

Accepted Manuscript

Study of bioactivity on a TiNbSn alloy surface

N. Masahashi, Y. Mori, H. Tanaka, A. Kogure, H. Inoue, K. Ohmura, Y. Kodama, M. Nishijima, E. Itoi, S. Hanada



PII: S0040-6090(17)30603-X
DOI: doi: [10.1016/j.tsf.2017.08.023](https://doi.org/10.1016/j.tsf.2017.08.023)
Reference: TSF 36165
To appear in: *Thin Solid Films*
Received date: 1 November 2016
Revised date: 10 August 2017
Accepted date: 11 August 2017

Please cite this article as: N. Masahashi, Y. Mori, H. Tanaka, A. Kogure, H. Inoue, K. Ohmura, Y. Kodama, M. Nishijima, E. Itoi, S. Hanada , Study of bioactivity on a TiNbSn alloy surface, *Thin Solid Films* (2017), doi: [10.1016/j.tsf.2017.08.023](https://doi.org/10.1016/j.tsf.2017.08.023)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Study of bioactivity on a TiNbSn alloy surface

N. Masahashi ^a, Y. Mori ^b, H. Tanaka ^b, A. Kogure ^b, H. Inoue ^c, K. Ohmura ^a, Y. Kodama ^a, M. Nishijima ^a, E. Itoi ^b and S. Hanada ^a

^a Institute for Materials Research, Tohoku University, 2-1-1 Katahira, Aoba, Sendai, Miyagi, 980-8577, Japan

^b Department of Orthopaedic Surgery, Tohoku University Graduate School of Medicine, 1-1 Seiryō-machi, Aoba, Sendai, Miyagi, 980-8574, Japan

^c Department of Materials Science, Graduate School of Engineering, Osaka Prefecture University, Sakai, Osaka 599-8531, Japan

N. Masahashi (Corresponding author)

Tel. +81-22-215-2117, Fax. +81-22-215-2117, E-mail. masahasi@imr.tohoku.ac.jp

Abstract

The microstructure and surface chemistry of titanium dioxide on TiNbSn alloy, prepared by anodic oxidation in acetic acid electrolytes and subsequent hot water (HW) treatment, have been studied to determine the effect of HW treatment on bioactivity. HW treatment promotes TiO₂ formation and photo-induced properties were observed on the anodic oxide. Cross-section energy dispersive spectroscopy analysis of the implanted anodic TiNbSn treated with HW revealed the penetration of the constituent elements of bone, Ca and P, into TiO₂, which was attributed to the high bonding

Download English Version:

<https://daneshyari.com/en/article/5465799>

Download Persian Version:

<https://daneshyari.com/article/5465799>

[Daneshyari.com](https://daneshyari.com)