discussion were not analysed. It shoud be better to present a coherent set of data.

The discussion of the genes is cut by the introduction of the comparaison with data from the litterature concerning the classification of gliomas. It should be clearer to isolate this part. More details on the definition of the proneutral, neutral, etc… forms should be usefull to understand the relationships with the present data: PT1-3 which are scattered in the PCA are well classified as neutral and PT5 is not classified with PT4-5 whereas well clustered in the PCA. Is it possible to discuss these points? What is the conclusion of this comparaison?

The final discussion of the differentially expressed genes support in part the conclusions. Nevertheless, “arbitrary selected genes” are discussed and the actual role of these genes is not well established.

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

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 interest