Reviewer's report

Title: Evaluation of protease and nucleoside reverse transcriptase inhibitors on intestinal cell proliferation, necrosis, apoptosis, electrolyte and water transport and epithelial barrier function.

Version: 3 Date: 19 June 2010

Reviewer: Michael George

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Minor Essential Revisions:

1) First sentence in the conclusion section of the Abstract is confusing. “The PIs, NFV and IDV, increased cell death, water and electrolyte secretion, intestinal permeability and decreased villus length in vivo and cell proliferation and cell death in vitro.” This statement seems to say that cell death was both increased and decreased, plus it is confusing for the reader with regard to which results were in vivo and which were in vitro. Please re-write.

2) In vitro and in vivo are not consistently italicized throughout.

3) Titles of subsections do not have a consistent font size or style.

4) In the Background section; the two halves of the sentence: “Nelfinavir has been demonstrated to induce endoplasmic reticulum (ER) stress, autophagy and apoptosis both in vivo and vitro and suggeted that due to its wide activity, oral bioavailabilty and familiarty of administration it could be repositioned as an chemotherapy agent [9]” are disconnected and the sentence does not make any sense. Please revise.

5) Does the ApopTag Plus Peroxidase In Situ Detection Kit actually identify both necrotic cells and apoptotic cells as stated in the Materials and Methods section? Clarify by describing how this works in the M&M, or remove the indication that that specific kit was used for “Analysis of apoptosis or necrosis”, and add a description of how necrosis was assayed.

6) The numbering for figures is out of order with the text. The text jumps from Figure 1 to Figure 6 to Figure 2 to Figure 7 to Figure 3 to Figures 4 and 5. The authors should present the Figures in order.

7) The last sentence of the first paragraph in the Discussion needs to be revised. It misleadingly states that: “The results of this study suggest that the selected antiretroviral drugs influence the small intestinal absorptive and secretory functions and the ability of the epithelium to restore itself after injury.” While some absorptive and secretory assays were performed, no experiments were done to test the ability of the epithelium to regenerate itself following injury.

Discretionary revisions:
1) It was very disappointing to see so many poorly worded sentences, typos, misspelling, and inconsistent formatting in this manuscript….too numerous to list, especially considering this is a “revised” submission. The data from the study and the study itself would undoubtedly be more interesting, seem more relevant, and have a greater impact if the authors spent some quality time on the writing.

2) The abstract results section would be just as meaningful and easier to read if it is trimmed down and presented as a summary (i.e. “reduction in duodenal villus length by 27.9%, 28.4%, 27.3% and 29.5%, respectively” seems to be too much detail for an abstract, and it is unclear what “respectively” means).

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

**Quality of written English:** Needs some language corrections before being published

**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