

Responses to Reviewer#1

The manuscript is very long and sometimes not easy to read. So some tables or more figures would be helpful to differentiate between different studies and possible work mechanism

Unfortunately, we were unable to determine which parts of the manuscript may be difficult to read. However, in the revised manuscript, we have provided tables summarizing the results of the studies that examined the differentiation potential of ADSCs *in vitro* and *in vivo* (Tables 1 and 2). In addition, we have included a figure schematically demonstrating the expression of the lacZ gene following Cre-mediated excision of a floxed stop codon in fused cells (Figure 1, in the revised manuscript).

We have modified the figure legends section accordingly.

Figure 1 Schematic representation of LacZ expression following the excision of a floxed stop codon by Cre recombinase.

Because we included this new figure, Figures 1 and 2 in the original manuscript became Figures 2 and 3, respectively, in the revised manuscript.

Responses to Reviewer#3

This is a comprehensive review of the potential role of adipose tissue-derived stem cells as a therapeutic tool for cardiovascular disease. The paper is well written. It would be helpful to provide tables with summary of the results of studies. This would improve readiness of the paper and reduce the text. The abstract is too long and does not provide any conclusion. The words "the authors" is repeated many times throughout the text (5 times on page 10 for instance).

We have included two tables and one figure in the revised manuscript to enhance the readability of the text. Please also refer to our responses to Reviewer #1.

We have also deleted several sentences from the abstract to render it more concise. Please note that according to the instructions stated by the journal, the abstract section should be no less than 200 words (without an upper limit for the word count), which suggests that the journal may expect a detailed abstract. We have now included a concluding sentence. However, this is not a specific conclusion because the abstract section is basically a summary of our review article.

Although we acknowledge your concern regarding the repeated use of the phrase “the authors,” the main reason for its repeated use was that we described the results of many studies in the text. Moreover, our manuscript was reviewed by native English speakers before submission. We did not modify the corresponding sentences because we believe that they cannot be inadvertently misunderstood by the readers. We would like to leave such changes to the editorial staff of the journal, if those changes are required.

We have modified the introduction section.

-- Therefore, ADSCs appear to be useful for the treatment of cardiovascular disease. (Page 2, line 20)

The following sentences in the introduction section of the original manuscript have been omitted in the revised manuscript.

-- However, the mechanisms underlying the regenerative capacity of implanted ADSCs in these animal models remain controversial. Some studies have reported the expression of VEC, VSMC, and cardiomyocyte markers by ADSCs, suggesting ADSC differentiation into, and/or fusion of ADSCs with, these cell types. However, other studies did not report the expression of VEC, VSMC, or cardiomyocyte markers by ADSCs, suggesting the implication of cytokines produced by ADSCs in the restoration of functions.---(Page 2, line 17 in the original manuscript)