Reviewer's report

Title: PAC down-regulates Estrogen Receptor alpha and suppresses Epithelial-to-Mesenchymal Transition in breast cancer cells

Version: 0 Date: 31 Jan 2016

Reviewer: Xiaoqing Wu

Reviewer's report:

This manuscript by Huda A. Al-Howail et al describes a huge amount of data about the effect of a curcumin analog PAC on the breast cancer cells and underlying mechanisms. They identified that PAC is more stable than curcumin in PBS and circulating blood, and PAC inhibits the proliferation and suppresses the epithelial-to-mesenchymal transition process in breast cancer cells, with higher efficiency on the TNBC subtype, which is confirmed in tumor xenografts in vivo. They also found that PAC suppresses the expression/secretion of two important cytokines IL-6 and 1 MCP-1 in vitro and in vivo, consequently inhibits the paracrine procarcinogenic effects of breast cancer cells on breast stromal fibroblasts. They stated that the above functions of PAC are mediated via down-regulation of estrogen receptor-alfa (ERα). However, the reviewer does not agree with this opinion. It might be the case for the ERα positive cell lines, but not for the ERα negative cell lines. For ERα negative cell lines, their growth and survival are independent of ERα. If PAC functions through down-regulation of ERα, ERα negative cell lines should be less sensitive to PAC. So, PAC functions via a different mechanism in triple negative breast cell lines. Therefore, the authors need to revise the entire manuscript regarding the mechanism of ERα throughout before it is considered to be published in BMC cancer.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
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No
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I am able to assess the statistics

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Needs some language corrections before being published

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