

## 2011 —NAKANO Takayoshi

### Scientific Papers/Commentary Articles

1. T. Ishimoto, T. Nakano, M. Yamamoto and Y. Tabata, Biomechanical Evaluation of Regenerated Long Bone by Nanoindentation, *Journal of Materials Science: in Medicine*, 22 [4], p.969-976. 2011
2. U.D. Kulkarni, S. Hata, T. Nakano, M. Mitsuhashi, K. Ikeda and H. Nakashima, Monte Carlo Simulation of Antiphase Boundaries and Growth of Antiphase Domains in Al<sub>5</sub>Ti<sub>3</sub> Phase in Al-rich  $\gamma$ -TiAl Intermetallics, *Philosophical Magazine*, 91 [22], pp.3068-3078. 2011
3. K. Hagihara, Y. Sugino, Y. Fukusumi, Y. Umakoshi and T. Nakano, Plastic Deformation Behavior of Mg<sub>12</sub>ZnY LPSO-Phase with 14H-Typed Structure, *Materials Transactions*, 52 [6], pp.1096-1103. 2011
4. Y. Yoshiwara, M. Clanche, K. S. Basaruddin, N. Takano and T. Nakano, Numerical Study on the Morphology and Mechanical Role of Healthy and Osteoporotic Vertebral Trabecular Bone, *Journal of Biomechanical Science and Engineering*, 6 [4], pp.270-285. 2011
5. X. Zhao, M. Niinomi, M. Nakai, T. Ishimoto and T. Nakano, Development of high Zr-containing Ti-based alloys with low Young's modulus for use in removable implants, *Materials Science and Engineering C*, 31 [7], pp.1436-1444. 2011
6. T. Jr. Matsumoto, S.-H. An, T. Ishimoto, T. Nakano, T. Matsumoto and S. Imazato, Zirconia-hydroxyapatite composite material with micro porous structure, *Dental Materials*, 27 [11], pp.e205-e212. 2011
7. S.-H. Lee, K. Hagihara and T. Nakano, Microstructural and orientation dependence of the plastic deformation behavior in  $\beta$ -type Ti-15Mo-5Zr-3Al alloy single crystals, *Metallurgical and Materials Transactions A*, DOI : 10.1007/s11661-011-0986-3. 2011
8. M. Tane, T. Nakano, S. Kuramoto, M. Hara, M. Niinomi, N. Takesue, T. Yano and H. Nakajima, Low Young's Modulus in Ti-Nb-Ta-Zr Alloys: Cold Working and Oxygen Effects, *Acta Materialia*, 59 [18], pp.6975-6988. 2011
9. T. Morioka, S. Matsunaga, M. Yoshinari, Y. Ide, T. Nakano, H. Sekine and Y. Yajima, Alignment of Biological Apatite Crystallites at First Molar in Human Mandible Cortical Bone, *CRANIO: The Journal of Craniomandibular Practice*, 30 [1], pp.32-40. 2012
10. T. Nakano, K. Sasaki, K. Hagihara, T. Ishimoto, Y. Fujii and A. Serizawa, Single Crystal Growth and its Microstructure in Co-Cr-Mo alloys for Biomedical Applications, *Materials Science Forum*, Vols.706-709, pp.561-565. 2012
11. T. Ishimoto, K. Kawata, T. Sakai, H. Yoshikawa and T. Nakano, Regeneration of Bone Mass and Bone Quality around Implant with Grooves for Aligning Bone Cells in Rabbit Hindlimb Bones,

- Materials Science Forum, Vols.706-709, pp.510-513. 2012
12. A. Matsugaki, G. Aramoto, T. Ishimoto and T. Nakano, Control of Osteoblastic Cell Behavior by Surface Topography Introduced by Plastic Deformation of Ti Single Crystal with h.c.p. Structure, Materials Science Forum, Vols.706-709, pp.549-552. 2012
  13. N. Ikeo, T. Ishimoto, H. Fukuda and T. Nakano, Fabrication and Characterization of Porous Implant Products with Aligned Pores by EBM method for Biomedical Application, Advanced Materials Research, 409, pp.142-145. 2012
  14. H. Fukuda, H. Takahashi, K. Kuramoto and T. Nakano, Effect of Energy Density of Incident Beam on Mechanical Property of Titanium Alloy Products Fabricated by Electron Beam Melting (EBM) Method, Materials Science Forum, Vols.706-709, pp.488-491. 2012
  15. W. Fujitani, J.-W. Lee and T. Nakano, Evaluation of Bone Quality in Mandible of Young M-CSF Deficient-Induced Osteopetrotic Mouse, Materials Science Forum, Vols.706-709, pp.484-487. 2012
  16. Y. Noyama, T. Miura, T. Ishimoto, T. Itaya, M. Niinomi, and T. Nakano, Bone loss and reduced bone quality of the human femur after total hip arthroplasty under stress-shielding effects by titanium-based implant, Materials Transactions, 53 [3], pp.565-570. 2012
  17. N. Mizuta, K. Hattori, Y. Suzawa, S. Iwai, T. Nakano, M. Akashi, H. Ohgushi and Y. Yura, Mesenchymal stromal cells improve the osteogenic capabilities of mineralized agarose gels in a rat full-thickness cranial defect model, Journal of Tissue Engineering and Regenerative Medicine, in press. 2012
  18. K. Hayashi, K. Miyata, F. Katsuki, T. Ishimoto and T. Nakano, Individual mechanical properties of ferrite and martensite in Fe-0.16 mass% C-1.0mass% Si-1.5 mass% Mn steel, Journal of Alloys and Compounds, in press. 2012
  19. H. Furuya, S. Matsunaga, Y. Tamatsu, T. Nakano, M. Yoshinari, S. Abe and Y. Ide, Analysis of biological apatite crystal orientation in the anterior cortical bone of the human mandible using microbeam X-ray diffractometry, Materials Transactions, in press. 2012
  20. X. Zhao, M. Niinomi, M. Nakai, J. Hieda, T. Ishimoto and T. Nakano, Optimization of Cr content of metastable  $\beta$ -type Ti-Cr alloys with changeable Young's modulus for spinal fixation applications, Acta Biomaterialia, DOI:10.1016/j.actbio.2012.02.010. 2012

#### **International Conference Proceedings**

1. M. Todai, P. Wang, K. Hagihara and T. Nakano, Anomalous fatigue behavior in Ti-Nb single crystals, Proceedings of ECO-MATES 2011, pp. 53-54. 2011
2. N. Ikeo, T. Ishimoto and T. Nakano, Fabrication of three dimensional Ti-6Al-4V structures by EBM method, Proceedings of ECO-MATES 2011, pp. 251-252. 2011

3. J. Wang, T. Ishimoto, T. Nakano, C. Fukuda and S. Mochizuki, Comparative change in bone density and preferred orientation of biological apatite in unloaded rat femur by sciatic-neurectomy, Proceedings of ECO-MATES 2011, pp.253-254. 2011
4. T. Nakano, S. Hata, K. Hayashi and Y. Umakoshi, Some long-period superstructures and the related motion of dislocations in Al-rich TiAl single crystals, Proceedings of TMS 2012 Annual Meeting & Exhibition, pp.797-804, 2012

### **Publications**

1. T. Nakano and T. Ishimoto (共著), “Interface Oral Health Science 2011”, Design of biomaterials for bone replacement based on parameters determining bone quality, Springer, 2011, pp.55-65.
2. T. Nakano, T. Ishimoto, N. Ikee and A. Matsugaki, Advanced Analysis and Control of Bone Microstructure Based on a Materials Scientific Study Including Microbeam X-Ray Diffraction, Progress in Advanced Structural and Functional Materials Design, Springer, 2012, in press

### **Invited/Plenary Presentations**

1. T. Nakano, The 11th International Symposium on Biomaterials, 2012/5/30, Daegu (Korea), Invited
2. T. Nakano, THERMEC' 2011, 2011/8/1~5, Quebec (Canada), Invited
3. T. Nakano, 2012 TMS Annual Meeting & Exhibition, 2012/3/11~15, Orland (U.S.A.), Invited

### **Awards**

1. N. Ikee, ECO-MATES 2011 PROMOTION AWARD, 2011/11/30