

Dear Editor and Reviewers,

We are grateful for the Reviewers' valuable comments concerning the manuscript, "A new method for assessing the rate of biodegradation of magnesium alloy-based products in an in vivo experiment". In the light of the questions and recommendations received we revised the manuscript extensively from title to grammar to content. Please find below our responses to the Reviewers' comments one by one. We feel that the manuscript has been significantly improved and hope that the corrections meet the requirements for publication.

With kind regards,
Nikolai Redko

Original title:

"A new method for assessing the rate of biodegradation of magnesium alloy-based products in an in vivo experiment"

Reviewer #1

1) In Introduction, "*numerically assessing the volume...*" should be changed into "*quantitatively assessing the volume..*"

Thank you for the important comment. The edit has been made

2) In 2.2, the details of the coatings (i.e., the ceramic coating and fluoridation-based coating) are still missing, including the compositions of the coatings, coating methods, coating thicknesses, bonding strengths, roughness, etc. Without these details, the reader will not be able to understand the three groups in Results (Table 2 and the text from "After one week....") and part of Discussion (This study shows that....).

Dear colleagues! Thank you for the most anticipated question. The purpose of this study is to demonstrate the possibility of measuring the gas cavity based on computed tomography data. We decided to change the implant data by removing coated screws. As you mentioned, a more detailed description of the coatings and their properties is needed. We are currently preparing a full-fledged publication on different coatings and their assessment, including the difference in the histological structure of the surrounding soft tissues and bone, etc. We provided cases of measuring the gas cavity on products without coatings.

3) *Table 2 compares the gas cavity volume (group 1) with screw volume (group 2 and group 3), which makes little sense. I think both gas cavity value and screw volume for each of the screw groups should be presented. In addition, asterisk is missing in Table 2.*

Thank you for the important comment. The table was replaced with a new one with the volume of screws without coatings and the volume of gas formed around them, respectively.

4) *The majority of the Discussion from “It is important to note....within the first 24 hours” concerns the state of the art. As such, these sentences should be placed in the Introduction section and the Introduction should be rewritten.*

Thanks for the comment. We made edits to the Discussion and Introduction section.

5) *In Discussion, “Table 1” should be changed to “Table 2”.*

Thanks for the comment. We made edits to the paragraph