



**DOTTORATO DI RICERCA IN  
BIOINGEGNERIA E BIOINFORMATICA**

**UNIVERSITA' DI PAVIA**

**IL COORDINATORE**

## **PhD THESIS EVALUATION FORM**

*Confidential to the PhD Final Evaluation Committee*

<b>Year**</b>	<b>2024</b>
<b>PhD Student</b>	<b>Elisa Paolini</b>
<b>Reviewer</b>	<b>Ilaria Armentano, Ph.D</b>
<b>Reviewer Affiliation</b>	<b>Department of Economics, Engineering, Society and Business Organization (DEIM), University of Tuscia, Largo dell'Università snc, Viterbo 01100, Italy</b>
<b>Date of the review</b>	<b>5 December 2024</b>

<b>Title of the PhD thesis*</b>	<b>Advanced Medical Devices for Peripheral Nerve and Bone Regeneration Using Resorbable Bioscaffolds</b>
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**Overall Assessment. Please suggest a possible outcome of the evaluation among the choices:**

- ☐ PhD thesis not ready to be defended;
- ☒ PhD awardable;
- ☐ PhD awardable *cum laude* (top 10%)

*Evaluation Table 1 of 2 (Please tick as appropriate: 4 – Excellent, 3 – Very Good, 2 – Good, 1 – Fair, 0 – Poor, Not App: Not Applicable). Please add a short comment if the evaluation is Fair or Poor*

Scientific soundness and significance	4	3	2	2	0	Not App	Comment
Wide relevance/interest of the research theme	X						
Objectives well defined and scientifically supported		X					
Adequacy of the methodological approach		X					
Quality of the experimental setup		X					
Novelty of the approach		X					
Contribution to knowledge in the field		X					
Quality of the results		X					
Discussion and conclusions valid and properly supported		X					

*Evaluation Table 2 of 2 (Please tick as appropriate: 4 – Excellent, 3 – Very Good, 2 – Good, 1 – Fair, 0 – Poor, Not App: Not Applicable). Please add a short comment if the evaluation is Fair or Poor*

Written Document	4	3	2	1	0	Not App	Comment
Quality of the Abstract (is it exhaustive?)	X						
Document organization. Suitable balance of the component parts of the thesis		X					
Adequacy of the references		X					
Clarity		X					
Communication effectiveness		X					
Properly supported discussion and conclusions		X					

## Comments/Notes

Please add here any further comments/notes that might be useful to the PhD Candidate for improving the final version of the thesis.

PLEASE NOTE THAT THE FOLLOWING SECTION WILL BE FORWARDED TO THE PhD CANDIDATE

Use additional pages if needed

The PhD Thesis analyzes an important aspect in biomedical science: medical devices for peripheral nerve and bone tissue regeneration, utilizing dental-derived stem cells. The Thesis presents an interdisciplinary approach, since it covers different topics from medical science, to chemistry, to physics and to biotechnology. My evaluative comments are very good. The Thesis has a significant scientific relevance, with interesting work and interesting results.

The state of the art, experimental work and the results are well analysed. Following you can find some comments and suggestion in order to improve the thesis and clarify some points.

-In section 1.4, I suggest to add a subsection on process techniques for the development of porous structures.

-In section 1.4.2, I suggest to add also PLLA as example of a synthetic biopolymer.

-Did you evaluate the material degradation after the sterilization procedure? Or in general the possible variation on the material properties induced after the sterilization. I suggest to mention this aspect.

-I suggest to introduce the material preparation for SEM analysis in the case of scaffolds alone and where the cells are seeded on the scaffolds.

Furthermore explain clearly which part of the sample was analyzed: the surface or the fracture surface, since the results are very different.

-I suggest to add the error in all measurements: graphs and Tables, where it is possible, and describe the statistical significance of the measurements.

-Fig. 4.36: write the errors with only one digit and the corresponding measurements accordingly. Please check this aspect in whole thesis

-English is adequate, even if I suggest to check all thesis in order to avoid mistakes.

