Reviewer's report

Title: A new extract of the plant calendula officinalis produces a dual in vitro effect: cytotoxic anti-tumor activity and lymphocyte activation

Version: 1 Date: 22 March 2006

Reviewer: Rathin K Bhattacharya

Reviewer's report:

General
The authors have shown that LACE extract of Calendula officianalis is potent in inhibiting (70-100%) proliferation of various tumor cells. This inhibition is due to cell cycle arrest in G0/G1 phase and caspase 3-induced apoptosis. The same extract, however, shows activation of proliferation in normal lymphocytes. The findings are interesting in view of the fact that the extract has dual function of suppressing growth of tumor cells while inducing proliferation in normal cells. The mechanism involved in this opposing phenomenon has not been delineated. It is not clear why "cells in cell-cycle arrest re-enter cell-cycle with LACE treatment. In contrast, LACE treatment produces G1 cell-cycle arrest in tumor cells in cell-cycle". The underlying molecular mechanism need to be explored to explain this. Several other points require clarification.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. There is distinct difference between the effects caused by LACE and CE. Why?
2. Apoptosis induction has been considered based only on caspase 3 activation. Why other parameters like cytochrome c release from mitochondria, bcl-2/bax ratio or DNA fragmentation have not been looked into?
3. Is there any difference in cellular morphology in tumor and normal cells treated with LACE?
4. What is the significance of lymphocyte proliferation by LACE or CE?
5. Why does laser treatment of the calendula extract increase tumor inhibitory activity over chemical extraction?

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

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Discretionary Revisions (which the author can choose to ignore)

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What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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
Declaration of competing interests:
I declare that I have no competing interests