Reviewer's report

Title: Synergistic effect of acyclovir and 3,19-isopropylideneandrographolide on herpes simplex virus wild types and drug resistant strains

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Reviewer: Angel S. Galabov

Reviewer's report:

The MS of Priengprom et al. considers an actual topic of antiviral chemotherapy - the search of antivirals effective against the ACV-resistant mutants of HSV. The study on the combination effects of the substances proposed by the authors with ACV is an interesting and useful aspect, as well. The study includes only original data.

The methodology applied in this investigation are appropriate and well described. The estimation of this part of the work is completely positive.

The illustrative material of MS, tables and figures, are demonstrable, correct and convincing.

Experiments on the combination effect of 3,19-isopropylideneandropholide (IPAD) plus ACV against HSV ACV-sensitive (wild) strains, ACV-resistant and phosphonoacetic-resistant strains are correctly carried out and convincingly presented (in the “Discussion”, as well).

Remarks:

(i) The individual antiviral effects of IPAD are not, unfortunately, markedly selective at all. Selectivity index values of 2.2 - 2.36 (Table 1) characterize these effects as borderline ones, i.e. IPAD could not be considered as an antiviral substance. Consecutively, this substance is not prospective as anti-HSV agent.

It could be of interest what will be the in vivo activity of IPAD, in experimental HSV infections in laboratory animals.

(ii) In the chapter “Discussion” are missed data on other studies on the substances (e.g. of plant origin) possessing inhibitory effects against HSV ACV resistant strains (e.g. Vilhelmova-Ilieva et al., Antiviral Research 110, 2014, 104).

(iii) Ganciclovir (p. 3, line 56) is not an anti-HSV drug; it was proved as an anti-HCMV agent and is recommended for clinical use with this indication.

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 have no competing interests in relation to the paper that I am reviewing.