

Dear Sir or Madam,

Thank you very much for your review and the comments, which were very valuable to us for the revision. We have tried our best to revise the text according to the suggestions and indicated the issues we addressed with red font in the body of the article. Please find more detailed answers to your questions below, together with an extended list of references. We hope that the revisions are satisfactory.

Reviewer 1

QUESTION 1. As an important pathological process, intervertebral disc degeneration (IVDD) plays crucial role in affecting the morphology and normal physiological function of lumbar intervertebral disc, and eventually leads to the decline of its ability to bear compression load. Due to the complex pathogenesis of IDD, there is currently no treatment that can effectively alleviate or reverse IDD. I think it might be more useful if this review article focus on the mechanism of non-coding RNAs, protein-protein interaction, or other medicine in regulation of molecules and their roles played in the degeneration of human nucleus pulposus (NP) cells.

ANSWER 1. Thank you for this suggestion. We have added a part in the manuscript. We have described the molecular interactions and molecular basis of the AP, NP and endplate, as advised.

Reviewer 2

QUESTION 1. Dear editor and authors, Thank you for the opportunity to review the manuscript entitled " The endplate role in the degenerative disc disease: a brief review". This is an interesting and promising manuscript which gives amazing points of comprehensive review instantly to the readers about the topic. In the present review, the authors aimed to provide an insight on background, concept, and features of the importance of vertebral endplate function in degenerative process of intervertebral disc. The authors did a really good job on the literature searching and explaining. It is generally well-written and the overview given is fairly informative. However, I have the following comments to the manuscript to improve and make it even a stronger paper before formal publication. Although the authors have provided an English editing certificate, some of the sentences are still hard to follow. Please revise the language and proofread the whole manuscript again.

ANSWER 1. Thank you. The text was revised and proofread.

QUESTION 2. Title and subtitles should be highlighted for clarity.

ANSWER 2. This was corrected.

QUESTION 3. Please give a more detailed background introduction to the endplate role in degenerative disc disease instead of low back pain as most of the readers of the journal may not be familiar with the field. For instance, degenerative disc disease may cause low back pain, herniated intervertebral disc, spinal stenosis, etc ...

ANSWER 3. Thank you for this suggestion. The Introduction was broadened and the information pertaining to the degenerative disk was supplemented. Please find the revised and extended text embedded in the Introduction section. It is marked in red.

QUESTION 4. The authors have mentioned some operative measures in treating degenerative disc disease, such as discectomy, spinal fusion, disc arthroplasty and epidural steroid injections. Please discuss in depth the indications and how to select or combine the aforementioned measures when treating degenerative disc disease.

ANSWER 4. Although this is not the topic of this manuscript, which describes the endplate *per se*, we have discussed these treatment options.

QUESTION 5. The authors should summarize the key points to the readers in table form. It would be easier for the readers to catch the points from the authors in a “at a glance” way. It could be a formidable if the review could present the core information in tables. In my point of view, a critical method of doing this is to add details of which citations originate the ideas proposed inside the tables. This would help the readers to find the tables even more useful and valuable. I would also appreciate some discussion about the quality of retrieved articles reported if listed.

ANSWER 5. This was arranged as advised.

QUESTION 6. Some of the references are outdated and even before the millennium. Please update your reference list accordingly. Please correct the error in reference 29.

ANSWER 6. The reference list has been supplemented and the error corrected.

Reviewer 3

QUESTION 1. The title and subtitle need to be highlighted.

ANSWER 1. This was corrected.

QUESTION 2. No references published after 2020 were cited, no relative studies were published in the past 2 years?

ANSWER 2. Thank you. This was corrected and new references added.

QUESTION 3. In the title, abstract, and core tip, the author talk about intervertebral disc or degenerative disc disease, but mainly discuss low back pain in the introduction. Low back pain is not equal to degenerative disc disease.

ANSWER 3. This was corrected and rewritten.

QUESTION 4. The current animal and clinical studies should be discussed in depth, and a table summarized the main results from animal and clinical studies focusing to endplate in degenerative disc disease could be added.

ANSWER 4. Thank you. This was added.

Reviewer 4

QUESTION 1. The title of manuscript “The endplate role in the degenerative disc disease: a brief review” didn’t cover all the degenerative causes, for example the Mechanical, Neuronal Involvement and modic changes involved in degeneration of endplate. These all should be written well to provide better version of manuscript.

ANSWER 1. Thank you for this observation. The text was enriched regarding these topics.

QUESTION 2. Morphological properties of the End plate and its composition is not well explained.

ANSWER 2. This part of the text was supplemented.

QUESTION 3. The vertebral endplate disc degeneration causes and risk factor should be added to the manuscript.

ANSWER 3. This part of the text was supplemented.

QUESTION 4. There is a need to add graphical illustration to better understand the idea behind the objective.

ANSWER 4. Thank you. We included figures in the text for better comprehension.

QUESTION 5. There are so much typos and grammatical errors throughout the manuscript.

ANSWER 5. This was corrected.