

Peer Review File

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Reviewer A

Comment 1: The article is about biomechanical analysis which means the conclusion can not be the ILN-10 is "more appropriate implant in an ovine critical-sized tibia defect when utilized for testing of novel tissue engineering approaches for bone healing.

Reply 1: Thank you for raising this issue and ensuring the reader recognizes this key limitation. We have revised our conclusions in the text and have ensured that it is clearly stated that further in vivo work is necessary to verify these ex vivo results.

Changes in the text: We revised the conclusion in the abstract (See Page 4, line 55-59). We added further text indicating a need for further in vivo testing (See Page 17, line 321-322). Our limitation section points out these ex vivo results do not equate to in vivo conditions (See Page 19, line 367-371). Our conclusion statement in the main text indicates further in vivo testing is required (See Page 19, line 382-385).

Comment 2: There are a large number of other variables, when discussing live situations, that have not been evaluated. For example: costs, surgical technique, how the defect will be used (with or without scaffolds).

Reply 2: We have added further discussion of differences in surgical technique and the considerations for using scaffolds that will help the reader recognize these important issues.

Changes in the text: We added text pointing out the benefits and limitations of ILNs and LCPs (See Page 15, line 284-300). We have added text regarding the use of scaffolds with each implant (See Page 16, 302-311).

Comment 3: There is no discussion about the difference between ILN and LCP, the positioning of these implants in relation to the bone, can already predispose to a difference in the biomechanical test.

Reply 3: Thank you for the suggestion. We have added a paragraph bringing up differences of ILNs and LCPs with regard to placement and effects on testing.

Changes in the text: We added a paragraph on differences between ILNs and LCPs (See Page 14, line 270-282).

Comment 4: The limitation about the diameter of the ILN-10 should be considering and discussing more.

Reply 4: We have added text discussing limitations of the ILN-10 and alternative strategies that could be considered when using these results in future studies.

Changes in the text: We added text raising issues with the ILN-10 diameter and alternative strategies to consider (See Page 17, line 324-338).

Comment 5: And the limitation and difficulties to use scaffolds in the gap with the ILN, also, should be discussed

Reply 5: We have added text regarding difficulties of using scaffolds in the gap of the ILN as requested.

Changes in the text: We added text regarding the use of scaffolds with ILNs (See Page 16, line 302-311)

Reviewer B

Comment 1: - much redundancy throughout the whole paper, i.e. the results in table 1 are already presented in the text, and then again for table caption.

Reply 1: Thank you for ensuring clarity in our manuscript. We have deleted the redundant text in the results section and from the table legend. There may appear to be redundancy between the text in the results section with Figure 1, however, Figure 1 reports mean values, while the text reports % increase or decrease when discussing comparisons. We have also re-organized the text in the discussion to avoid repetition where possible. However, there were some exceptions to this where Reviewer A requested those changes, specifically in the need to reinforce that further in vivo studies are required.

Changes in the text: We have removed redundant text in the results section and table legend (See Page 11, line 207 and Page 25, line 489). The text in the discussion was reorganized to minimize redundancy (See Page 14, line 270-338). Some statements were repeated upon request from the other Reviewer and remain in the text (See Page 17, line 321-322; See Page 19, line 367-371; See Page 19, line 384-385).