Editorial Summary

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This exciting issue includes a series of papers with high impact on medicine. The issue of placenta regeneration is addressed by Greenberg et al. The group showed extracellular vesicles from healthy placenta stem cells being able to restore the function of placenta stem cells from preeclampsia. This study brings up the possibility of continual placenta regeneration during pregnancy. If so, the question is why such generation becomes pathological during preeclampsia. This question, as well as other questions from this study will be addressed by this and other groups. Nonetheless, this exciting report paves a path for an alternative therapy with extracellular vesicles for preeclampsia.

An important question that remains in the area of stem cell is the method of sustained multipotency. Sherman et al, systematically address a role for NFκB in multipotency. The authors show a role for NFκB in cell autonomous regulation of multipotency. This finding is interesting since the focused stem cells, mesenchymal, have been shown to elicit immune suppression within an inflammatory environment. Such environment is expected to have a predominance of inflammatory mediators such as cytokines, which could activate NFκB. In this regard, this study suggested both intrinsic and extrinsic regulation of NFκB to regulate multipotency.

The regulation of stem cell multipotency is complex. This network has been addressed with informatic study that shows how pseudogenes could regulate other molecules, leading to multipotency or differentiation. This informatic studies form the basis for bench studies to perform cause-effect relationship to unravel the role of stem cell pseudogenes.

In light of cancer stem cells in solid and hematological malignancies, this issue continues its theme on translation. A short response to a published paper positively acknowledge the role of substance P in cancer. However, this topic is a pleasant revisit of seminal working showing a role for the evolutionary conserved peptide substance P in cancer. Overall, there is excitement since this study could lead to repurpose of a substance P receptor antagonist for cancer. There is a strong potential that such an antagonist will target the stem cell population.