Reviewer’s report

Title: Identification of apoptosis promoting constituents of Ukrain

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Reviewer: Ramzi Mohammad

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General:
The article by Habermehl et. al. titled “Identification of apoptosis promoting constituents of Ukrain” hypothesized that Ukrain induces apoptosis and used mass spectrometry to analyze which component of Ukrain is the active constituent. The Jurkat-T lymphoma cells were used to prove the mechanism of action of Ukrain as well. This is an interesting article since it tries to elucidate the mechanism of action of Ukrain where clinical studies are done in Eastern Europe as an anticancer agent.

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

The methodology were appropriate and well described in the paper using different methods to prove induction of apoptosis but it would have been nice to support cytotoxicity assay to prove Ukrain causes cell killing as well. There were some sections in the results pages 10-11 that should be more appropriate in the discussion sections. The authors showed that ukrain causes apoptosis that is independent of death pathway but follows mitochondrial pathway around the bcl2 related proteins. Since the paper tries to elucidate the mechanism of action of Ukrain, it would have been nice to show what happens to the pro-apoptotic molecules like bid, bax and bak which were mentioned in the results section. The title of the article should also be modified since the authors concluded that the anti-neoplastc activity was based on Chelidonium alkaloids instead of the hypothetic “ukrain-molecule”.

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

All Figures that include morphological alterations indicative for apoptosis should be of a better quality and in a larger size in order to show apoptosis related alterations, such as chromatin condensation and nuclear fragmentation.

The authors should explain why there is cleaved PARP in the untreated control group? Also why not this seen in Jurket Bcl-2 (Fig 2g)?

Discretionary Revisions (which the author can choose to ignore)

What next?: Accept without revision
Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No

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