

Professor Fumio WATARI

Affiliation: Graduate School of Dental Medicine, Hokkaido University

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Title: Professor



Brief Profile:

- 1971 Faculty of Engineering, Tokyo University, Bachelor of Engineering (Metallurgy)
- 1976 Graduate School of Engineering, Tokyo University, Doctor of Engineering (Materials Science)
- 1976 Research Stagiair, Belgian Atomic Institute and Antwerp University (RUCA)
- 1978 Postdoctor, Faculty of Physics, Arizona State University (USA)
- 1982 Research associate, Institute of Scientific Instruments, Tohoku University
- 1984 Research associate, School of Dentistry, Tokyo Medical and Dental University
- 1993 Professor, Graduate School of Dental Medicine, Hokkaido University
- 2013 March 31 to retire

Research interests: Nano Biomaterials

- (1) Biomedical Application of Carbon Nanotubes and their Derivatives
- (2) Nanotoxicology and Biomedical Application of Nano/Micro Particles
- (3) Development of Functional Biomaterials: Functionally Graded Implant, Esthetic Orthodontic Wire
- (4) Bioimaging by Various Microscopies using AFM, XSAM, CLSM, EPMA.

Research achievements:

- 1) T. Akasaka, A. Yokoyama, M. Matsuoka, T. Hashimoto, **F. Watari**, Maintenance of hemispherical colonies and undifferentiated state of mouse induced pluripotent stem cells on carbon nanotube-coated dishes, *Carbon*, 49, 2287-2299 (2011).
- 2) M.Uo, K.Asakura, K.Watanab, **F.Watari**: XAFS Analysis of the bronchoalveolar lavage fluid of a tungsten carbide pneumoconiosis patient, *Chemistry Letters*, 39, 852-853, 2010.
- 3) Y.Kuboki, T.Koshikawa, H.Takita, R.Fujisawa, MH.Lee, S.Abe, T.Akasaka, M.Uo, **F.Watari**, R.Sammons: Carbon nanotubes chromatography separated albumin from other serum proteins: a method for direct analysis of their interactions, *Dent.Mat.J.* 29, 369-373, 2010
- 4) T.Akasaka, A.Yokoyama, M.Matsuoka, T.Hashimoto, **F.Watari**, Thin films of single-walled carbon nanotubes promote human osteoblastic cells (Saos-2) proliferation in low serum concentration, *Mat.Sci.Eng. C*, 30(3), pp. 391-399, 2010.
- 5) T.Akasaka, M.Matsuoka, T.Hashimoto, S.Abe, M.Uo, **F.Watari**, The bactericidal effect of carbon nanotubes/agar composites irradiated with near-infrared light on *Streptococcus mutans*, *Mat.Sci.Eng. B* 173, 187-190, 2010
- 6) **F.Watari**, N.Takashi, A.Yokoyama, M.Uo, T.Akasaka, Y.Sato, S.Abe, Y.Totsuka, K.Tohji: Material nanosizing effect on living organism: non-specific, biointeractive, physical size effect, *J.Roy.Soc.Interface* 6, S371-388, 2009
- 7) **F.Watari**: Biointeractive and Bioreactive Nature of Nanomaterials, *Nano Biomedicine* 1(1), p.2-8, 2009
- 8) Akasaka, **F.Watari**, Capture of bacteria by flexible carbon nanotubes, *Acta Biomaterialia* 5, 607-612, 2009
- 9) **F.Watari**, K.Tamura, A.Yokoyama, K.Shibata, T.Akasaka, B.Fugetsu, K.Asaoka, M.Uo, Y.Totsuka, K.Tohji: Biochemical and Pathological Responses of Cells and Tissue to Micro- and Nanoparticles from Titanium and other Materials, *Handbook of Biomaterialization*, Ed. M.Epple and E.Bauerlein, WILEY-VCH, Weinheim, 127-144, 2007
- 10) **F.Watari**: In situ quantitative analysis of etching process of human teeth by atomic force microscopy, *J.Electr.Microsc.*54(3): 299-308, 2005
- 11) A.Yokoyama, Y. Sato, Y. Nodasaka, S.Yamamoto, T.Kawasaki, M. Shindoh, T.Kohgo, T.Akasaka, M.Uo, **F.Watari**, K.Tohji: Biological Behavior of Hat-stacked Carbon Nanofibers in the Subcutaneous Tissue in Rats, *Nano Letters* 5(1),157-161, 2005

Organizer of International Symposium:

- 1) 5th Asian Bioceramics Symposium (ABC2005), Oct.1-5, 2005, Sapporo (Japan)
- 2) International Symposium on "Nanotoxicology Assessment and Biomedical, Environmental Application of Fine Particles and Nanotubes" (ISNT2008), June 16-17, 2008, Sapporo (Japan).
- 3) SIB2011(3rd Int.Symp.Surface and Interface of Biomaterials 2011), July 12-15, 2011, Sapporo (Japan)
- 4) WBC2012 (World Biomaterials Congress), June 1-5, 2012, Chengdu(China) / Symposium
 - 26.3. Nanomaterials biointeractive nature with virus, bacteria, cells and tissue : Organizer
 - 28.1. New approaches to dental material : Chair

Awards:

- 1) President of Nano Biomedical Society
<http://www.nanobio.jp/index-e.html>
- 2) Editor in Chief of the journal "Nano Biomedicine"
<http://www.jstage.jst.go.jp/browse/nano/-char/ja/>