

Reviewer #1:

Scientific Quality: Grade C (Good)

Language Quality: Grade C (A great deal of language polishing)

Conclusion: Major revision

Specific Comments to Authors: The manuscript has interesting content. However some points should be edited: a) The entire manuscript requires proofreading. Some mistakes of grammar, typing, punctuation should be avoided. Also check abbreviations and units of measurement. b) The discussion is brief. It could be enriched with the effect of similar compounds (references could be more than 35 at least). Also, Please check some recent articles closely linked to your work and discuss about your observations and that reported on them. For example: - Akashi N, Umemoto T, Yamada H, Fujiwara T, Yamamoto K, Taniguchi Y, Sakakura K, Wada H, Momomura SI, Fujita H. Teneligliptin, a DPP-4 Inhibitor, Improves Vascular Endothelial Function via Divergent Actions Including Changes in Circulating Endothelial Progenitor Cells. *Diabetes Metab Syndr Obes.* 2023 Apr 13;16:1043-1054. doi: 10.2147/DMSO.S403125. PMID: 37077576; PMCID: PMC10108873. c) Conclusions, limitation and prospective studies, as well as implications in Diabetes treatment should be clearly sentenced in the manuscript.

Response: Thank you for giving us the opportunity to revise the manuscript. We have revised the manuscript in accordance with the reviewer's comments. Here we give a point by point responses for you.

a) The manuscript has been edited by a native English speaker for language correction, and the mistakes of grammar, typing, punctuation were all be corrected. abbreviations and units of measurement also were modified.

b) In the discussion section, we discussed the research results in combination with the recently published literature, and quoted the literature as required. Now the number of references has reached 35.

c) Again, we revised the conclusions, limitations and prospective studies, as well as implications in diabetes treatment, which are now much more explicit.

Answer to editorial board

1. There are several language errors throughout the paper which need rectification (e.g., "high glucose induced...." should have been hyperglycaemia-induced; "primary mouse cardiomyocyte were treated...." syntax error; the last sentence in the results of abstract makes no sense.) with a language expert/editing service.

Answer: We have modified 'high glucose induced' to 'hyperglycaemia-induced' in whole text; "primary mouse cardiomyocyte were treated...." changed as "primary mouse cardiomyocytes were treated with high glucose (30 mmol/L) with or without teneligliptin (5 μ M) and in the presence or absence of compound C (10 μ M) for 24 h". In actually, We have had ask a professional native speaker to revise the full language and grammar, and your journal has also revised the language and grammar errors after we submitted the revised manuscript. The last sentence in the results of abstract is "Furthermore, the beneficial effects of teneligliptin on hyperglycaemia-induced cardiomyocytes were abolished by the AMPK signaling inhibitor compound C". We don't understand what's your mean, please address for detail information.

2. The first sentence in the abstract results section is quite unclear with the poor syntax and sentence structure. What is meant by the term heart weight/ tibia length?

Answer: Sorry for our misleading, heart weight/ tibia length is an indicator of cardiac hypertrophy, The higher the value, the more severe the cardiac hypertrophy. In the manuscript, we modified as "Marked increases in cardiomyocyte area and cardiac hypertrophy indicator heart weight/tibia length, reductions in fractional shortening.....".

3. Introduction: sentence 3 giving figures about diabetes prevalence is from old estimates. Please quote and and cite the 2022 figures.

Answer: We have quote and cite the 2022 figures, we have modified as “According to the International Diabetes Federation, there are 8.75 million people with Type 1 diabetes (T1D) worldwide, or 0.11% of the global population. 1.52 million (17.0%) patients were younger than 20 years of age, 5.56 million (64.0%) patients were between 20 and 59 years of age, and 1.67 million (19.9%) patients were 60 years of age or older. In 2022, there will be 530,000 newly diagnosed cases of T1D in all age groups, of which 200,000 will be under 20 years old[1]”, the reference has also been revised accordingly.

4. Methods: The number of mouse model used in the experiments (total 6 including controls I assume) seems small which makes reproducibility of the research questionable. This appears a major limitation of the study.

Answer: We agreed with you that small sample size made reproducibility of the research questionable. In our study, we used 8 mice in each group, and we annotated the sample size in the figure legend part.

5. Discussion section makes comments about evogliptin and alogliptin roles in DCM which make not much sense. If authors wanted to discuss the potential effects of various DPP-IV agents on DCM, these should have been in the introduction/ background section.

Answer: We agreed with you that discussion section makes comments about evogliptin and alogliptin roles in DCM which make not much sense. We delete it now.

6. There should be a short discussion on what this study adds to our knowledge and the main limitations of the work in before conclusion section.

Answer: We added in the discussion section “In summary, in this study, we established an STZ-induced diabetes model and found that teneligliptin significantly inhibited cardiac hypertrophy and reduced fractional shortening and the ejection fraction induced by diabetes. Through animal in vivo and cell

in vitro experiments, we found that teneligliptin can improve DCM through NLRP3 pathway, which take to us that cell pyroptosis plays an important role in the improvement of DCM by treatment with teneligliptin. Future study should performed by NLPR3 knocking down and overexpressing to verified its direct effect, which is the main limitations of this study."