Reviewer’s report

Title: Effects of hypoxia on human cancer cell line chemosensitivity.

Version: 1 Date: 15 April 2013

Reviewer: Catherine CG Grillon

Reviewer’s report:

Summary: This study is focused on the effect of various chemotherapeutic drugs (19 drugs) on different cancer cell line (5 lines) proliferation in conditions of anoxia or hypoxia, mimicking the intratumoral context. Previous publications brought such results but only partial data which differ between cell lines used and drugs studied.

Major Compulsory Revisions
1/ In introduction (page 4, line 8-10), it should be informative to add that blood flow is also affected inside the tumor due to anarchic vascularization and strong permeability and that this contributes to a less efficacy of chemotherapies.
2/ Please, can you precise in which conditions (normoxia, hypoxia) are performed the incubation for FMCA
3/ Page 11, line 11: How can you calculate a valuable IC50 for various drugs if your cells reach confluency before the end of the incubation, particularly in normoxia as it is written? And how can you compare “IC50” each other?
4/ Table 3: The percentages presented here are calculated taken into account the whole results even those which are not significant (I suppose, see below 7/). If we select only significant results, the percentages are quite different. For example, in the first column, 59% becomes 5.9%, 6% becomes 64.7%, and 35% becomes 29.4%. So the conclusions will be very different. Is it possible to find an appropriate statistical analysis allowing getting more confident results?
5/ page 14, line 5: Sorafenib inhibits a tyrosine kinase involved in VEGFR and PDGFR signalization. VEGF is one of the main proteins induced by hypoxia. Please can you comment your results according to the VEGF-proliferation dependency or not of cell lines you assessed

Minor Essential Revisions:
6/ Page 7, line 3: the exact term is fluoresceindiacetate
7/ table 3, Please can you explain in the legend what are the percentages given in the right columns and columns of the bottom, and how they are calculated

Discretionary Revisions
8/ Table 1 should be completed with the tumor cell type or cell line studied. It will help to compare with the results you presented here.
9/ Page 7, line 4: the concentration of the FDA stock solution should be added.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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

Declaration of competing interests:

I declare that I have no competing interests