Reviewer's report

Title: Aspirin and P2Y12 inhibition attenuate platelet-induced ovarian cancer cell invasion

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Reviewer: daniele vergara

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In this work, Cooke and collaborators investigated the molecular and functional interaction between two ovarian cancer cell lines and platelets. The interaction of platelets with cancer cells induces the up-regulation of EMT markers at the mRNA level, and increases the ability of cells to invade matrigel. The treatment with antiplatelet agents decreases the invasion capacity but not modifies the platelet-induced EMT alterations. The topic is of interest considering that the role by which platelets may promote metastasis is still uncertain.

Overall, the work is well written, and the experimental procedures well performed. However, I’m not fully convinced about the novelty of this work. In fact, authors already published a paper (PLoS ONE 6(10): e26125. doi:10.1371/journal.pone.0026125) about this topic that explains and describes in a comprehensive way the interaction between platelets and ovarian cancer cells. In this last work, they should better investigate some of these aspects.

Major Compulsory Revisions:
- the effects of platelets on ovarian cells seem to be in part related to the basal expression of EMT markers. Platelets have a more drastic effects on SKOV-3 (partial EMT) compared to 59M cells (mesenchymal model). To better clarify this point, authors should introduce an epithelial model that lacks of the expression of mesenchymal markers, and investigate the activation of these ones after platelet-interaction.
- the activation of EMT markers should be validated at the protein level.
- cell signalling changes induced by platelets should be investigated and correlated with the activation of EMT markers.
- in their precedent work, authors stated that the interaction of platelets with cancer cells was heterogeneous. Platelets adhesion to 59M was greater respect to SKOV-3. In this work, the experimental conditions seem different (static vs low shear) together with the obtained results. Please clarify this point. The shear-dependent procedure should be better described in the experimental section.

Minor Essential Revisions:
Figure 1B. Please provide the statistical validation.
Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

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