Reviewer's report

Title: The relation between deoxycytidine kinase activity and the radiosensitising effect of gemcitabine in eight different human tumour cell lines.

Version: 1 Date: 13 March 2006

Reviewer: Mario Del Tacca

Reviewer's report:

The present work describes the radiosensitising effect of gemcitabine and demonstrates, for the first time, a clear concentration-dependent radiosensitising effect of this anticancer drug. The results apply to eight different cell lines, originating from different tumours, including pancreas, lung, breast, bladder, colon and head and neck cancers. Overall, the manuscript deals with an issue of topical interest, which has not yet been the focus of many studies. Furthermore, radiotherapy and gemcitabine are commonly used in the treatment of several of these tumours. Additionally, the relative role of dCK as well as the possible activity of various other parameters in gemcitabine radiosensitising effect, if further developed, might lead to clinically relevant applications.

The research is well presented, however there are some minor essential revisions that might clarify some points to the reader:

1. The combination index method recommends a ratio of IC50s values which drugs are equipotent but drug interaction of gemcitabine and ionising radiation should be more easily analysed by fixing one dose and varying drug concentration, and vice versa. Therefore, authors should better justify their choice (i.e. by citing previous works using this method)

Other minor points are:
1) The tables 2 and 3 should be corrected by substituting commas with points (i.e. dCK activity in EV304 cell line is 15.29 nmol/h/mg protein, see Table 2)
2) In order to assist the reader, the Figures 1, 2 and 3 should be enlarged and modified by using more readable labels for easy identification of different treatment and doses. Moreover the figure 1 lacks titles for x and y axes in CAL-27 and PANC-1 cells, while the legend states that this figure also shows dose response curves for 6, 7 and 50 nM gemcitabine, which are not present in the corresponding plots
3) In the Results section on dCK the sentences describing data on previous studies on dCK activity and sensitivity (references 41, 54 and 55) should be removed

What next?: Accept after minor essential revisions

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: Yes

Declaration of competing interests:

I declare that I have no competing interests