

Review of: "Hydroxyapatite coating techniques for Titanium Dental Implants — an overview"

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Potential competing interests: No potential competing interests to declare.

The review manuscript reports the state-of-the-art of coating techniques of Hydroxyapatite on titanium dental implants. The author provides a brief but informative overview of the latest trends for different classes of film properties and deposition processes to obtain reliable bioactive implant coatings. In addition to some comments and minor corrections, listed below, it is suggested to include Conclusions to summarize, evaluate, and rate the presented techniques in terms of their multifunctional coating performance.

1- P. 2: Modify the phrase: "The bonds they make with the bone are of a physico-chemical nature. The bone cells interact with the hydroxyapatite forming ionic, hydrogen and Vander walls bonds" to "The coatings interact with the bone by ionic, hydrogen and Vander walls bonds."

2- P. 2: Correct to: "Van der Waals"

3- P. 2: Ionic, hydrogen and Van der Waals bonds are not considered as strong bonds.

4- P. 2 phrase: "The clinical concern with its use regarding bonding strength between..." It would be interesting including numerical strength values.

5- P. 2: Change "actively" to: intensively, and "ingredients" to: active substances.

6- P. 3: Define "BMP-2" and correct the phrase: "...to enhance the relationship between an implant and the bone to which it is attached.

7- P. 3: Correct: "...dispersion of the precursor particles (fine nano-sized particles)..." to: dispersion of the nano-sized particles or metal alkoxides precursors...

8- P.3: Correct "The speed..." to: The withdraw speed (rate)...

9- P. 4: Define: "PS-fabricated"

10- P. 4: Replace "tear strength" by: adhesion strength

11- P. 5: Substitute "degree centigrade" by: °C

12- P. 6: Modify: "Sputtering (bombardment of the solid surface by energetic ions and ejection of neutral atoms for

example ion beam deposition and magnetron sputtering). The latter is more useful for hydroxyapatite deposition.” to: In sputtering, the film forming neutral atoms are ejected by bombarding a solid target with high-energy ions. Examples are ion beam deposition and magnetron sputtering. The latter is more useful for hydroxyapatite deposition.

13- P. 7: This statement is not clear: “...sputtering techniques are the ones found to be more convenient than others...”

14- P. 7: In the description of the PVD method important aspects, such as the target composition and film crystallinity are missing.

15- P. 7: Change “In this a laser having a high-power density and narrow frequency bandwidth is used as a source...” to: For this a laser is used as a source having a high-power density and narrow frequency bandwidth...

16- P. 7: These phrases are not clear: “This technique can be considered when other techniques have failed to make the deposition and has been used to synthesize the nanotubes, nanopowders.” and “These HA coated metal implants are expected to be superior in function”.

17- P. 9: Please reconsider: “...reactions of precursors occur both in the gas phase and on the substrate which results in better adhesion to the surface.”, as CVD provides weak adhesion to the metallic surfaces.

18- P. 9: Conclusions are missing, please include. it is suggested to include Conclusions to summarize, evaluate, and rate the presented techniques in terms of their multifunctional coating performance.