**Responds to Reviewers and Editor:**

First of all, we both thank reviewers and editor for the positive and constructive comments and suggestions.

**Editorial comments:**  
Changes to be made by the Author(s):  
1. Please take this opportunity to thoroughly proofread the manuscript to ensure that there are no spelling or grammar issues. The JoVE editor will not copy-edit your manuscript and any errors in the submitted revision may be present in the published version.

**Answer:** We have paid attention to these issues and fixed them in the revised manuscript.

2. There are a few sections of the manuscript that show overlap with previously published work. Though there may be a limited number of ways to describe a technique, please use original language throughout the manuscript. Please see lines: 37-39, 52-57, 59-62, 67-77, 114-118, 160-163, 165-169, 179-181, 184-197, 212-237, 239-242, etc.

**Answer:** We are so sorry to make this mistake. We fixed this in the revised manuscript.

3. Please obtain explicit copyright permission to reuse any figures from a previous publication. Explicit permission can be expressed in the form of a letter from the editor or a link to the editorial policy that allows re-prints. Please upload this information as a .doc or .docx file to your Editorial Manager account. The Figure must be cited appropriately in the Figure Legend, i.e. “This figure has been modified from [citation].”

**Answer:** We have uploaded the copyright permission file and illustrated those cited figures in the figure legend.

4. Please submit the figures as a vector image file to ensure high resolution throughout production: (.svg, .eps, .ai). If submitting as a .tif or .psd, please ensure that the image is 1920 pixels x 1080 pixels or 300dpi.

**Answer:** The figures we uploaded have met the requirement.

5. Please keep the font consistent in all figures, if possible.

**Answer:** We have made the modification as required.

6. Figure 2/4A: Please provide a scale bar to provide context for the images.

**Answer:** We have made the modification as required.

7. Figure 3: Please define error bars in the figure legend.

**Answer:** We have made the modification as required.

8. Please include a space between all numbers and their corresponding units: 45 min, 450 mL, 100μm; etc.

**Answer:** We are sorry to make these mistakes. We have fixed them in our revised manuscript.

9. Please provide an email address for each author.

**Answer:** We have changed the email address of some authors.

10. Summary: Please rephrase the Summary to clearly describe the protocol and its applications in complete sentences between 10-50 words: “Here, we present a protocol to …” Currently it reads a bit awkward.

**Answer:** Thanks for the suggestion. We have fixed this in our revised manuscript.

11. Please remove all commercial language from your manuscript and use generic terms instead. All commercial products should be sufficiently referenced in the Table of Materials and Reagents.  
For example: Prolene 5-0, Prolene 4-0, LightLab, etc.

**Answer:** We have fixed this in our revised manuscript and added the supplemented information to the table.

12. Please add more details to your protocol steps. Please ensure you answer the “how” question, i.e., how is the step performed? Alternatively, add references to published material specifying how to perform the protocol action.

**Answer:** We have revised the section of protocol in the manuscript and hope to meet the requirement.

13. Line 82: Please describe how silicone tubing is sterilized.

**Answer:** We have explained how to sterilize the silicone tubing in the paper.

14. Lines 86-87: What is used to hold the scaffolds in this step? Please use molar concentration for 1 N NaOH.

**Answer:** We have fixed this in the revised manuscript.

15. Line 89: Please specify the size and type of the glass bioreactor. Also provide more details about the silicone tube and connector (type and size, etc.) used. Should not the PGA scaffolds already include the silicone tube? How large is the tank?

**Answer:** It has been supplemented the size and type of the glass bioreactor and the size of silicone tube in the manuscript as recommended. Other tubes and connectors have different sizes according to different parts just to assemble the system. The ethanol tank is enough to hold the above supplies without limitation of size.

16. Line 91: Please refer to Figure 1 to guide the readers.

**Answer:** We have fixed this in the revised manuscript.

17. Line 94: Please specify the location of bioreactor lips and length of ePTFE.

**Answer:** We have fixed this in the revised manuscript.

18. Line 95: Do you mean soak the bioreactor in the ethanol tank?

**Answer:** Yes.

19. Line 98: Please describe how and where the vascular smooth muscle cells are obtained. What is the container? What is the composition of the culture medium? How is the seeding process done?

**Answer:** We have fixed this in the revised manuscript.

20. Line 100: Please specify the length and diameter of the feeding tube and the three short tubing segments for gas exchange.

**Answer:** The length and diameter of the feeding tube is 15cm and 5mm. The three short tubing segments for gas exchange have the length of 7cm and diameter of 5mm.

21. Line 102: What is the length of the stir bar?

**Answer:** The length of the stir bar is 1.5cm. We have fixed this in the revised manuscript.

22. Lines 106-107: What is the composition of culture medium? What is the moisture in the incubator? Molecular formulas should include subscripts: e.g., CO2.

**Answer:** We have fixed this in the revised manuscript.

23. Line 113: What is a Luo-Ye pump? Is a certain flow rate recommended?

**Answer:** Luo-Ye pump is a pulsatile pump to provide a stable fluid flow simulating the biomechanical microenvironment. In this paper , the flow rate is 154 mL/min and it can be adjusted according to the experimental requirements.

24. Line 116: Please define bpm, beats per minute?

**Answer:** We have fixed this in the revised manuscript.

25. Line 125: Please add more details to how the pullback device is adjusted to ensure good image quality.

**Answer:** We have fixed this in the revised manuscript.

26. Lines 143-147: Please add more details to how these are done. For instance, how are the TEBVs collected? How the PGA content is assessed? Alternatively, add references to published material specifying how to perform the protocol action.

**Answer:** We took the TEBVs out of the bioreactor and performed routine histological staining and scanning electron microscopy examination to figure out the characterization of microstructure and PGA degradation. References are made in the manuscript.

27. As we are a methods journal, please revise the Discussion to explicitly cover the following in detail in 3-6 paragraphs with citations:  
a) Critical steps within the protocol  
b) Any modifications and troubleshooting of the technique  
c) Any limitations of the technique  
d) The significance with respect to existing methods  
e) Any future applications of the technique

**Answer:** Thanks for the suggestion. We have revised this section in the manuscript.

28. Please ensure that the references appear as the following: [Lastname, F.I., LastName, F.I., LastName, F.I. Article Title. Source. Volume (Issue), FirstPage – LastPage (YEAR).] For more than 6 authors, list only the first author then et al.

**Answer:** We have fixed this section in the revised manuscript.

29. Please do not abbreviate journal titles and include volume and issue numbers for all references.

**Answer:** We are sorry to make this mistake. We have fixed this in the revised manuscript.

**Reviewers' comments:**  
  
**Reviewer #1:**   
Chen and colleagues described a protocol to image tissue-engineered blood vessels using optical coherence tomography (OCT). I think this work is useful for people studying tissue-engineered blood vessels and thus merits publication at JOVE. However, I suggest the authors enhance the reported protocol to address the following points.  
First, please change the numbering scheme. Right now, it is hard for me to differentiate the different levels of numbering.  
Second, it helps the readers to comprehend the protocol if the authors justify and explain the reasons to support each step of the protocol.  
Third, the protocol needs more details on the production and use of VSMC. It also needs more details on the OCT system instead of just mentioning the resolution.  
Fourth, it seems that only the vessel thickness was measured. If this true, it needs to be clarified throughout the article. As for now, it is unclear how "vascular remodeling" was characterized.

**Answer:** We are sorry to make it confusing and we fixed this in our revised manuscript. According to the Reviewer’s suggestion, we have added more details about VSMCs and the use of OCT imaging. Nondestructive monitoring of degradable scaffold-based tissue-engineered blood vessel development in real-time culture is not simple but important. The geometrical morphology of TEBVs is part of the engineering vascular remodeling and we hope to explore more information to more clearly understand this process.

**Reviewer #2:**  
Manuscript Summary:  
the paper describe a technique which should help in following the development of the tissue-engineered blood vessels. The technique looks promising.  
Major Concerns: No major concerns  
Minor Concerns: No minor concerns

**Answer:** Thanks for the comment.

**Reviewer #3:**  
Manuscript Summary:  
Why is this manuscript so similar to this paper, "In vitro remodeling and structural characterization of degradable polymer scaffold-based tissue-engineered vascular grafts using optical coherence tomography" by Wanwen Chen & Junqing Yang & Wenjun Liao & Jiahui Zhou & Jianyi Zheng & Yueheng Wu & Dongfeng Li & Zhanyi Lin previously published as Cell Tissue Res (2017) 370:417-426?  
This is very strange! Is this allowed by the journal?  
The two texts have a few differences in their respective author lists, and the text of the manuscript is in worse English, but the figures found in the manuscript to be reviewed are exactly the same as some of the figures in the above-mentioned paper (although with worse resolution). Ironically, this paper was cited in the text.  
Other critiques: The manuscript requires significant grammatical edits.

**Answer:** Thanks for the suggestions. We are so sorry to make this mistake. We have fixed this in our revised manuscript and hope to meet the requirements of the journal.

We have adjusted and uploaded documents according to the editorial office's recommendations. We greatly appreciate both your help and that of the reviewers’ concerning improvement to this paper. I hope that the revised manuscript is now suitable for publication. Should you have any questions, please contact us without hesitate.